



## India Meteorological Department

(Ministry of Earth Sciences)

**BULLETIN NO. : 01(ARB/04/2020)**

**TIME OF ISSUE: 0230 HOURS IST**

**DATED: 22.11.2020**

**FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)**

**TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)**

**CONTROL ROOM NDMA (FAX.NO. 26701729)**

**CABINET SECRETARIAT (FAX.NO.23012284, 23018638)**

**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**

**SECRETARY, MOES, (FAX NO. 24629777)**

**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**

**DIRECTOR GENERAL, DOORDARSHAN (23385843)**

**DIRECTOR GENERAL, AIR (23421105, 23421219)**

**PIB MOES (FAX NO. 23389042)**

**UNI (FAX NO. 23355841)**

**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)**

**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)**

**CHIEF SECRETARY, GOVT. OF MAHARASHTRA (FAX NO. 022 22028594)**

**CHIEF SECRETARY, GUJARAT (FAX NO.079-23250305)**

**CHIEF SECRETARY, DAMAN, DIU, NAGAR HAVELI (FAX NO.0260-2642702)**

**CHIEF SECRETARY, GOA (FAX NO. 0832-2415201)**

**CHIEF SECRETARY, KARNATAKA (FAX NO. 080-22256360)**

**CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)**

**CHIEF SECRETARY, LAKSHADWEEP ISLANDS (FAX NO. 04896-262184)**

**CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)**

**CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)**

**CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)**

**CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)**

**CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)**

**CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)**

**Sub: (1) Depression over southwest Arabian Sea**

**(2) Low Pressure area over southeast and adjoining southwest Bay of Bengal**

### **1. Depression over southwest Arabian Sea**

Latest satellite and Ship observations indicate that the well marked low pressure area over southwest Arabian Sea has concentrated into a Depression and lay centred at 2330 hrs IST of 21<sup>st</sup> November 2020 over southwest Arabian Sea near Lat. 11.2° N and Long.57.4°E, about 410 km east-southeast of Socotra (Yemen) and 730 km east of Alula (Somalia). It is very likely to move nearly west-northwestwards and intensify into a deep depression during next 24 hours.

As the system is very likely to move away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, Fishermen warning prevails over southwest Arabian Sea as specified below.

#### **(i) Wind warning**

Squally wind speed reaching 45-55 kmph gusting to 65 kmph likely to prevail over southwest & adjoining west-central Arabian Sea on 22<sup>nd</sup> & 23<sup>rd</sup> November.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

## (ii) Sea condition

Sea condition will be rough to very rough over southwest & adjoining west-central Arabian Sea on 22<sup>nd</sup> & 23<sup>rd</sup> November.

## (iii) Fishermen Warning

Fishermen are advised not to venture into southwest & adjoining west-central Arabian Sea on 22<sup>nd</sup> & 23<sup>rd</sup> November.

## 2. Low Pressure area over southeast & adjoining southwest Bay of Bengal

The low pressure area which formed over Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal persists and moved west-northwestwards over southwest Bay of Bengal. It is likely to concentrate into a depression over Southwest Bay of Bengal during next 48 hours and intensify further during subsequent 48 hours. It is very likely to move west-northwestwards towards Sri Lanka-south Tamil Nadu coast and reach near Tamil Nadu & Puducherry coast on 25th November, 2020.

### Warnings:

#### (i) Rainfall

Under its influence, the rainfall activity is likely to increase over extreme south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry & Kariakal and Kerala & Mahe during 24<sup>th</sup> to 26<sup>th</sup> November, and over south Coastal Andhra Pradesh and Rayalaseema during 25<sup>th</sup> to 27<sup>th</sup> November, 2020.

Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> to 26<sup>th</sup> and over south Coastal Andhra Pradesh on 26th November 2020.

Sub-Divisions	21 Nov 2020*	22 Nov 2020*	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*
Coastal Andhra Pradesh	DRY	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places
Tamilnadu, Puducherry & Karaikal	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at many places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places
South Interior Karnataka	DRY	DRY	DRY	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places
Rayalaseema	DRY	DRY	Rainfall at isolated places	Rainfall at a few places	Rainfall at many places with heavy rainfall at isolated places
Kerala & Mahe	DRY	DRY	Rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places
Lakshadweep	DRY	DRY	DRY	Rainfall at a few places	Rainfall at a few places

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

### **(ii) Wind warning**

Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph likely to prevail over Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November. It is likely to increase and wind speed of the order of 45-55 kmph gusting to 65 kmph likely over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu coast on 23<sup>rd</sup> and of the order of 55-65 kmph gusting to 75 kmph likely over the same area and also along & off South Andhra Pradesh coast and over Gulf of Mannar on 24<sup>th</sup> & 25<sup>th</sup>.

### **(iii) Sea condition**

Sea condition will be rough to very rough over Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu coast on 23<sup>rd</sup> and very rough to High over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu – south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> & 25<sup>th</sup>.

### **(iv) Fishermen Warning**

Fishermen are advised not to venture into Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu coast on 23<sup>rd</sup> and over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu – south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> & 25<sup>th</sup>.

Also those who are out at Sea are advised to return to the coast by today.

*The next bulletin will be issued at 0830hrs IST of 22<sup>nd</sup> November, 2020.*

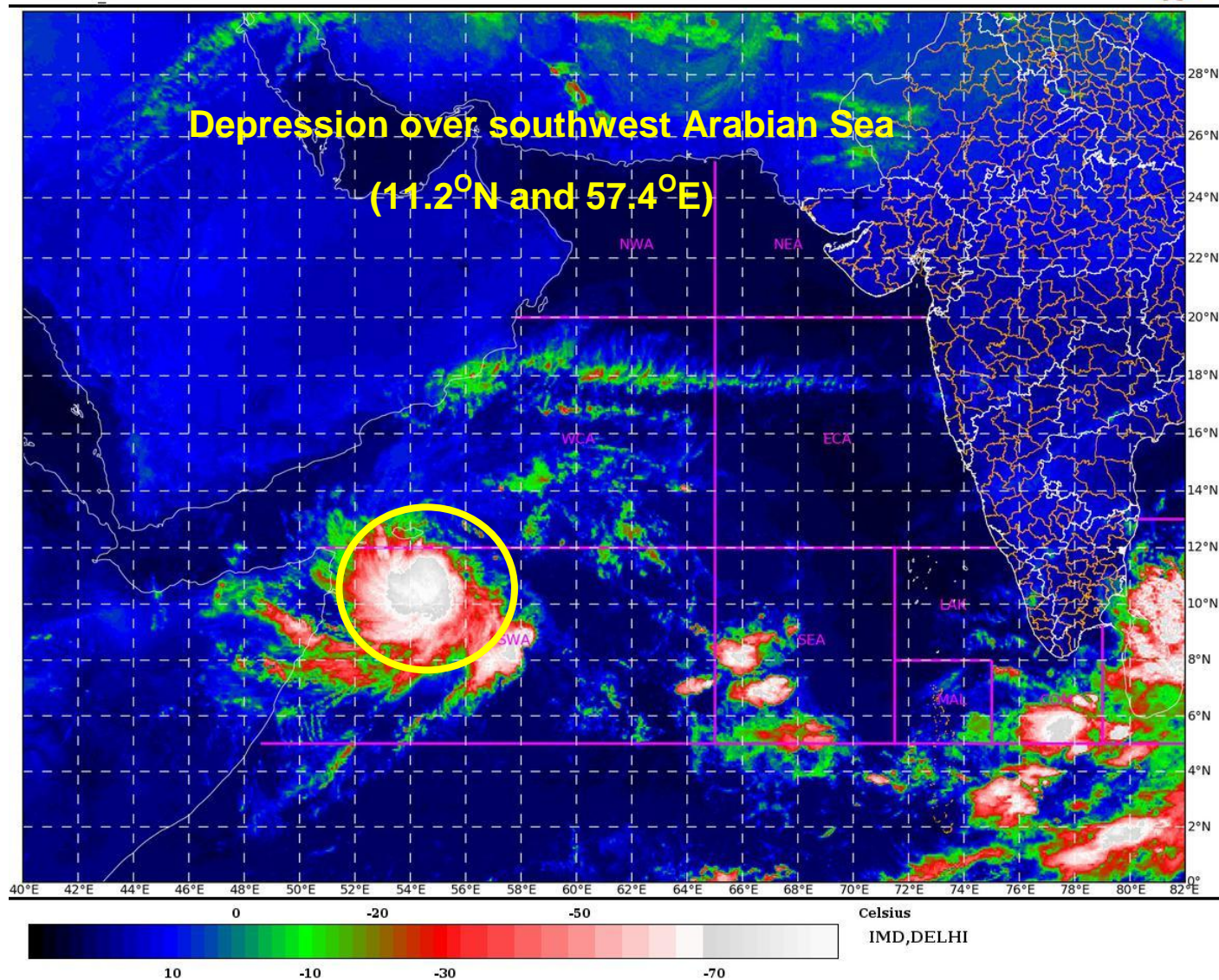
**(Ananda Kumar Das)**  
**Scientist-C, RSMC, New Delhi**

Copy to: ACWC    Kolkata/Chennai/CWC    Bhubaneswar/CWC    Visakhapatnam/CWC  
Thiruvananthapuram

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



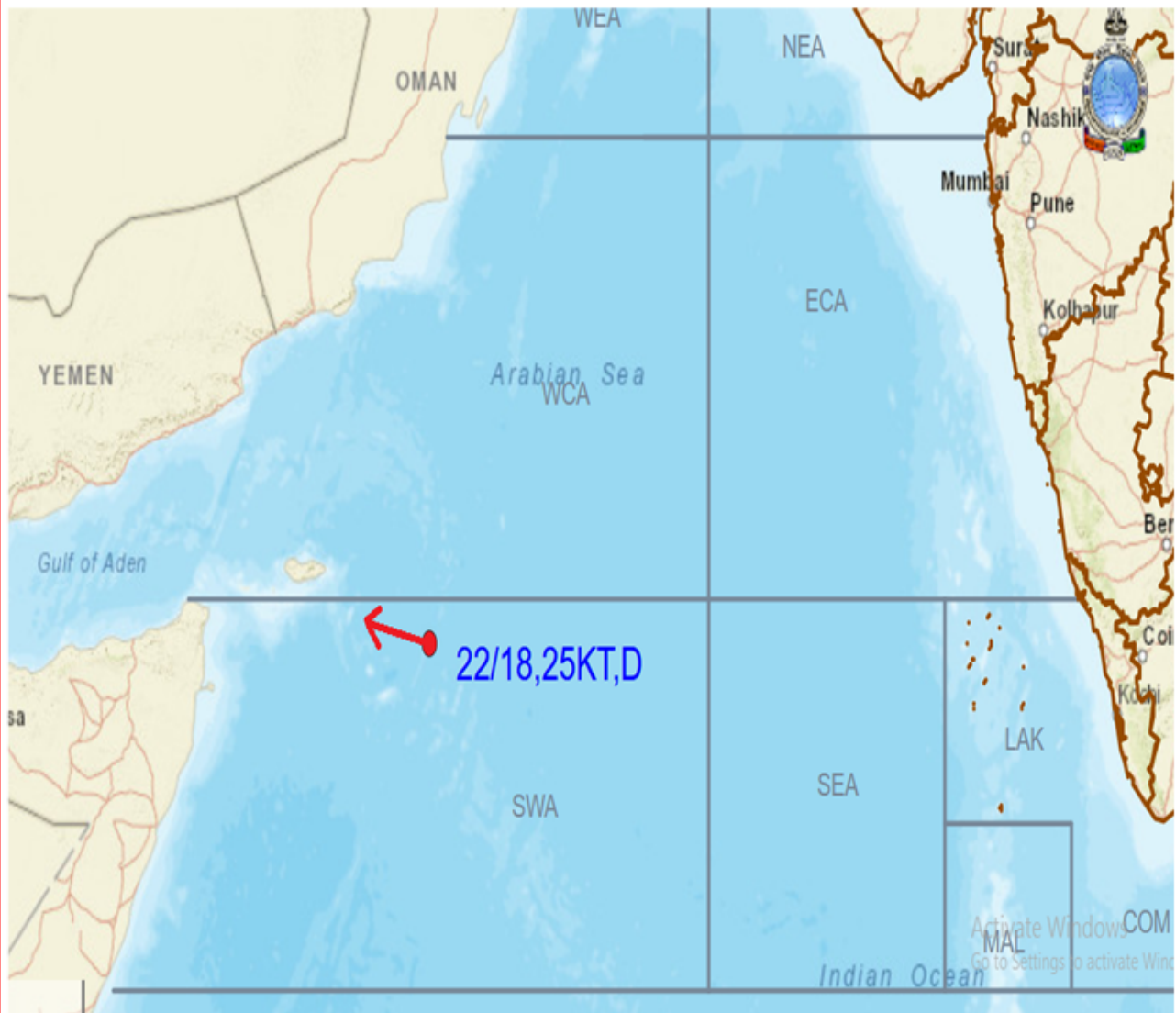


Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





## OBSERVED AND FORECAST TRACK OF DEPRESSION OVER SOUTHWEST ARABIAN SEA BASED ON 1800 UTC OF 21<sup>st</sup> Nov, 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM (≥20 KT)

- LESS THAN 34 KT
- 34-47 KT
- ≥ 48 KT
- OBSERVED TRACK
- FORECAST TRACK
- ▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



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(Ministry of Earth Sciences)**

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**FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)**

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**CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)**

**CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)**

**Sub: (1) Depression over southwest Arabian Sea**

**(2) Low Pressure area over southeast and adjoining southwest Bay of Bengal**

**1. Depression over southwest Arabian Sea**

The depression over southwest Arabian Sea moved westwards with a speed of 36 kmph during past 06 hours, intensified into a Deep Depression and lay centred at 0530 hrs IST of today 22<sup>nd</sup> November 2020 over southwest Arabian Sea near Latitude 11.1° N and Longitude 55.4°E, about 230 km southeast of Socotra (Yemen), 460 km east of Ras Binnah (Somalia) and 510 km east-southeast of Alula (Somalia). It is very likely to move west-southwestwards and intensify into a cyclonic storm during next 12 hours. It is very likely to cross Somalia coast between latitude 10.5° N and 11.0° N to the south of Ras Binnah (Somalia) during the early hours of 23<sup>rd</sup> November as a cyclonic storm with a wind speed of 80-90 kmph gusting to 100 kmph. Forecast track and intensity are given below:

<b>Date/Time(IST)</b>	<b>Position (Lat. °N/ long. °E)</b>	<b>Maximum sustained surface wind speed (Kmph)</b>	<b>Category of cyclonic disturbance</b>
22.11.20/0530	11.1/55.4	55-65 gusting to 75	Deep Depression
22.11.20/1130	11.0/53.8	70-80 gusting to 90	Cyclonic Storm
22.11.20/1730	10.9/52.2	80-90 gusting to 100	Cyclonic Storm
22.11.20/2330	10.8/50.6	80-90 gusting to 100	Cyclonic Storm
23.11.20/0530	10.9/49.0	70-80 gusting to 90	Cyclonic Storm

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

23.11.20/1730	11.1/45.8	50-60 gusting to 70	Deep Depression
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As the system is very likely to move away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, warnings for Ship and Fishermen prevails over southwest Arabian Sea as specified below.

#### (i) Wind warning

Squally wind speed reaching 45-55 kmph gusting to 65 kmph likely to prevail over southwest & adjoining west-central Arabian Sea on 22<sup>nd</sup> & 23<sup>rd</sup> November.

#### (ii) Sea condition

Sea condition will be rough to very rough over southwest & adjoining west-central Arabian Sea on 22<sup>nd</sup> & 23<sup>rd</sup> November.

#### (iii) Fishermen Warning

Fishermen are advised not to venture into southwest & adjoining west-central Arabian Sea on 22<sup>nd</sup> & 23<sup>rd</sup> November.

### 2. Low Pressure area over southeast & adjoining southwest Bay of Bengal

The low pressure area over Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal moved west-northwestwards and lay centered over southwest Bay of Bengal. It is likely to concentrate into a depression over Southwest Bay of Bengal during next 36 hours and intensify further during subsequent 48 hours. It is very likely to move west-northwestwards towards Sri Lanka-south Tamil Nadu coast and reach near Tamil Nadu & Puducherry coast on 25th November morning.

#### Warnings:

##### (i) Rainfall

Under its influence, the rainfall activity is likely to increase over extreme south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry & Kariakal and Kerala & Mahe during 24<sup>th</sup> to 26<sup>th</sup> November, and over south Coastal Andhra Pradesh and Rayalaseema during 25<sup>th</sup> to 27<sup>th</sup> November, 2020.

Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> to 26<sup>th</sup> and over south Coastal Andhra Pradesh on 26th November 2020.

Sub-Divisions	21 Nov 2020*	22 Nov 2020*	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*
Coastal Andhra Pradesh	DRY	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places
Tamilnadu, Puducherry & Karaikal	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at many places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places
South Interior Karnataka	DRY	DRY	DRY	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

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<b>Rayalaseema</b>	DRY	DRY	Rainfall at isolated places	Rainfall at a few places	Rainfall at many places with heavy rainfall at isolated places
<b>Kerala &amp; Mahe</b>	DRY	DRY	Rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places
<b>Lakshadweep</b>	DRY	DRY	DRY	Rainfall at a few places	Rainfall at a few places

### **(ii) Wind warning**

Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph likely to prevail over Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November. It is likely to increase and wind speed of the order of 45-55 kmph gusting to 65 kmph likely over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu coast on 23<sup>rd</sup> and of the order of 55-65 kmph gusting to 75 kmph likely over the same area and also along & off South Andhra Pradesh coast and over Gulf of Mannar on 24<sup>th</sup> & 25<sup>th</sup>.

### **(iii) Sea condition**

Sea condition will be rough to very rough over Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu coast on 23<sup>rd</sup> and very rough to High over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu – south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> & 25<sup>th</sup>.

### **(iv) Fishermen Warning**

Fishermen are advised not to venture into Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu coast on 23<sup>rd</sup> and over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu – south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> & 25<sup>th</sup>.

Also those who are out at Sea are advised to return to the coast by today.

*The next bulletin will be issued at 1130hrs IST of 22<sup>nd</sup> November, 2020.*

**(Ananda Kumar Das)**  
Scientist-E, RSMC, New Delhi

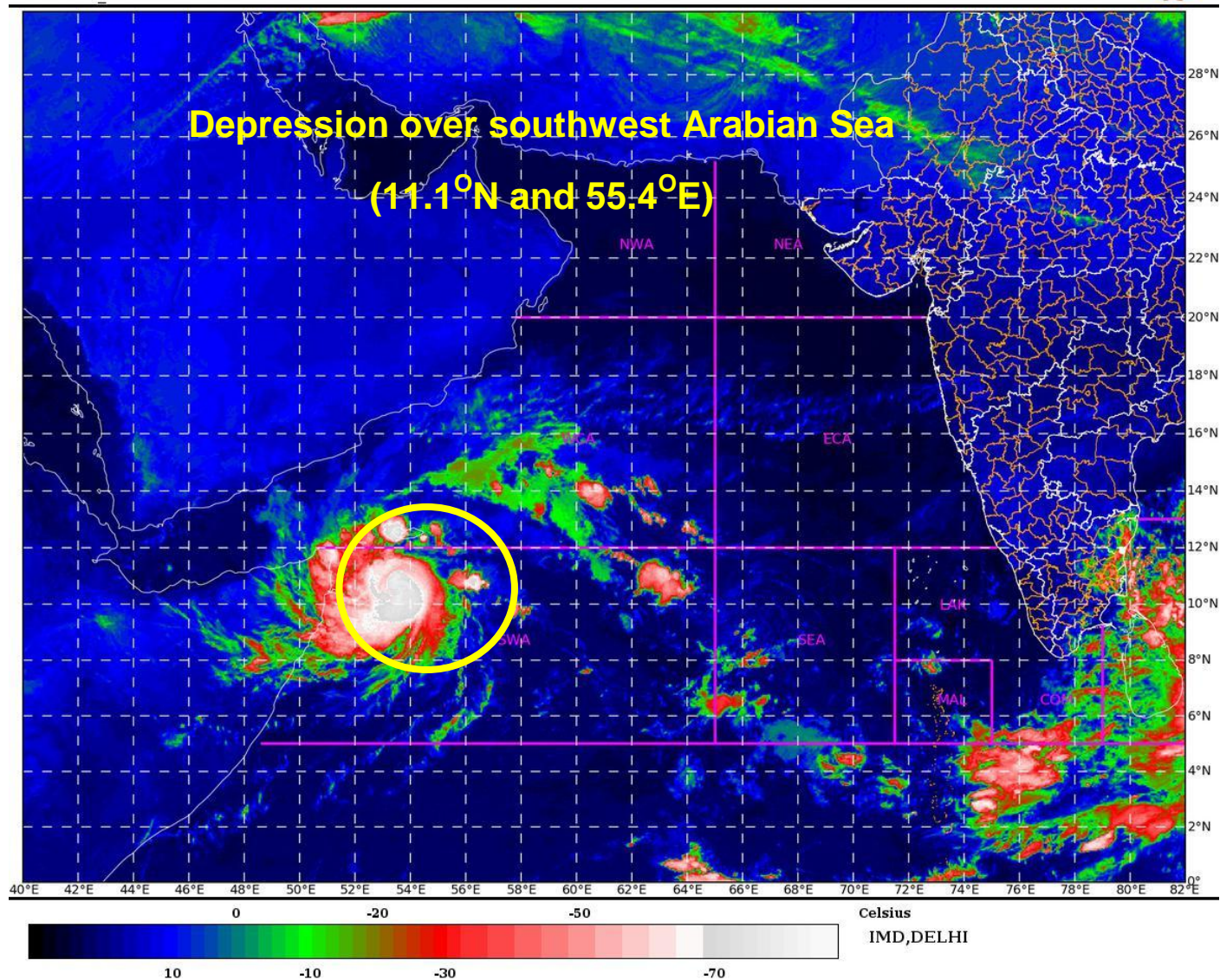
Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC  
Thiruvananthapuram

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

SAT : INSAT-3DR IMG  
IMG\_TIR1\_TEMP 10.8 um  
ARABIAN\_SEA

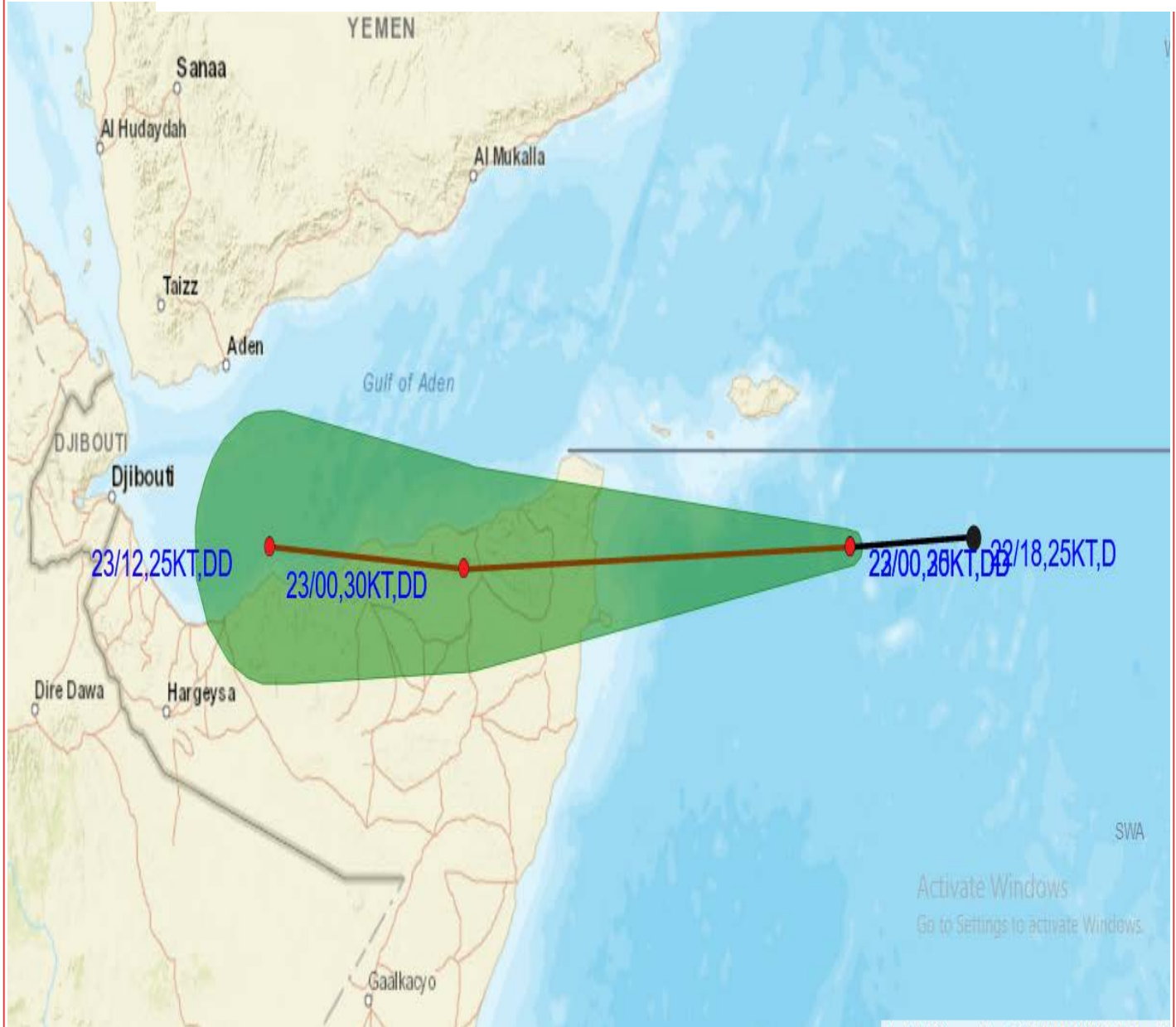
22-11-2020/(0145 to 0212) GMT  
22-11-2020/(0715 to 0742) IST



Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**OBSERVED AND FORECAST TRACK OF DEPRESSION OVER ANDAMAN SEA BASED ON  
OBSERVED AND FORECAST TRACK ALONGWITH CONE OF  
UNCERTAINTY OF DEEP DEPRESSION OVER SOUTHWEST ARABIAN  
SEA BASED ON 0000UTC OF 22<sup>nd</sup> Nov, 2020**



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT  
● 34-47 KT  
●  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

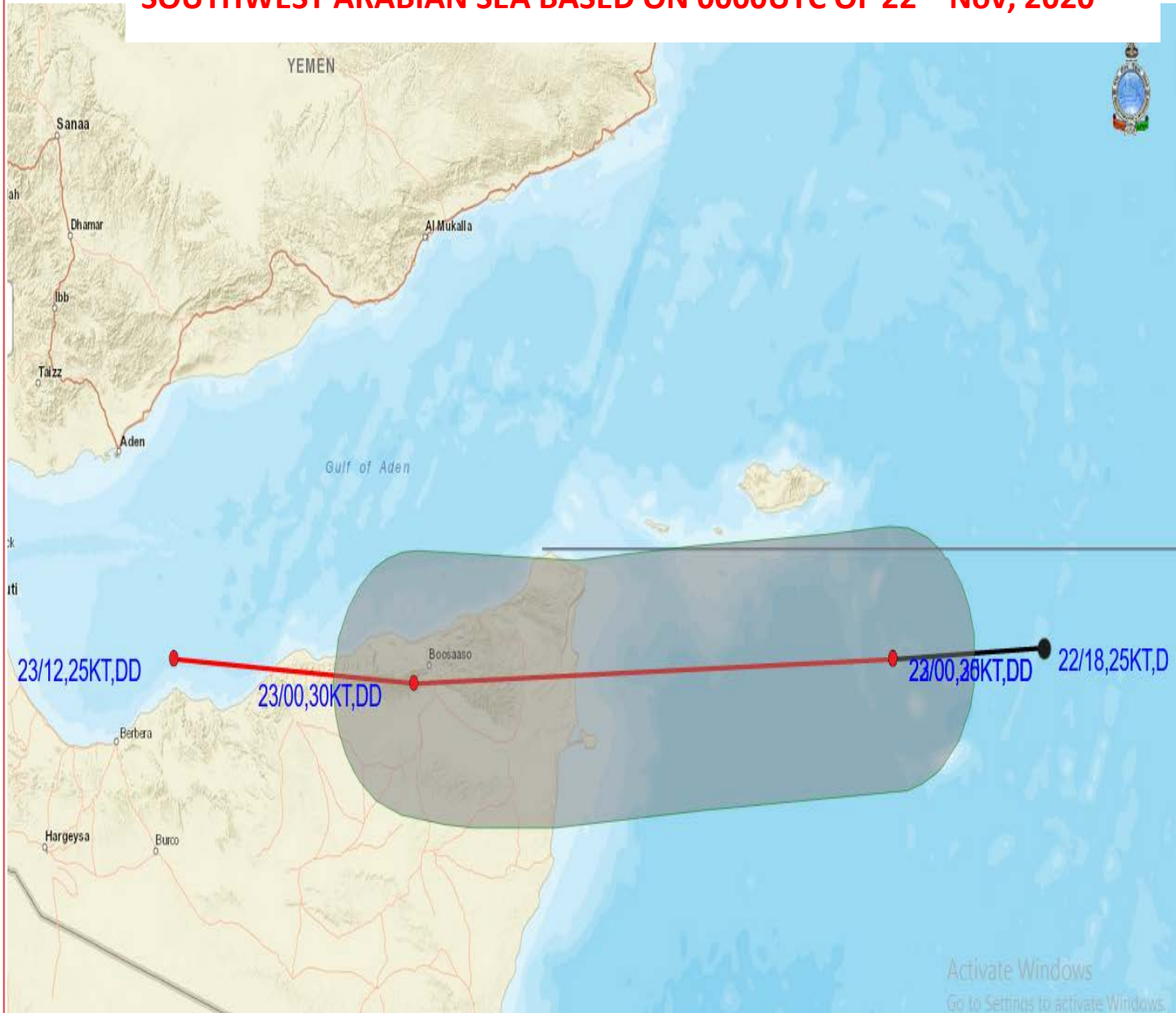
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





**OBSERVED AND FORECAST TRACK OF DEPRESSION OVER ANDAMAN SEA BASED ON 0000 UTC OF 22<sup>nd</sup> OCTOBER 2020**

**OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF DEEP DEPRESSION OVER SOUTHWEST ARABIAN SEA BASED ON 0000UTC OF 22<sup>nd</sup> Nov, 2020**



**DATE/TIME IN UTC**

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥20 KT)

● LESS THAN 34 KT

⌀ 34-47 KT

⌀● ≥ 48 KT

— OBSERVED TRACK

— FORECAST TRACK

◀ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 03(ARB/04/2020)**

**TIME OF ISSUE: 1300 HOURS IST**

**DATED: 22.11.2020**

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CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal—  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)  
(2) Cyclonic Storm “GATI” over southwest Arabian Sea**

**1. Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal-  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)**

The low pressure area over southwest and adjoining southeast Bay of Bengal has become well marked low pressure area and persists over the same region. It is very likely to concentrate into a depression over Southwest Bay of Bengal during next 24 hours and intensify further into a cyclonic storm during subsequent 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mahabalipuram around 25<sup>th</sup> November 2020 noon/afternoon.

**Warnings:**

**(i) Rainfall**

Under its influence, the rainfall activity is likely to increase over south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema & Telangana during 25<sup>th</sup> to 26<sup>th</sup> November, 2020.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> to 25<sup>th</sup> and over south Coastal Andhra Pradesh & Rayalseema on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	22 Nov 2020*	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at a few places	Rainfall at a many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at a many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	DRY	Rainfall at isolated places	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at a few places
<b>Rayalaseema</b>	DRY	Rainfall at isolated places	Rainfall at a many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places
<b>Telangana</b>	DRY	DRY	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places

### (ii) Wind warning

Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph likely to prevail over Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November. It is likely to increase and wind speed of the order of 45-55 kmph gusting to 65 kmph likely over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> and of the order of 55-65 kmph gusting to 75 kmph likely over the same area and also along & off South Andhra Pradesh coast and over Gulf of Mannar on 24<sup>th</sup>. It gradually increase becoming 80-90 kmph gusting 100 kmph over southwest Bay of Bengal, and along and off Tamilnadu and Puducherry coasts around the region of landfall on 25<sup>th</sup> November 2020.

### (iii) Sea condition

Sea condition will be rough to very rough over Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; Southwest and adjoining west-central Bay of Bengal and along & off

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



Tamil Nadu & Puducherry coast on 23<sup>rd</sup> and very rough to High over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry & south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> and 25<sup>th</sup>.

#### (iv) Fishermen Warning

Fishermen are advised not to venture into Equatorial Indian Ocean and adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; over Southwest and adjoining west-central Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 22-25<sup>th</sup> November.

Also the fishermen out at Sea are advised to return to the coast by today.

## 2. Cyclonic Storm “GATI” over southwest Arabian Sea

The deep depression over southwest Arabian Sea moved rapidly west-southwestwards with a speed of 45 kmph during past 06 hours, intensified into a **Cyclonic Storm “GATI”** and lay centred at 0830 hrs IST of today 22<sup>nd</sup> November 2020 over southwest Arabian Sea near Latitude 10.7° N and Longitude 53.8°E, about 210 km south of Socotra (Yemen), 290 km east-southeast of Ras Binnah (Somalia) and 360 km east-southeast of Alula (Somalia). It is very likely to move west-southwestwards and intensify further into a severe cyclonic storm during next 12 hours. It is very likely to cross Somalia coast around 10.5° N (south of Ras Binnah (Somalia)) during early hours of 23<sup>rd</sup> November as a severe cyclonic storm with a wind speed of 100-110 kmph gusting to 120 kmph.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
22.11.20/0830	10.7/53.8	70-80 GUSTING TO 90	CYCLONIC STORM
22.11.20/1130	10.4/52.7	80-90 GUSTING TO 100	CYCLONIC STORM
22.11.20/1730	10.3/51.7	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
22.11.20/2330	10.4/50.6	100-110 GUSTING TO 125	SEVERE CYCLONIC STORM
23.11.20/0530	10.5/49.5	70-80 GUSTING TO 90	CYCLONIC STORM
23.11.20/1730	10.6/48.0	50-60 GUSTING TO 70	DEEP DEPRESSION
24.11.20/0530	10.7/46.5	40-50 GUSTING TO 60	DEPRESSION

As the system is very likely to move away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, warnings for Ship and Fishermen prevails over southwest Arabian Sea as specified below.

#### (i) Wind warning

Gale wind speed reaching 70-80 kmph gusting to 90 kmph is prevailing over southwest Arabian Sea. It is very likely to increase gradually becoming 100-110 kmph during next 12 hrs over the same region till the landfall by early hrs of 23<sup>rd</sup> Nov. 2020. It will gradually decrease thereafter.

#### (ii) Sea condition

Sea condition will be high to very high over southwest Arabian Sea till 23<sup>rd</sup> November morning and improve thereafter.

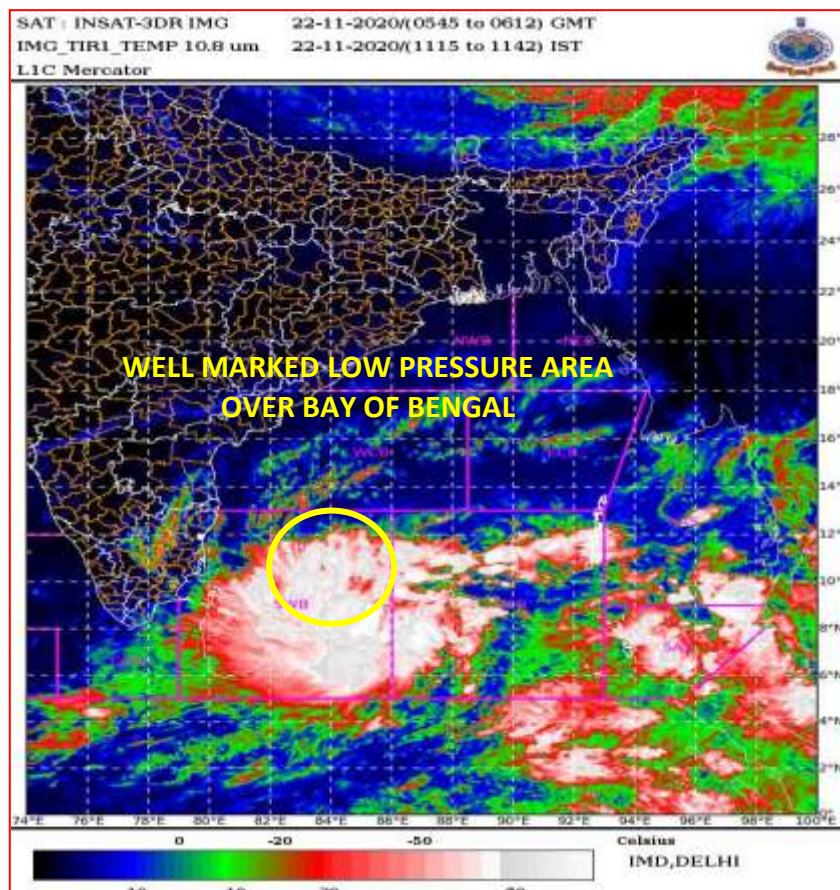
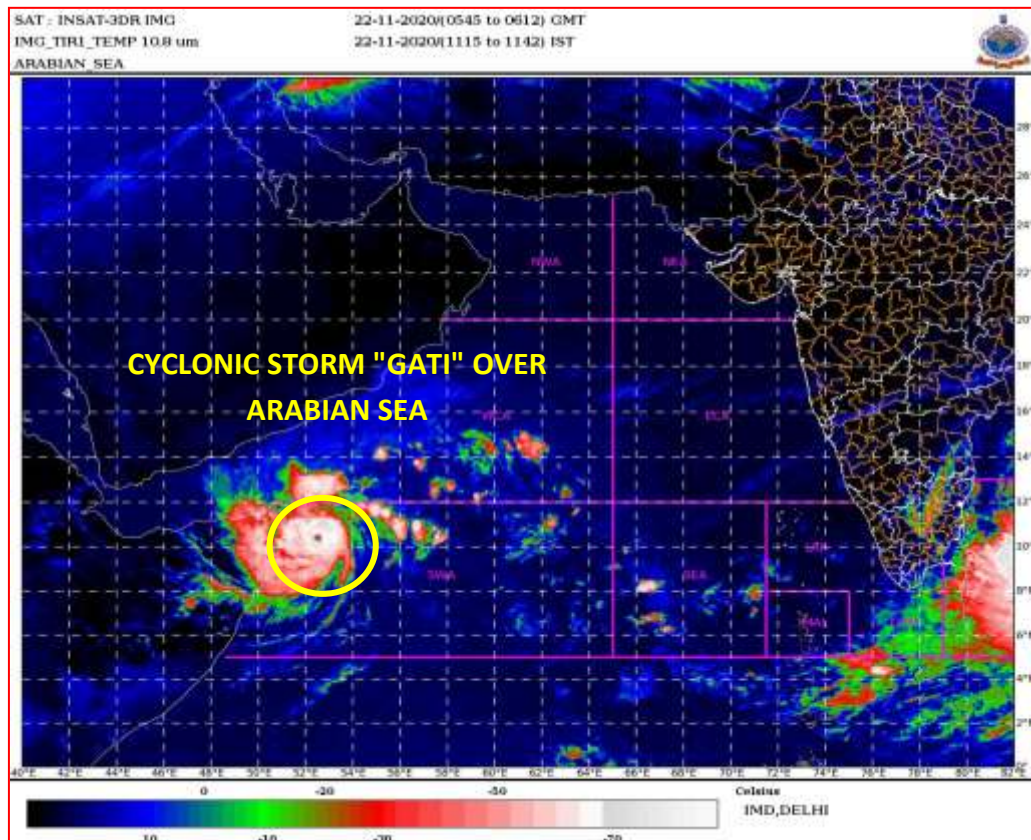
#### (iii) Fishermen Warning

Fishermen are advised not to venture into southwest Arabian Sea till 23<sup>rd</sup> November noon.

*The next bulletin will be issued at 1430hrs IST of 22<sup>nd</sup> November, 2020.*

(R. K. Jenamani)  
Scientist-F, RSMC, New Delhi

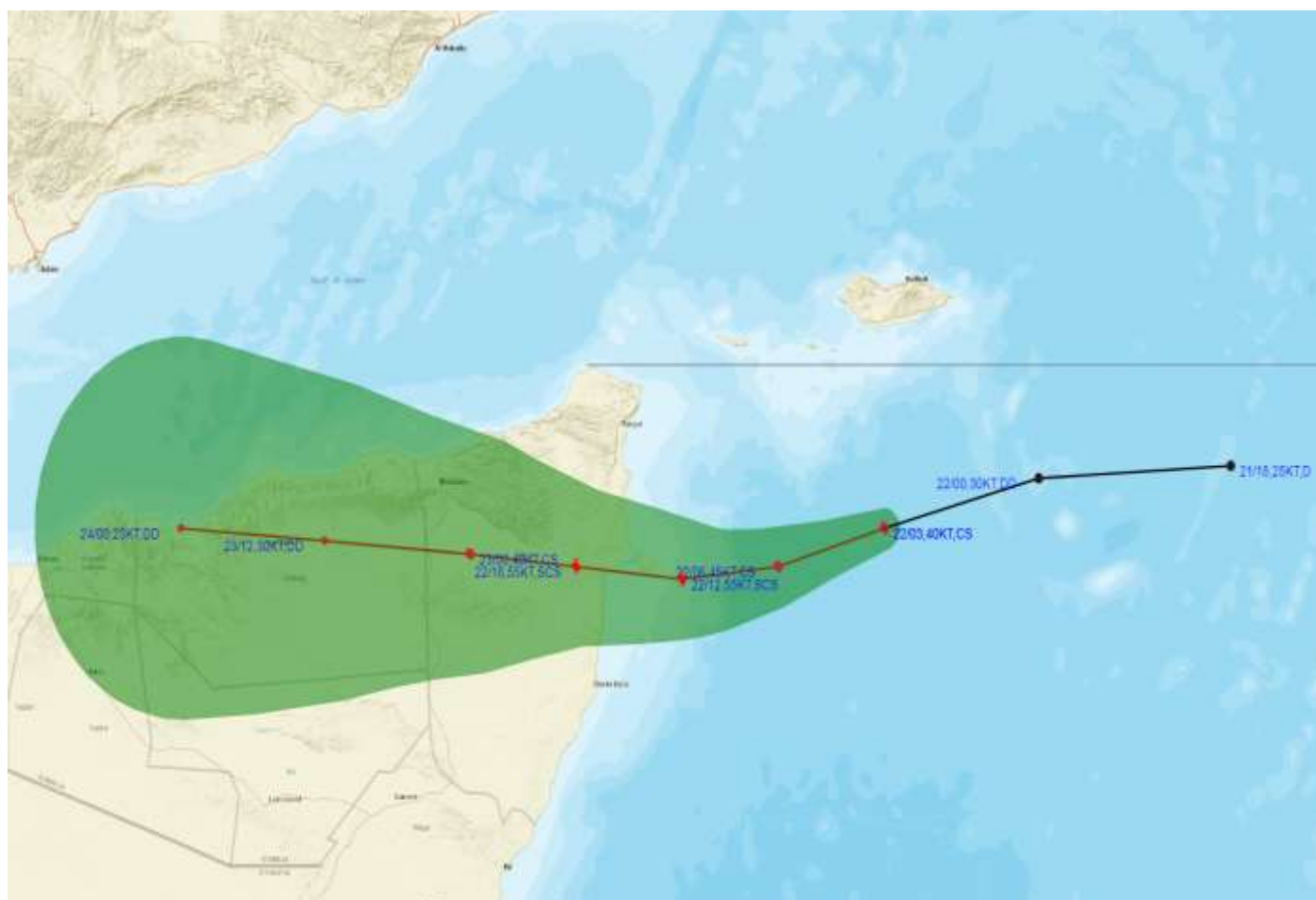
Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0300UTC OF 22<sup>nd</sup> Nov, 2020



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)






CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥20 KT)

-  LESS THAN 34 KT
-  34-47 KT
-  ≥ 48 KT
-  OBSERVED TRACK
-  FORECAST TRACK
-  CONE OF UNCERTAINTY

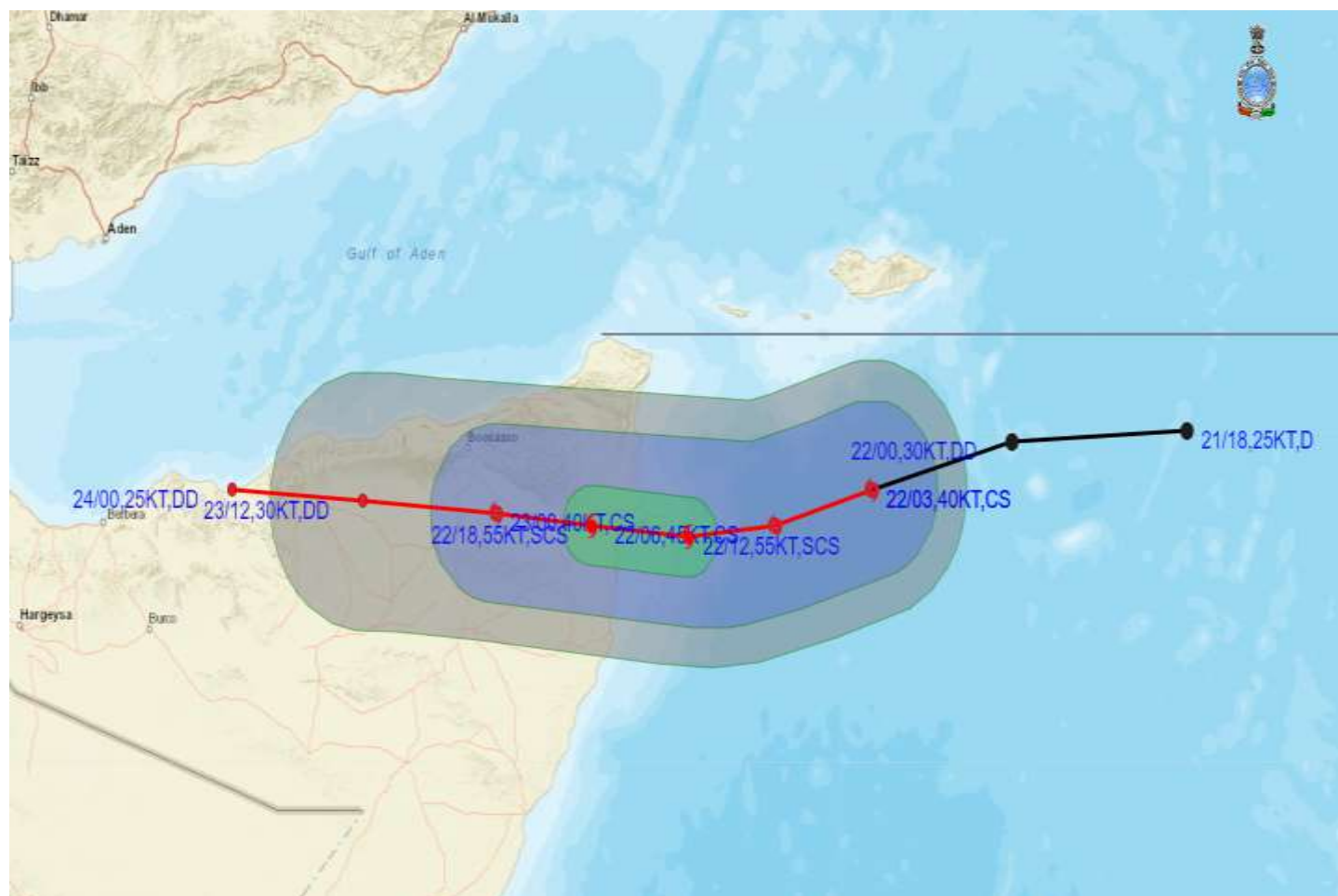
Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0300UTC OF 22<sup>nd</sup> Nov, 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM (≥20 KT)

● LESS THAN 34 KT  
○ 34-47 KT  
● ≥ 48 KT  
— OBSERVED TRACK  
— FORECAST TRACK  
— CONE OF UNCERTAINTY  
AREA OF MAXIMUM SUSTAINED WIND SPEED:  
28-33 KT (52-61 KMPH)  
34-49 KT (62-91 KMPH)  
50-63 KT (92-117 KMPH)  
≥ 64 KT (≥118 KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

Rainfall amount (mm): Heavy rain: 64.5 – 115.5; Very heavy rain: 115.6 – 204.4; Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 04(ARB/04/2020)**

**TIME OF ISSUE: 1430 HOURS IST**

**DATED: 22.11.2020**

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES, (FAX NO. 24629777)

H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)

DIRECTOR GENERAL, DOORDARSHAN (23385843)

DIRECTOR GENERAL, AIR (23421105, 23421219)

PIB MOES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)

CHIEF SECRETARY, GOVT. OF MAHARASHTRA (FAX NO. 022 22028594)

CHIEF SECRETARY, GUJARAT (FAX NO.079-23250305)

CHIEF SECRETARY, DAMAN, DIU, NAGAR HAVELI (FAX NO.0260-2642702)

CHIEF SECRETARY, GOA (FAX NO. 0832-2415201)

CHIEF SECRETARY, KARNATAKA (FAX NO. 080-22256360)

CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)

CHIEF SECRETARY, LAKSHADWEEP ISLANDS (FAX NO. 04896-262184)

CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)

CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)

CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)

CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)

CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)

CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)

CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

- Sub: (1) Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal—  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)  
(2) Cyclonic Storm “GATI” intensified into a Severe Cyclonic Storm over southwest Arabian Sea**

**1. Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal-  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)**

The well marked low pressure area over southwest & adjoining southeast Bay of Bengal persists over the same region. It is very likely to concentrate into a depression over Southwest Bay of Bengal during next 24 hours and intensify further into a cyclonic storm during subsequent 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mahabalipuram around 25<sup>th</sup> November 2020 noon/afternoon.

**Warnings:**

**(i) Rainfall**

Under its influence, the rainfall activity is likely to increase over south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema & Telangana during 25<sup>th</sup> to 26<sup>th</sup> November, 2020.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> to 25<sup>th</sup> and over south Coastal Andhra Pradesh & Rayalseema on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	22 Nov 2020*	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at a few places	Rainfall at a many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at a many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	DRY	Rainfall at isolated places	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at a few places
<b>Rayalaseema</b>	DRY	Rainfall at isolated places	Rainfall at a many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places
<b>Telangana</b>	DRY	DRY	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places

## (ii) Wind warning

Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph likely to prevail over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November. It is likely to increase with wind speed of the order of 45-55 kmph gusting to 65 kmph likely over Southwest & adjoining west-central Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> and of the order of 55-65 kmph gusting to 75 kmph likely over the same area and also along & off South Andhra Pradesh coast and over Gulf of Mannar on 24<sup>th</sup>. It is very likely to increase gradually becoming 80-90 kmph gusting 100 kmph over southwest Bay of Bengal, and along and off Tamilnadu and Puducherry coasts around the region of landfall on 25<sup>th</sup> November 2020. Squally weather with wind speed reaching 55-65 kmph gusting to 75 kmph likely to prevail over Andhra Pradesh coast on 25<sup>th</sup> November 2020.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

### (iii) Sea condition

Sea condition will be rough to very rough over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; Southwest & adjoining west-central Bay of Bengal and along & off Tamil Nadu & Puducherry coast on 23<sup>rd</sup> and very rough to High over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry & south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> and 25<sup>th</sup> November, 2020.

### (iv) Fishermen Warning

Fishermen are advised not to venture into Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; over Southwest & adjoining west-central Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 22-25<sup>th</sup> November.

Also the fishermen out at Sea are advised to return to the coast by today.

## 2. Severe Cyclonic Storm "GATI" over southwest Arabian Sea

The cyclonic storm "GATI" over southwest Arabian Sea moved further rapidly west-southwestwards with a speed of about 50 kmph during past 06 hours, intensified into a **Severe Cyclonic Storm "GATI"** and lay centred at 1130 hrs IST of today 22<sup>nd</sup> November 2020 over southwest Arabian Sea near Latitude 10.4° N and Longitude 52.6°E, about 290 km south-southeast of Socotra (Yemen), 180 km east-southeast of Ras Binnah (Somalia) and 270 km east-southeast of Alula (Somalia). It is very likely to continue to move west-southwestwards and cross Somalia coast around 10.5° N (south of Ras Binnah (Somalia)) during early hours of 23<sup>rd</sup> November as a very severe cyclonic storm with a wind speed of 120-130 kmph gusting to 145 kmph.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
22.11.20/1130	10.4/52.6	90-100 gusting to 110	Severe Cyclonic Storm
22.11.20/1730	10.3/51.7	120-130 gusting to 145	Very Severe Cyclonic Storm
22.11.20/2330	10.4/50.6	120-130 gusting to 145	Very Severe Cyclonic Storm
23.11.20/0530	10.5/49.5	90-100 gusting to 110	Severe Cyclonic Storm
23.11.20/1130	10.6/48.4	60-70 gusting to 80	Cyclonic Storm
23.11.20/2330	10.7/46.5	40-50 gusting to 60	Depression
24.11.20/1130	10.8/44.5	20-30 gusting to 40	Low Pressure Area

As the system is very likely to move away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, warnings for Ship and Fishermen prevail over southwest Arabian Sea as specified below.

### (i) Wind warning

Gale wind speed reaching 90-100 kmph gusting to 110 kmph is prevailing over southwest Arabian Sea. It is very likely to increase gradually becoming 120-130 kmph during next 06 hrs over the same region and the same speed will continue till the landfall by early hrs of 23<sup>rd</sup> Nov. 2020. It will gradually decrease thereafter.

### (ii) Sea condition

Sea condition will be very high to phenomenal over southwest Arabian Sea till 23<sup>rd</sup> November morning and improve thereafter.

### (iii) Fishermen Warning

Fishermen are advised not to venture into southwest Arabian Sea till 23<sup>rd</sup> November noon.

*The next bulletin will be issued at 1730 hrs IST of 22<sup>nd</sup> November, 2020.*

(R. K. Jenamani)  
Scientist-F, RSMC, New Delhi

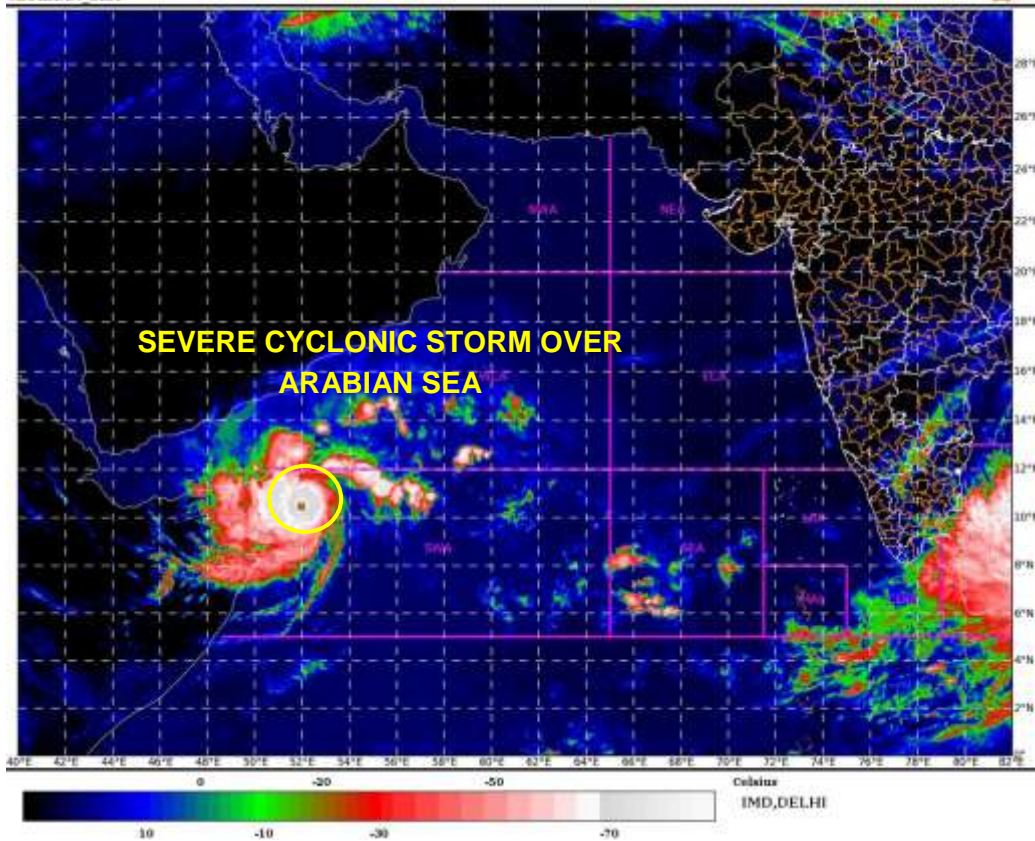
Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC  
Thiruvananthapuram

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



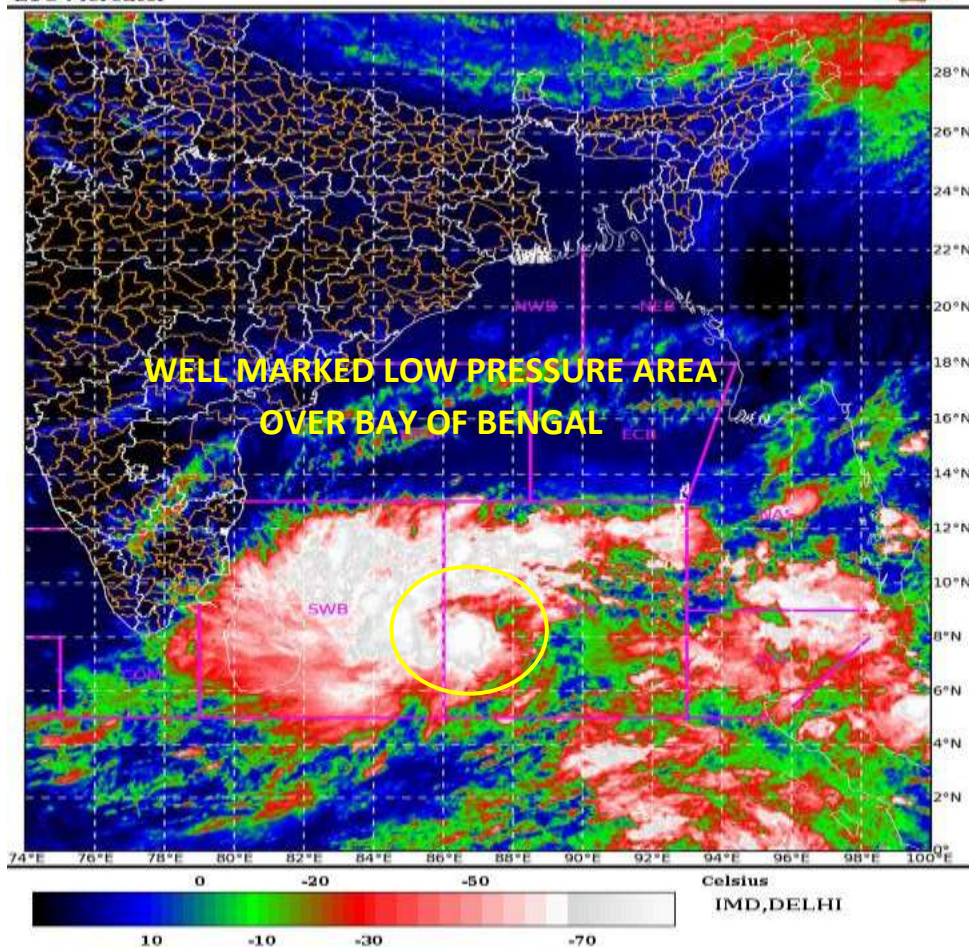
SAT : INSAT-3D IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 ARABIAN\_SEA

22-11-2020(0800 to 0827) GMT  
 22-11-2020(1330 to 1357) IST



SAT : INSAT-3D IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 L1C Mercator

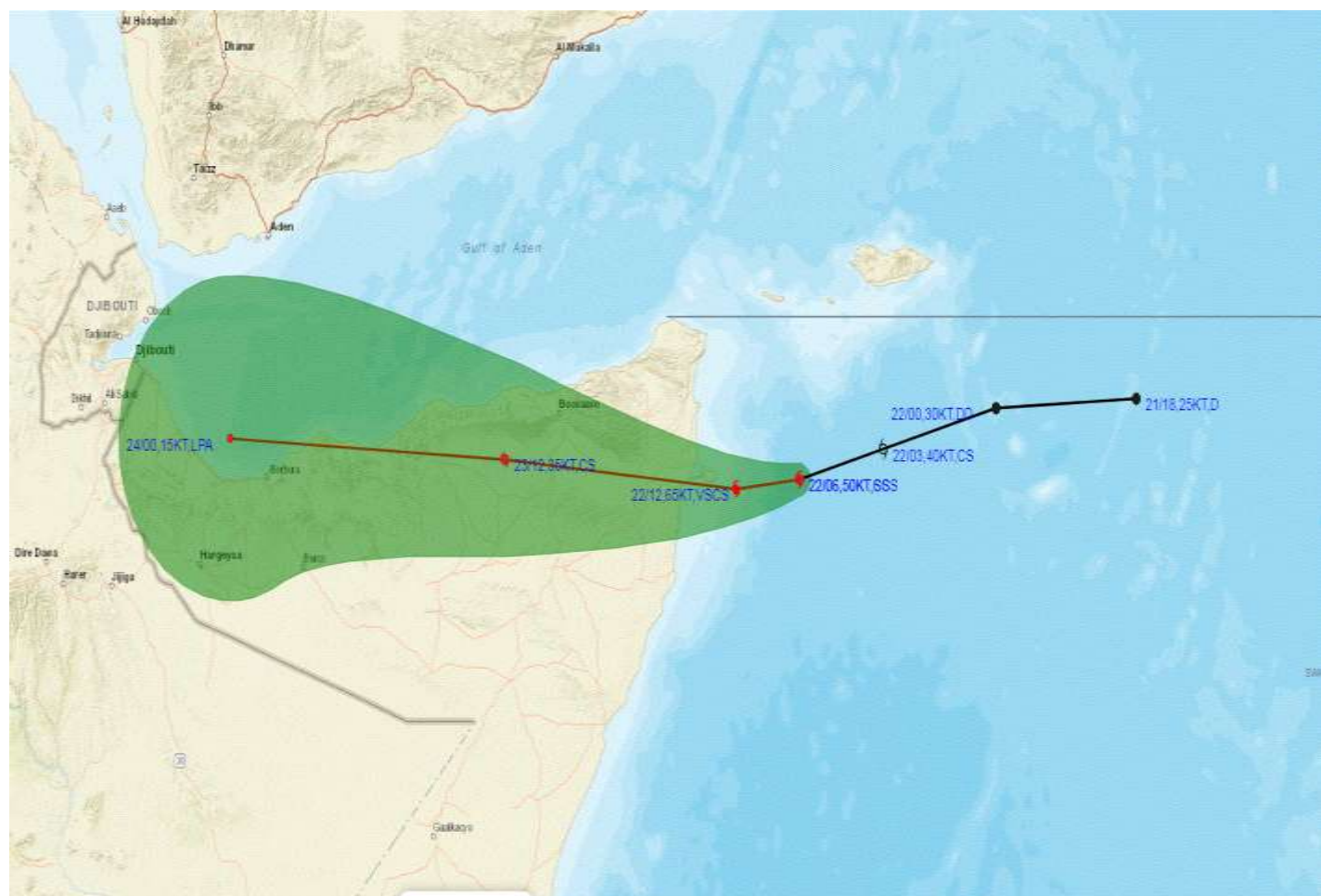
22-11-2020/(0800 to 0827) GMT  
 22-11-2020/(1330 to 1357) IST



Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0600UTC OF 22<sup>nd</sup> Nov, 2020



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM  $\geq 120$  kt

● LESS THAN 34 KT

○ 34-47 KT

○  $\geq 48$  KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

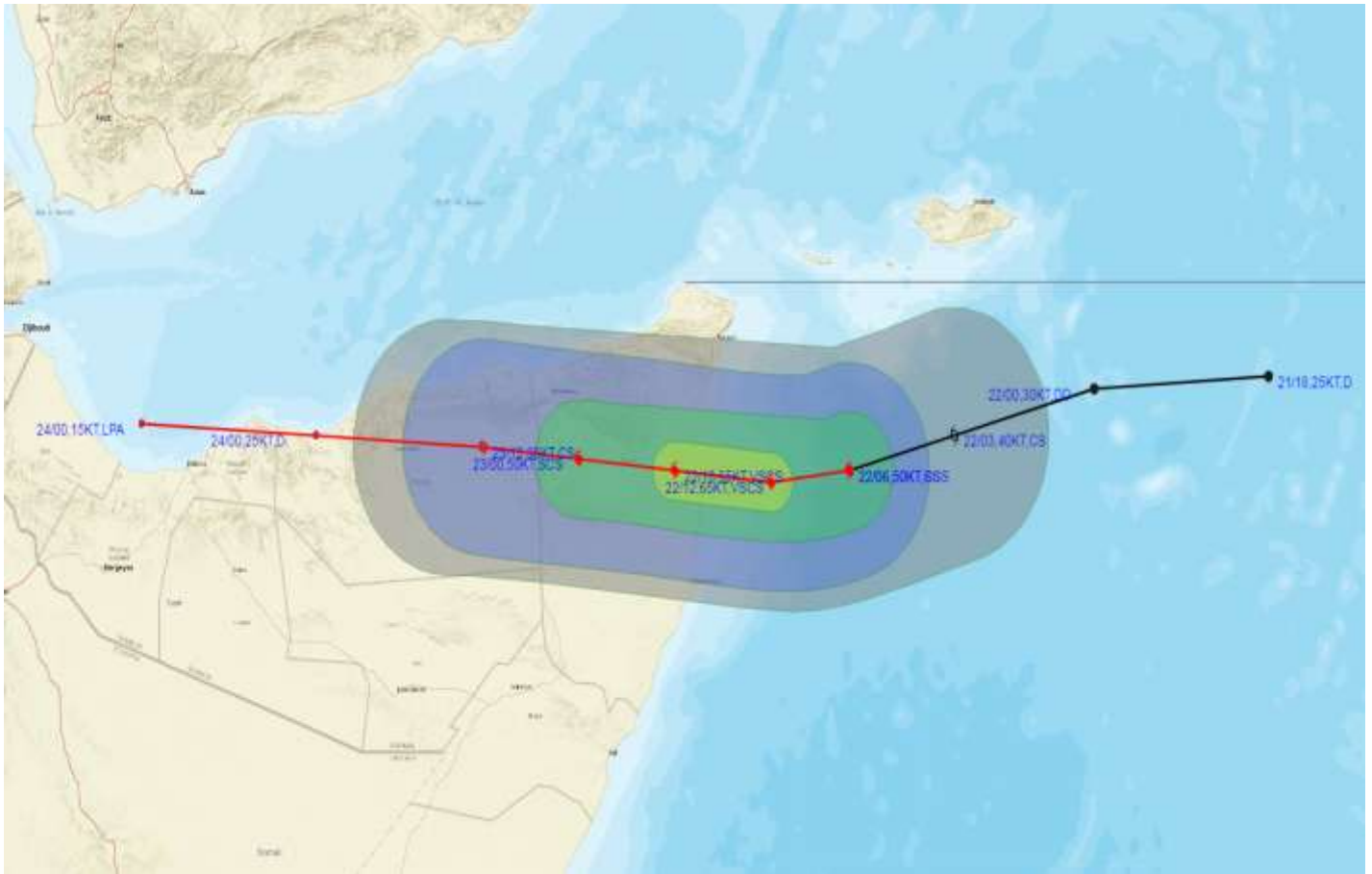
Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0600UTC OF 22<sup>nd</sup> Nov,



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ≥120 kt

● LESS THAN 34 KT  
○ 34-47 KT  
● ≥ 48 KT  
— OBSERVED TRACK  
— FORECAST TRACK  
— CONE OF UNCERTAINTY  
AREA OF MAXIMUM SUSTAINED WIND SPEED:  
28-33 KT (52-61 KMPH)  
34-49 KT (62-91 KMPH)  
50-63 KT (92-117 KMPH)  
≥ 64 KT (≥118 KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 05(ARB/04/2020)**

**TIME OF ISSUE: 1700 HOURS IST**

**DATED: 22.11.2020**

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

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**Sub: (1) Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal—  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)**

**(2) Severe Cyclonic Storm "GATI" intensified into a Very Severe Cyclonic Storm over southwest Arabian Sea**

**1. Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal-  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)**

The well marked low pressure area over southwest & adjoining southeast Bay of Bengal persists. It is very likely to concentrate into a depression over Southwest Bay of Bengal during next 24 hours and intensify further into a cyclonic storm during subsequent 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mahabalipuram around 25th November 2020 noon/afternoon. The system while moving northwestwards, would skirt northeast Sri Lanka coast on 24th November, 2020.

**Warnings:**

**(i) Rainfall**

Under its influence, the rainfall activity is likely to increase over south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry &

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema & Telangana during 25<sup>th</sup> to 26<sup>th</sup> November, 2020.

Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> to 25<sup>th</sup> and over south Coastal Andhra Pradesh & Rayalseema on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	22 Nov 2020*	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at a few places	Rainfall at a many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at a many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	DRY	Rainfall at isolated places	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at a few places
<b>Rayalaseema</b>	DRY	Rainfall at isolated places	Rainfall at a many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places
<b>Telangana</b>	DRY	DRY	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places

## (ii) Wind warning

Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph likely to prevail over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November. It is likely to increase with wind speed of the order of 45-55 kmph gusting to 65 kmph likely over Southwest & adjoining west-central Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> and of the order of 55-65 kmph gusting to 75 kmph likely over the same area and also along & off South Andhra Pradesh coast and over Gulf of Mannar on 24<sup>th</sup>. It is very likely to increase gradually becoming 80-90 kmph gusting 100 kmph over southwest Bay of Bengal, and along and off Tamilnadu and Puducherry coasts around the region of landfall on 25<sup>th</sup> November 2020. Squally weather with wind speed reaching 55-65 kmph gusting to 75 kmph likely to prevail over Andhra Pradesh coast on 25<sup>th</sup> November 2020.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

### (iii) Sea condition

Sea condition will be rough to very rough over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; Southwest & adjoining west-central Bay of Bengal and along & off Tamil Nadu & Puducherry coast on 23<sup>rd</sup> and very rough to High over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry & south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> and 25<sup>th</sup> November, 2020.

### (iv) Fishermen Warning

Fishermen are advised not to venture into Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; over Southwest & adjoining west-central Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 22-25<sup>th</sup> November.

Also the fishermen out at Sea are advised to return to the coast by today.

## 2. Very Severe Cyclonic Storm "GATI" over southwest Arabian Sea

The severe cyclonic storm "GATI" over southwest Arabian Sea moved rapidly westwards with a speed of about 32 kmph during past 06 hours, intensified further into a **Very Severe Cyclonic Storm "GATI"** and lay centred at 1430 hrs IST of today 22<sup>nd</sup> November 2020 over southwest Arabian Sea near Latitude 10.4° N and Longitude 52.0°E, about 320 km south-southwest of Socotra (Yemen) and 120 km southeast of Ras Binnah (Somalia). It is very likely to move nearly westwards and cross Somalia coast around 10.5° N (south of Ras Binnah (Somalia)) around midnight of 22<sup>nd</sup> November as a very severe cyclonic storm with a wind speed of 130-140 kmph gusting to 155 kmph.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
22.11.20/1430	10.4/52.0	120-130 gusting to 145	Very Severe Cyclonic Storm
22.11.20/1730	10.4/51.7	130-140 gusting to 155	Very Severe Cyclonic Storm
22.11.20/2330	10.5/50.6	130-140 gusting to 155	Very Severe Cyclonic Storm
23.11.20/0530	10.5/49.5	90-100 gusting to 110	Severe Cyclonic Storm
23.11.20/1730	10.6/48.4	60-70 gusting to 80	Cyclonic Storm
24.11.20/0530	10.7/46.5	40-50 gusting to 60	Depression
24.11.20/0830	10.8/44.5	20-30 gusting to 40	Low Pressure Area

As the system is very likely to move away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, warnings for Ship and Fishermen prevail over southwest Arabian Sea as specified below.

### (i) Wind warning

Gale wind speed reaching 90-100 kmph gusting to 110 kmph is prevailing over southwest Arabian Sea. It is very likely to increase gradually becoming 120-130 kmph during next 06 hrs over the same region and the same speed will continue till the landfall by early hrs of 23<sup>rd</sup> Nov. 2020. It will gradually decrease thereafter.

### (ii) Sea condition

Sea condition will be very high to phenomenal over southwest Arabian Sea till 23<sup>rd</sup> November morning and improve thereafter.

### (iii) Fishermen Warning

Fishermen are advised not to venture into southwest Arabian Sea till 23<sup>rd</sup> November noon.

*The next bulletin will be issued at 2030 hrs IST of 22<sup>nd</sup> November, 2020.*

(R. K. Jenamani)

Scientist-F, RSMC, New Delhi

Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC  
Thiruvananthapuram

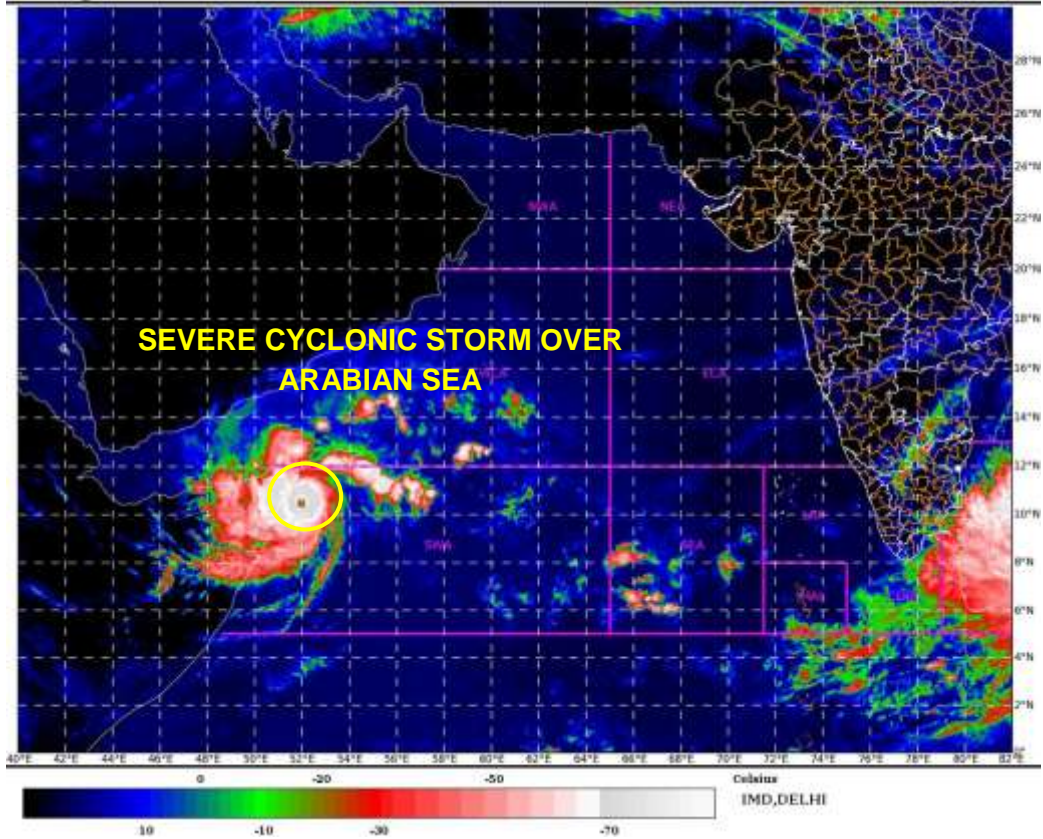
Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



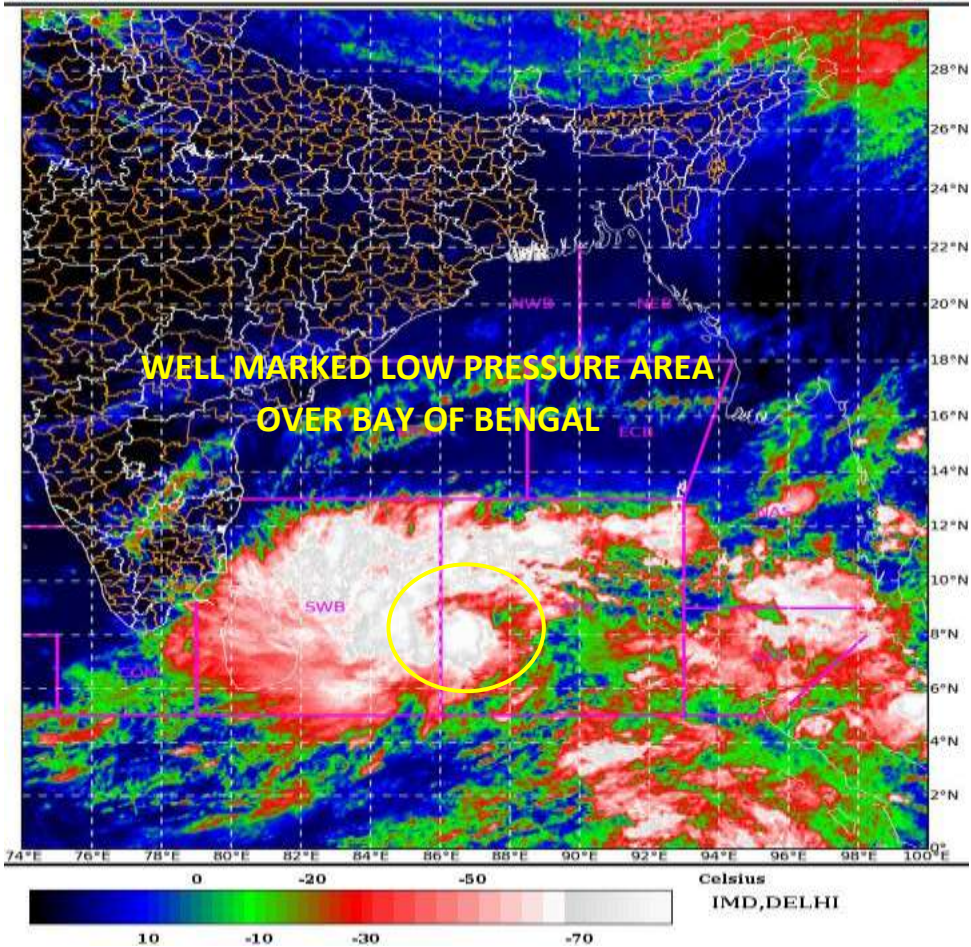
SAT : INSAT-3D IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 ARABIAN SEA

22-11-2020(0800 to 0827) GMT  
 22-11-2020(1330 to 1357) IST



SAT : INSAT-3D IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 L1C Mercator

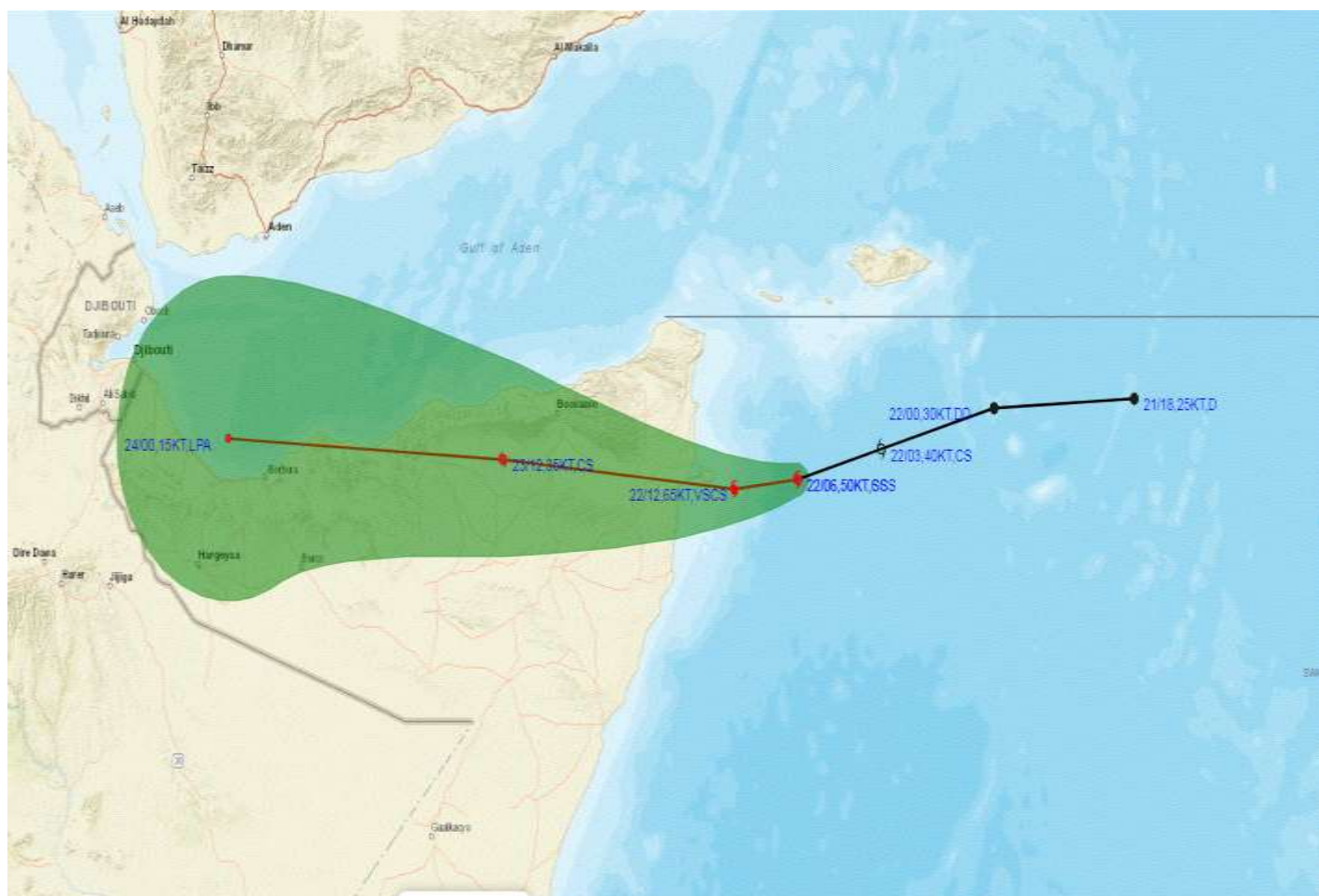
22-11-2020(0800 to 0827) GMT  
 22-11-2020(1330 to 1357) IST



Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# **OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0600UTC OF 22<sup>nd</sup> Nov, 2020**



**DATE/TIME IN UTC**

**IST=UTC + 0530**

**L: LOW PRESSURE AREA**

**WML: WELL MARKED LOW PRESSURE AREA**

**D: DEPRESSION (17-27 KT)**

**DD: DEEP DEPRESSION (28-33 KT)**

**CS: CYCLONIC STORM (34-47 KT)**

**SCS: SEVERE CYCLONIC STORM (48-63KT)**

**VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)**

**ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)**

**SuCS: SUPER CYCLONIC STORM  $\geq 120$  kt**

LESS THAN 34 KT

34-47 KT

$\geq 48$  KT

OBSERVED TRACK

FORECAST TRACK

CONE OF UNCERTAINTY

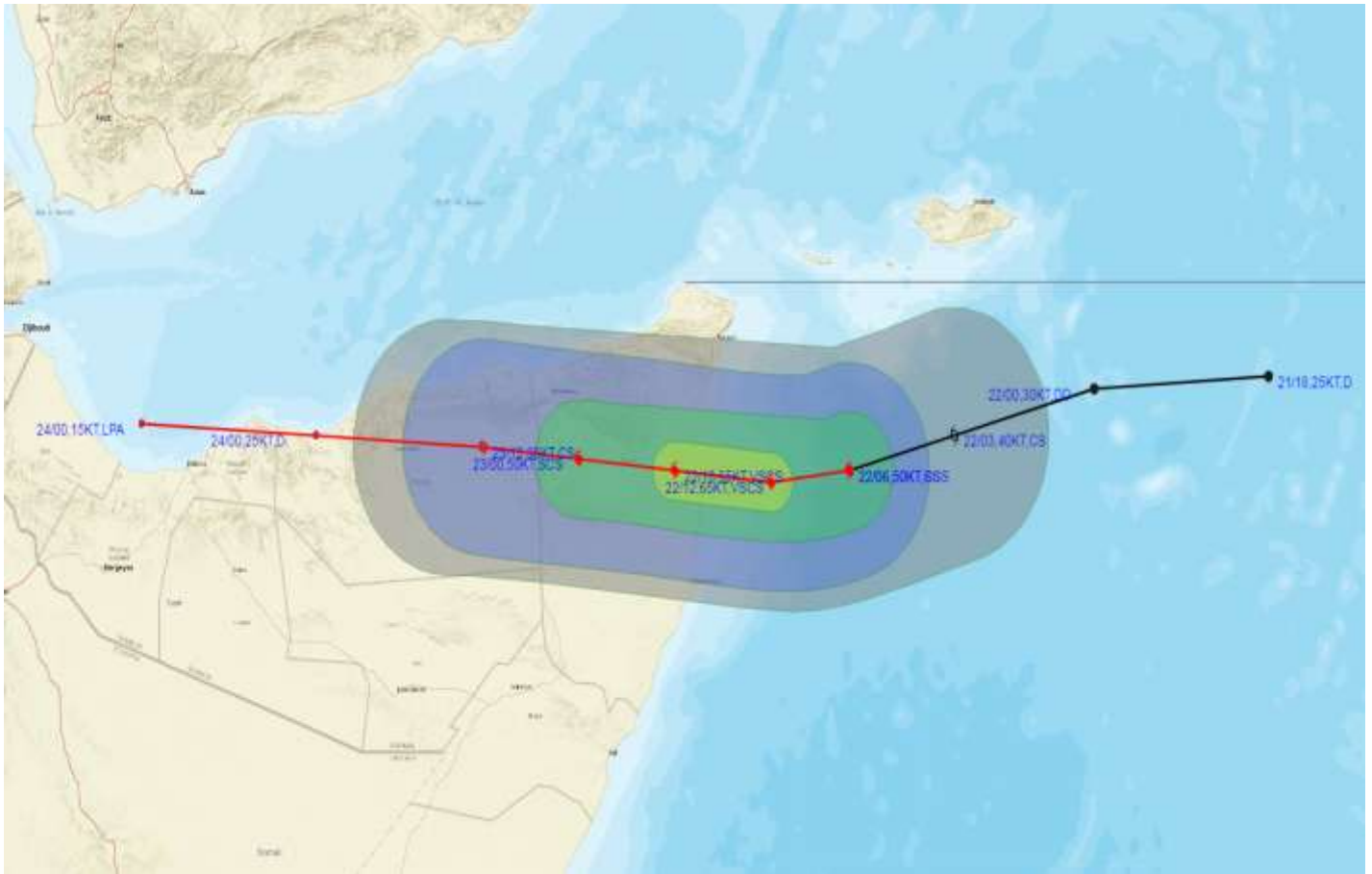
**Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**





# OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 0600UTC OF 22<sup>nd</sup> Nov,



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM  $\geq 120$  kt

● LESS THAN 34 KT  
○ 34-47 KT  
●  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
▲ CONE OF UNCERTAINTY  
AREA OF MAXIMUM SUSTAINED WIND SPEED:  
■ 28-33 KT (52-61 KMPH)  
■ 34-49 KT (62-91 KMPH)  
■ 50-63 KT (92-117 KMPH)  
■  $\geq 64$  KT ( $\geq 118$  KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
$\geq 64$ ( $\geq 118$ )	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 06(ARB/04/2020)**

**TIME OF ISSUE: 2000 HOURS IST**

**DATED: 22.11.2020**

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES, (FAX NO. 24629777)

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D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

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CHIEF SECRETARY, KARNATAKA (FAX NO. 080-22256360)

CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)

CHIEF SECRETARY, LAKSHADWEEP ISLANDS (FAX NO. 04896-262184)

CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)

CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)

CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)

CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)

CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)

CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)

CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal—  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)  
(2) Very Severe Cyclonic Storm “GATI” over southwest Arabian Sea closed to Somalia coast**

**1. Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal-  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)**

The well marked low pressure area over southwest & adjoining southeast Bay of Bengal persists. It is very likely to concentrate into a depression over Southwest Bay of Bengal during next 12 hours and intensify further into a cyclonic storm during subsequent 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mahabalipuram around 25<sup>th</sup> November 2020 noon/afternoon. The system while moving northwestwards, would skirt northeast Sri Lanka coast on 24<sup>th</sup> November, 2020.

**Warnings:**

**(i) Rainfall**

Under its influence, the rainfall activity is likely to increase over south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema & Telangana during 25<sup>th</sup> to 26<sup>th</sup> November, 2020.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> & 25<sup>th</sup> and over south Coastal Andhra Pradesh & Rayalaseema on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	22 Nov 2020*	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at a few places	Rainfall at a many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at a many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	DRY	Rainfall at isolated places	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at a few places
<b>Rayalaseema</b>	DRY	Rainfall at isolated places	Rainfall at a many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places
<b>Telangana</b>	DRY	DRY	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places

### (ii) Wind warning

Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph likely to prevail over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November. It is likely to increase with wind speed of the order of 45-55 kmph gusting to 65 kmph likely over Southwest & adjoining west-central Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> and of the order of 55-65 kmph gusting to 75 kmph likely over the same area and also along & off South Andhra Pradesh coast and over Gulf of Mannar on 24<sup>th</sup> November. It is very likely to increase gradually becoming 80-90 kmph gusting 100 kmph over southwest Bay of Bengal, and along and off Tamilnadu and Puducherry coasts around the region of landfall on 25<sup>th</sup> November 2020. Squally weather with wind speed reaching 55-65 kmph gusting to 75 kmph likely to prevail over Andhra Pradesh coast on 25<sup>th</sup> November 2020.

### (iii) Sea condition

Sea condition will be rough to very rough over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup>; Southwest & adjoining west-central Bay of Bengal and along & off Tamil Nadu &

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



Puducherry coasts on 23<sup>rd</sup> and very rough to High over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry & south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> and 25<sup>th</sup> November, 2020.

#### (iv) Fishermen Warning

Fishermen are advised not to venture into Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; over Southwest & adjoining west-central Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 22-25<sup>th</sup> November.

Also the fishermen out at Sea are advised to return to the coast by today.

## 2. Very Severe Cyclonic Storm "GATI" over southwest Arabian Sea

The very severe cyclonic storm "GATI" over southwest Arabian Sea moved westwards with a speed of about 18kmph during past 06 hours and lay centred at 1730 hrs IST of today 22<sup>nd</sup> November 2020 over southwest Arabian Sea near Latitude 10.4° N and Longitude 51.5°E, about 40 km east of Somalia coast and 90 km south-southeast of Ras Binnah (Somalia). It is very likely to move nearly westwards and cross Somalia coast around 10.5°N to the south of Ras Binnah (Somalia) within next three hours as a very severe cyclonic storm with a wind speed of 130-140 kmph gusting to 155 kmph.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
22.11.20/1730	10.4/51.5	130-140 Gusting TO 155	Very Severe Cyclonic Storm
22.11.20/2300	10.5/50.6	120-130 Gusting TO 145	Very Severe Cyclonic Storm
23.11.20/0530	10.6/49.5	90-100 Gusting TO 110	Severe Cyclonic Storm
23.11.20/1130	10.6/48.4	60-70 Gusting TO 80	Cyclonic Storm
23.11.20/1730	10.6/47.3	40-50 Gusting TO 60	Depression
24.11.20/0530	10.5/45.1	20-30 Gusting TO 40	Low Pressure Area

As the system is very likely to move away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, warnings for Ship and Fishermen prevail over southwest Arabian Sea as specified below.

#### (i) Wind warning

Gale wind speed reaching 130-140 kmph gusting to 155 kmph is prevailing over southwest Arabian Sea and along and off north Somalia coast. It is very likely to continue with same speed for next 06 hours. It will gradually decrease thereafter becoming 50-60 kmph gusting to 70 kmph over this area by 23<sup>rd</sup> November morning.

#### (ii) Sea condition

Sea condition will be phenomenal over southwest Arabian Sea along and off north Somalia coast during next 06 hours and thereafter it will be very high to high till 23<sup>rd</sup> November morning and improve thereafter.

#### (iii) Fishermen Warning

Fishermen are advised not to venture into southwest Arabian Sea till 23<sup>rd</sup> November noon.

*The next bulletin will be issued at 2330 hrs IST of 22<sup>nd</sup> November, 2020.*

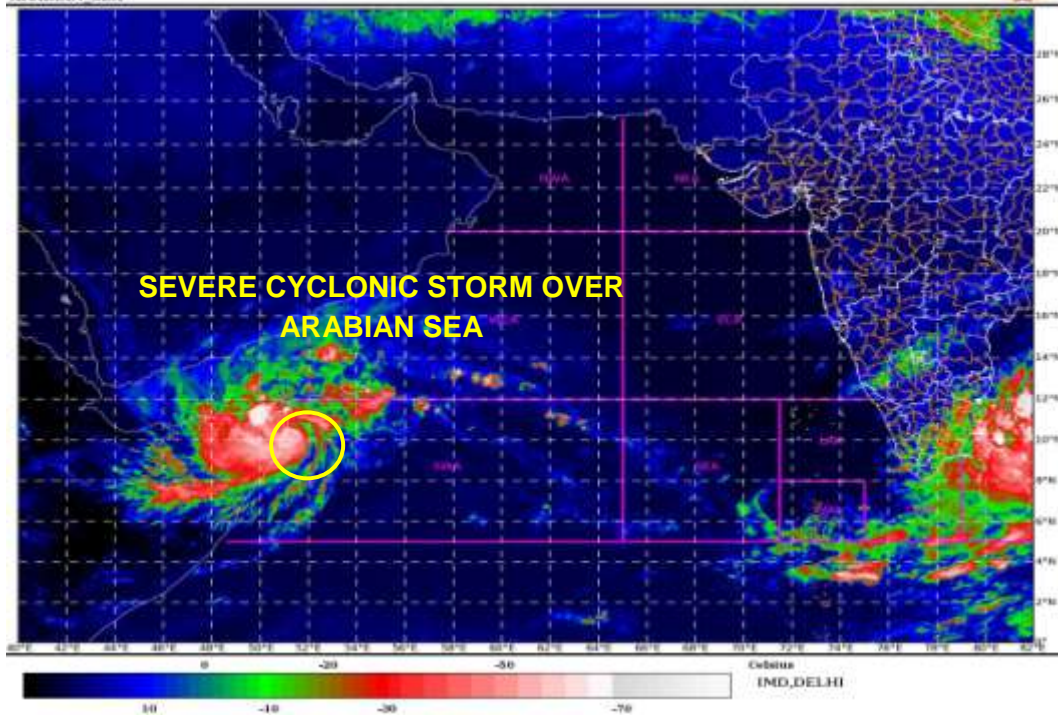
(R. K. Jenamani)  
Scientist-F, RSMC, New Delhi

Copy to: ACWC    Kolkata/Chennai/CWC    Bhubaneswar/CWC    Visakhapatnam/CWC  
Thiruvananthapuram

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

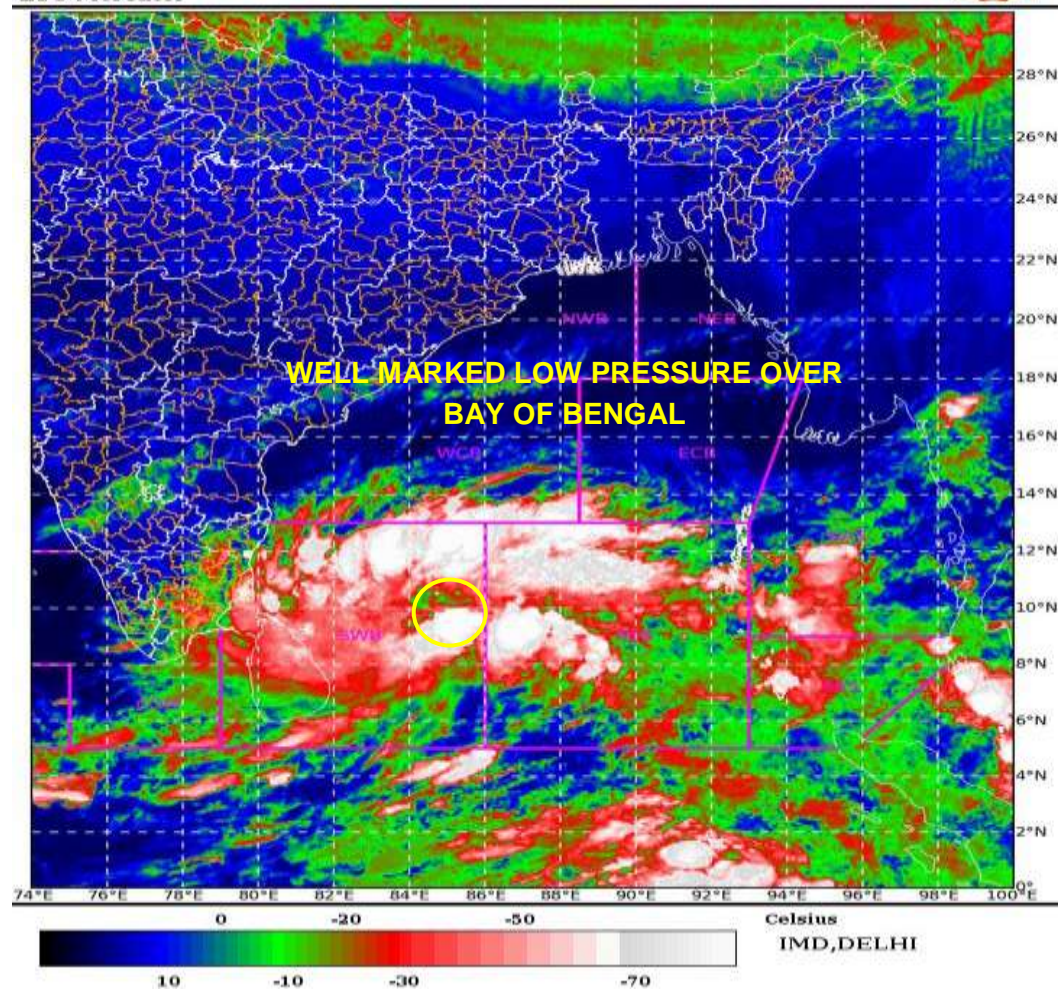
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 ARABIAN SEA

22-11-2020(1345 to 1411) GMT  
 22-11-2020(1915 to 1941) IST



SAT : INSAT-3DR IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 L1C Mercator

22-11-2020/(1400 to 1426) GMT  
 22-11-2020/(1930 to 1956) IST

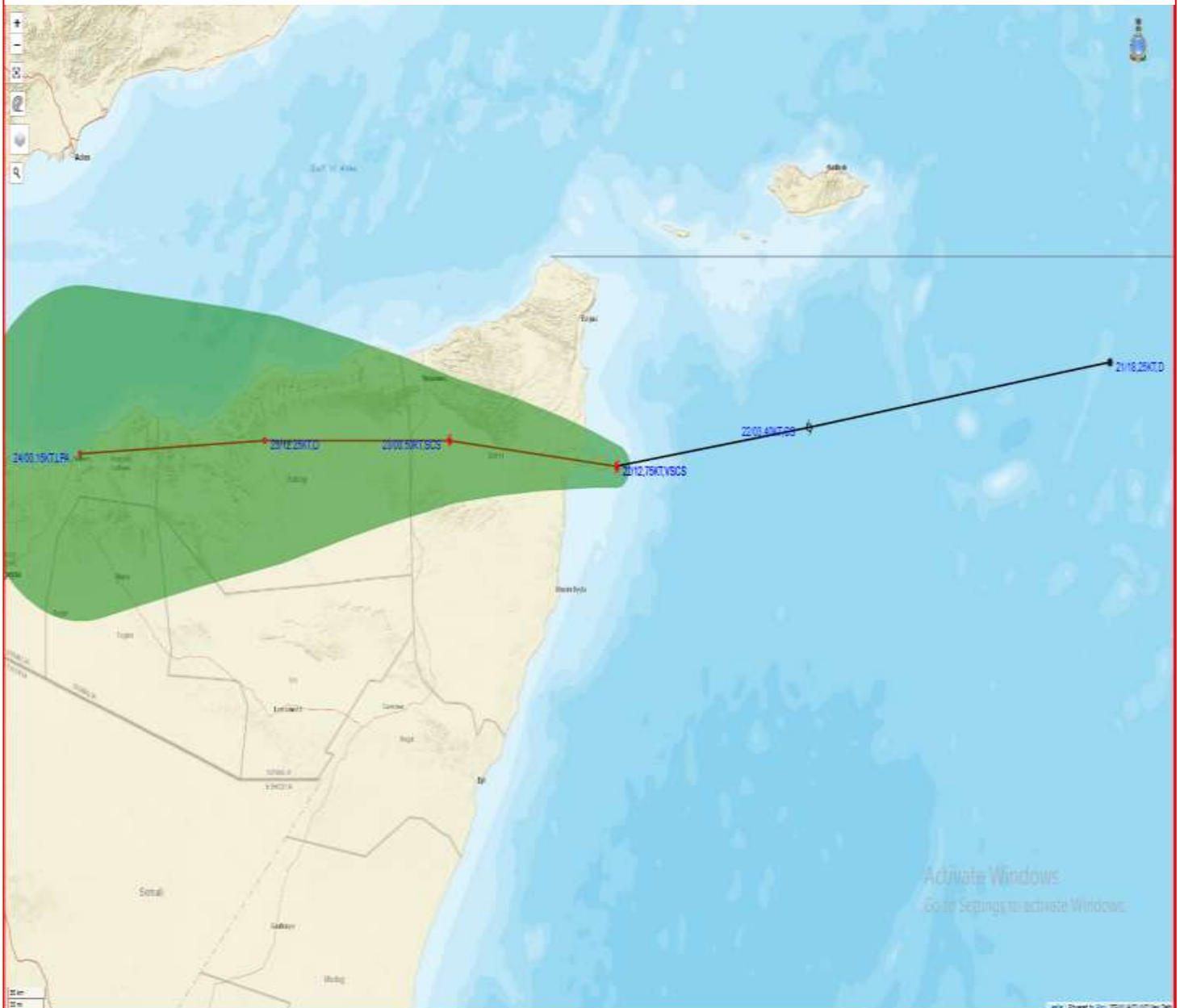


Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 1200 UTC OF 22<sup>nd</sup> Nov, 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

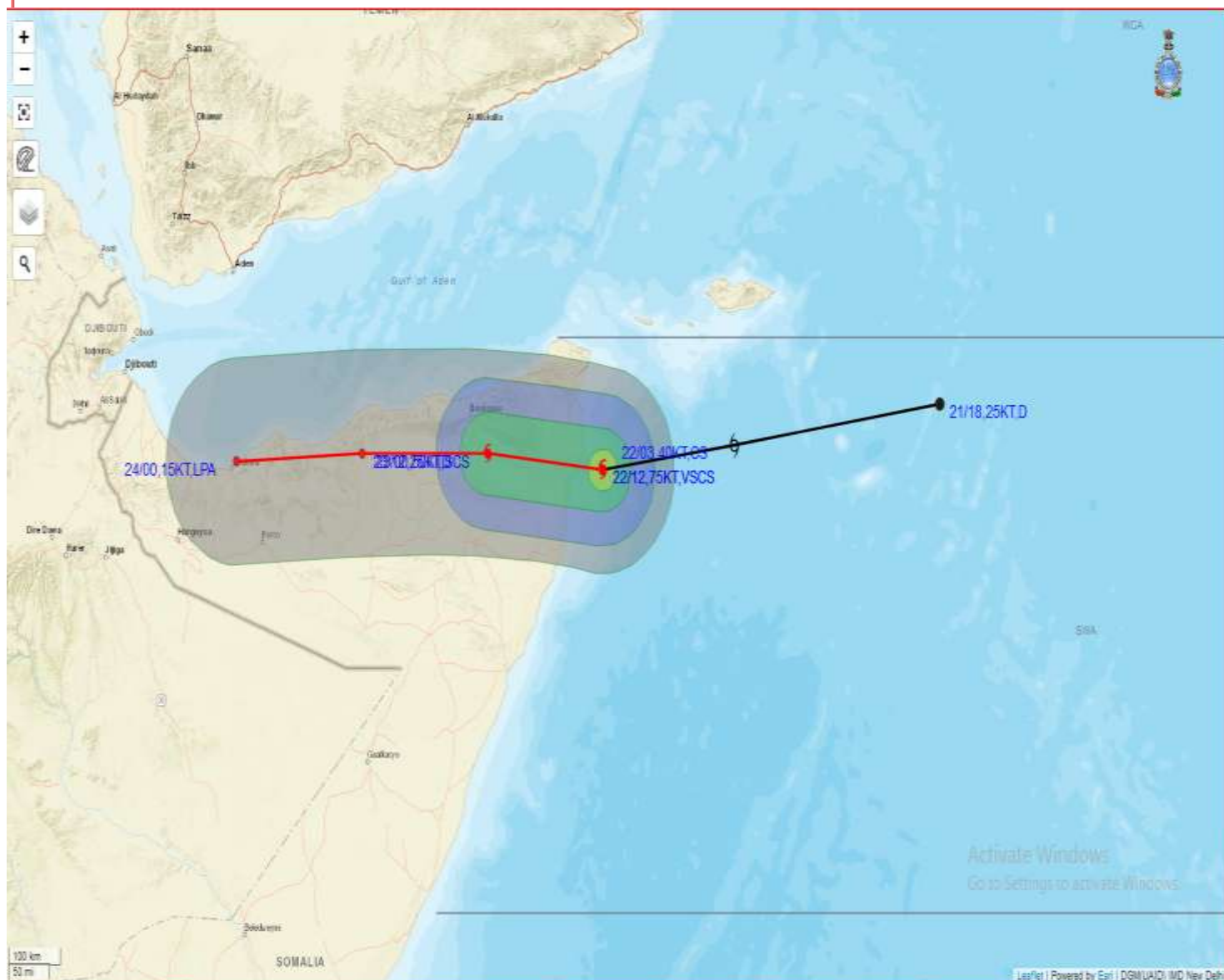
● LESS THAN 34 KT  
⤵ 34-47 KT  
⤵  $\geq 48$  KT  
■ OBSERVED TRACK  
■ FORECAST TRACK  
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 1200UTC OF 22<sup>nd</sup>



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥20 KT)

● LESS THAN 34 KT

⚡ 34-47 KT

● ≥ 48 KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

■ 28-33 KT (52-61 KMPH)

■ 34-49 KT (62-91 KMPH)

■ 50-63 KT (92-117 KMPH)

■ ≥ 64 KT (≥118 KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 07(ARB/04/2020)**

**TIME OF ISSUE: 2215 HOURS IST**

**DATED: 22.11.2020**

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES, (FAX NO. 24629777)

H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)

DIRECTOR GENERAL, DOORDARSHAN (23385843)

DIRECTOR GENERAL, AIR (23421105, 23421219)

PIB MOES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)

CHIEF SECRETARY, GOVT. OF MAHARASHTRA (FAX NO. 022 22028594)

CHIEF SECRETARY, GUJARAT (FAX NO.079-23250305)

CHIEF SECRETARY, DAMAN, DIU, NAGAR HAVELI (FAX NO.0260-2642702)

CHIEF SECRETARY, GOA (FAX NO. 0832-2415201)

CHIEF SECRETARY, KARNATAKA (FAX NO. 080-22256360)

CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)

CHIEF SECRETARY, LAKSHADWEEP ISLANDS (FAX NO. 04896-262184)

CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)

CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)

CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)

CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)

CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)

CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)

CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal—  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)  
(2) Very Severe Cyclonic Storm “GATI” crossing Somalia coast**

**1. Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal-  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)**

The well marked low pressure area over southwest & adjoining southeast Bay of Bengal persists. It is very likely to concentrate into a depression over Southwest Bay of Bengal during next 12 hours and intensify further into a cyclonic storm during subsequent 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mahabalipuram around 25<sup>th</sup> November 2020 noon/afternoon. The system while moving northwestwards, would skirt northeast Sri Lanka coast on 24th November, 2020.

**Warnings:**

**(i) Rainfall**

Under its influence, the rainfall activity is likely to increase over south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema & Telangana during 25<sup>th</sup> to 26<sup>th</sup> November, 2020.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> & 25<sup>th</sup> and over south Coastal Andhra Pradesh & Rayalaseema on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	22 Nov 2020*	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*
Coastal Andhra Pradesh	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls
Tamilnadu, Puducherry & Karaikal	Rainfall at a few places	Rainfall at a many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at a many places with heavy rainfall at isolated places
South Interior Karnataka	DRY	Rainfall at isolated places	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at a few places
Rayalaseema	DRY	Rainfall at isolated places	Rainfall at a many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places
Telangana	DRY	DRY	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places

### (ii) Wind warning

Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph likely to prevail over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November. It is likely to increase with wind speed of the order of 45-55 kmph gusting to 65 kmph likely over Southwest & adjoining west-central Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> and of the order of 55-65 kmph gusting to 75 kmph likely over the same area and also along & off South Andhra Pradesh coast and over Gulf of Mannar on 24<sup>th</sup> November. It is very likely to increase gradually becoming 80-90 kmph gusting 100 kmph over southwest Bay of Bengal, and along and off Tamilnadu and Puducherry coasts around the region of landfall on 25<sup>th</sup> November 2020. Squally weather with wind speed reaching 55-65 kmph gusting to 75 kmph likely to prevail over Andhra Pradesh coast on 25<sup>th</sup> November 2020.

### (iii) Sea condition

Sea condition will be rough to very rough over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup>; Southwest & adjoining west-central Bay of Bengal and along & off Tamil Nadu &

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



Puducherry coasts on 23<sup>rd</sup> and very rough to High over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry & south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> and 25<sup>th</sup> November, 2020.

#### (iv) Fishermen Warning

Fishermen are advised not to venture into Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal on 22<sup>nd</sup> November; over Southwest & adjoining west-central Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 22-25<sup>th</sup> November.

Also the fishermen out at Sea are advised to return to the coast by today.

## 2. Very Severe Cyclonic Storm "GATI" crossing Somalia Coast

The very severe cyclonic storm "GATI" over southwest Arabian Sea moved nearly westwards with a speed of about 18 kmph during past 06 hours and lay centred over Somalia Coast at 2030 hrs IST of today 22<sup>nd</sup> November 2020 near Latitude 10.4°N and Longitude 51.0°E, 80 km south-southeast of Ras Binnah (Somalia). The landfall process is continuing and it will take about an hour to complete the entire landfall process with a wind speed of 130-140 kmph gusting to 155 kmph. It is very likely to move nearly westwards and weaken gradually into a severe cyclonic storm during next 3 to 6 hours and into a cyclonic storm during subsequent 6 hours.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
22.11.20/2030	10.4/51.0	130-140 Gusting TO 155	Very Severe Cyclonic Storm
22.11.20/2300	10.5/50.6	120-130 Gusting TO 145	Very Severe Cyclonic Storm
23.11.20/0530	10.6/49.5	90-100 Gusting TO 110	Severe Cyclonic Storm
23.11.20/1130	10.6/48.4	60-70 Gusting TO 80	Cyclonic Storm
23.11.20/1730	10.6/47.3	40-50 Gusting TO 60	Depression
24.11.20/0530	10.5/45.1	20-30 Gusting TO 40	Low Pressure Area

As the system is very likely to move away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, warnings for Ship and Fishermen prevail over southwest Arabian Sea as specified below.

#### (i) Wind warning

Gale wind speed reaching 130-140 kmph gusting to 155 kmph is prevailing over southwest Arabian Sea and along and off north Somalia coast. It is very likely to continue with same speed for next 03 hours. It will gradually decrease thereafter becoming 50-60 kmph gusting to 70 kmph over this area by 23<sup>rd</sup> November morning.

#### (ii) Sea condition

Sea condition will be phenomenal over southwest Arabian Sea along and off north Somalia coast during next 03 hours and thereafter it will be very high to high till 23<sup>rd</sup> November morning and improve thereafter.

#### (iii) Fishermen Warning

Fishermen are advised not to venture into southwest Arabian Sea till 23<sup>rd</sup> November noon.

*The next bulletin will be issued at 0230 hrs IST of 23<sup>rd</sup> November, 2020.*

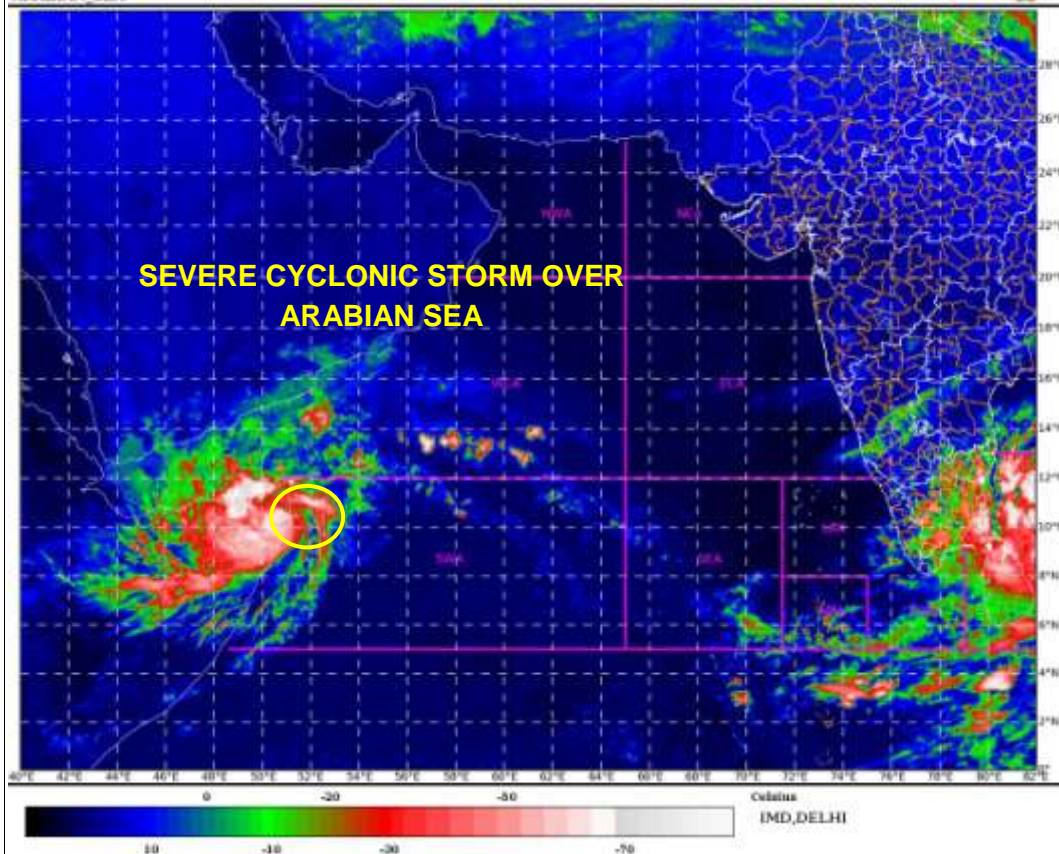
(D. R. PATTANAIK)  
Scientist-F, RSMC, New Delhi

Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC  
Thiruvananthapuram

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

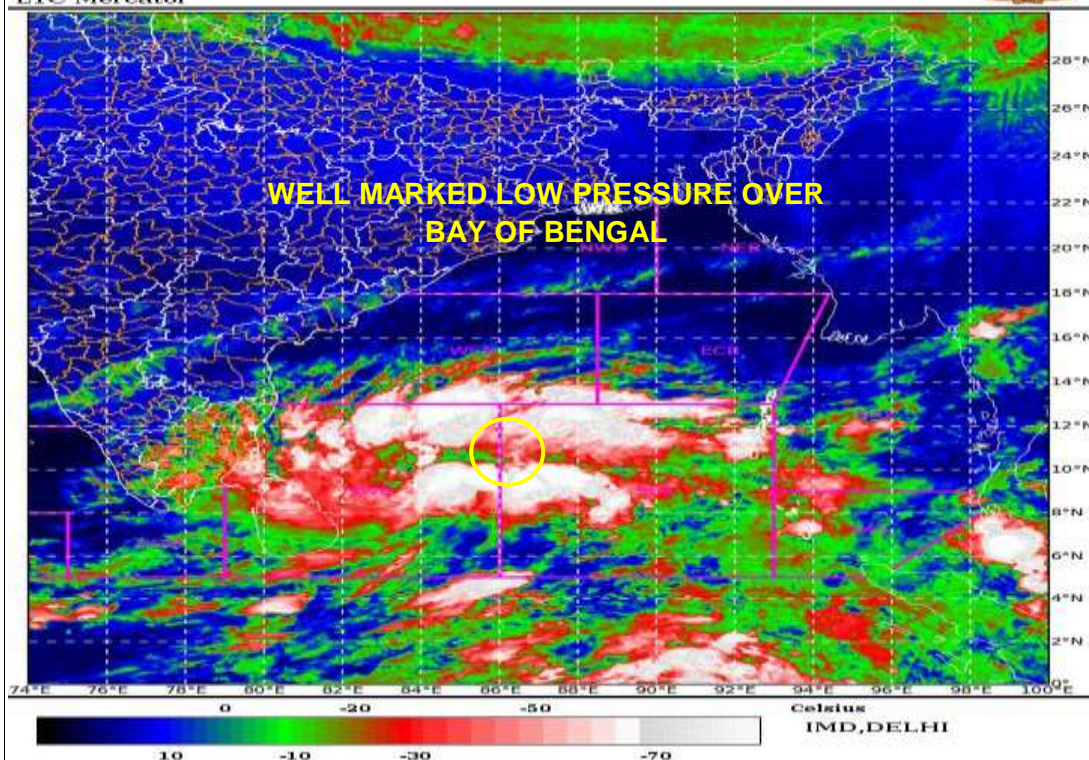
SAT : INSAT-3D IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 ARABIAN SEA

22-11-2020(1530 to 1556) GMT  
 22-11-2020(2100 to 2126) IST



SAT : INSAT-3D IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 LIC Mercator

22-11-2020/(1530 to 1556) GMT  
 22-11-2020/(2100 to 2126) IST

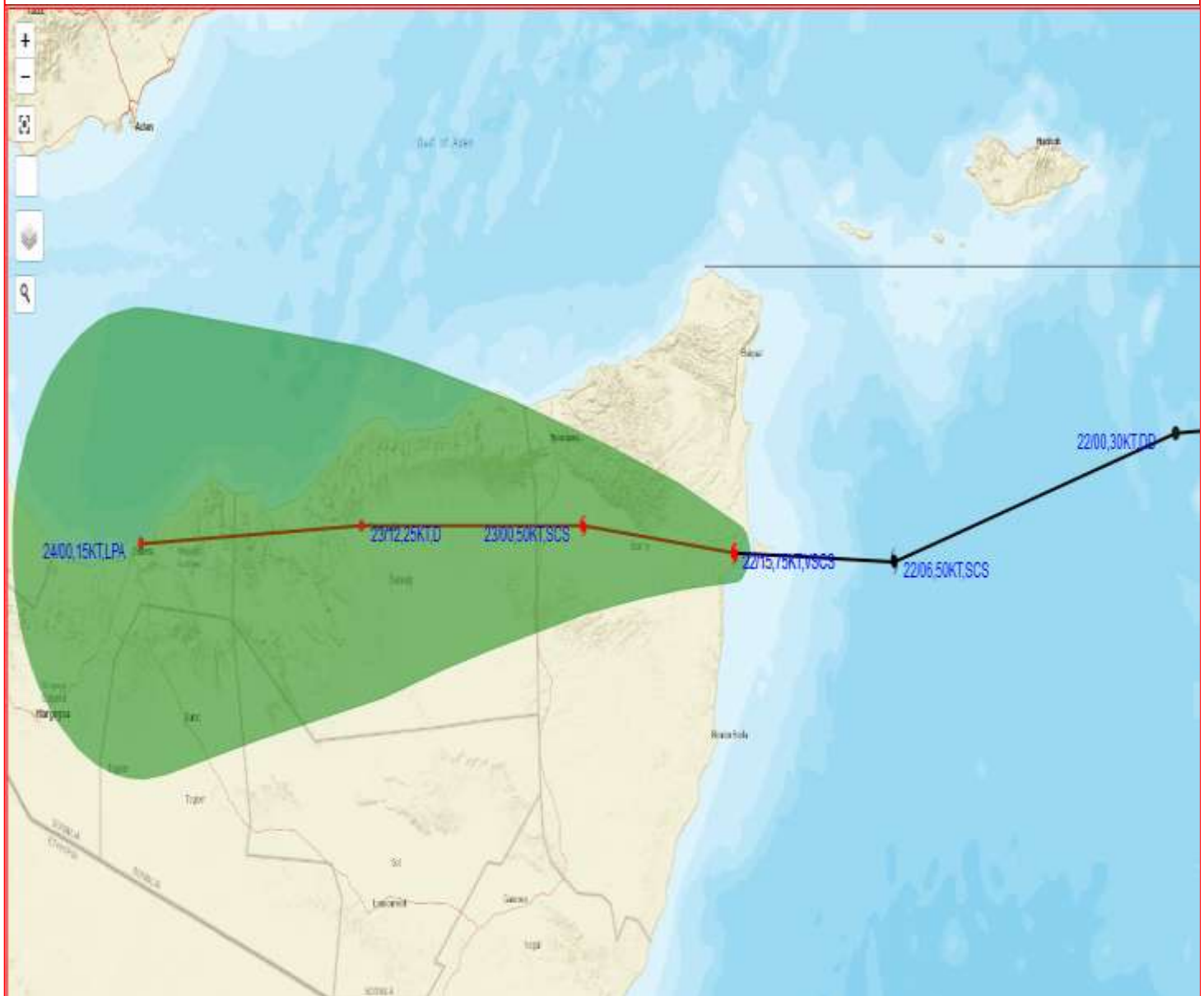


Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





## OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 1500UTC OF 22<sup>nd</sup> Nov, 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

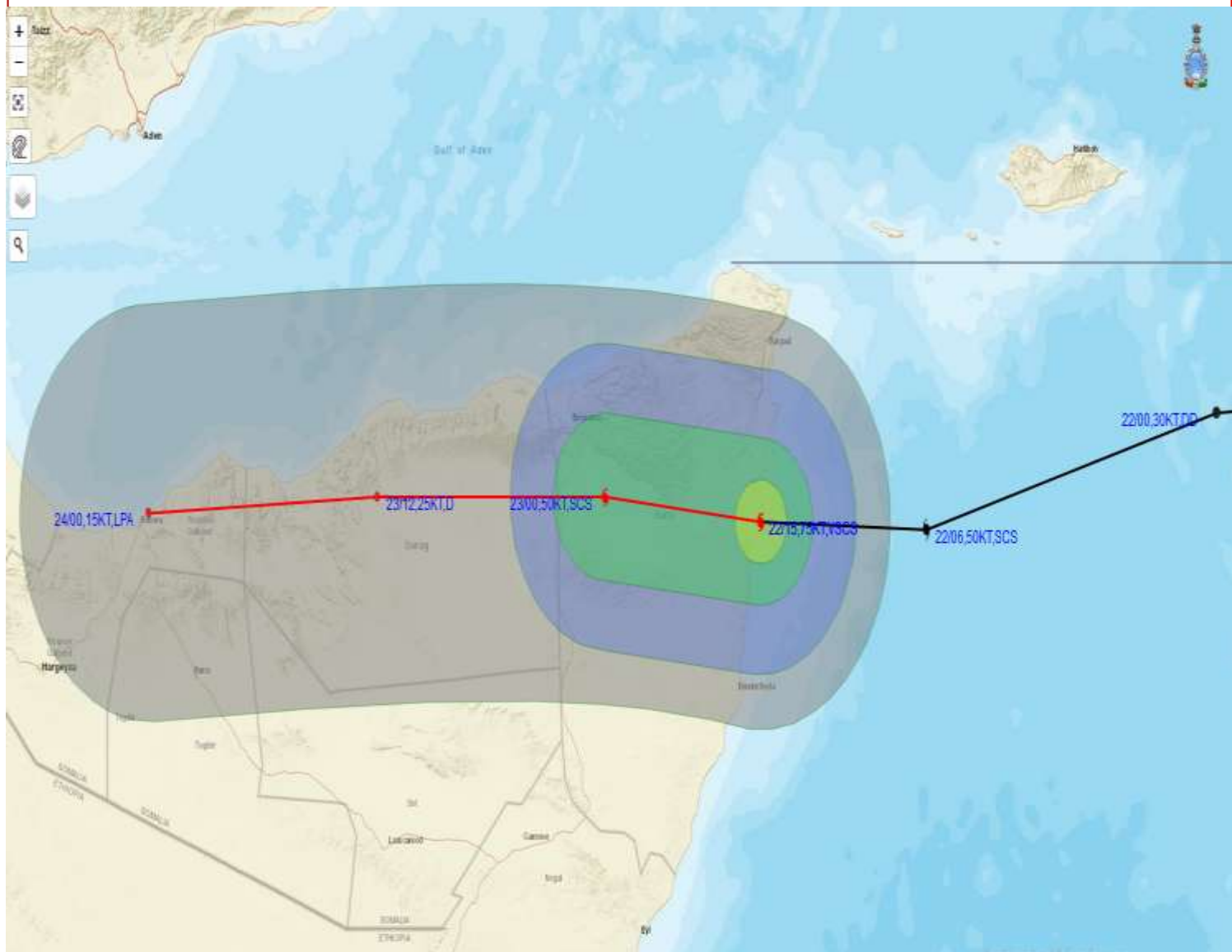
- LESS THAN 34 KT
- 34-47 KT
- $\geq 48$  KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK OF DEPRESSION ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM GATI OVER SOUTHWEST ARABIAN SEA BASED ON 1500UTC OF 22<sup>nd</sup> Nov,



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥20 KT)

● LESS THAN 34 KT

○ 34-47 KT

● ≥ 48 KT

— OBSERVED TRACK

— FORECAST TRACK

— CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

— 28-33 KT (52-61 KMPH)

— 34-49 KT (62-91 KMPH)

— 50-63 KT (92-117 KMPH)

— ≥ 64 KT (≥118 KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 08(ARB/04/2020)**

**TIME OF ISSUE: 0200 HOURS IST**

**DATED: 23.11.2020**

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES, (FAX NO. 24629777)

H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)

DIRECTOR GENERAL, DOORDARSHAN (23385843)

DIRECTOR GENERAL, AIR (23421105, 23421219)

PIB MOES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)

CHIEF SECRETARY, GOVT. OF MAHARASHTRA (FAX NO. 022 22028594)

CHIEF SECRETARY, GUJARAT (FAX NO.079-23250305)

CHIEF SECRETARY, DAMAN, DIU, NAGAR HAVELI (FAX NO.0260-2642702)

CHIEF SECRETARY, GOA (FAX NO. 0832-2415201)

CHIEF SECRETARY, KARNATAKA (FAX NO. 080-22256360)

CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)

CHIEF SECRETARY, LAKSHADWEEP ISLANDS (FAX NO. 04896-262184)

CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)

CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)

CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)

CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)

CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)

CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)

CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal—  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)  
(2) Very Severe Cyclonic Storm “GATI” crossed Somalia coast**

**1. Well Marked Low Pressure area over southwest and adjoining southeast Bay of Bengal-  
(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)**

The well marked low pressure area over southwest & adjoining southeast Bay of Bengal persists. It is very likely to concentrate into a depression over Southwest Bay of Bengal during next 06 hours and intensify further into a cyclonic storm during subsequent 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mahabalipuram around 25<sup>th</sup> November 2020 noon/afternoon. The system while moving northwestwards, would skirt northeast Sri Lanka coast on 24th November, 2020.

**Warnings:**

**(i) Rainfall**

Under its influence, the rainfall activity is likely to increase over south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema & Telangana during 25<sup>th</sup> to 26<sup>th</sup> November, 2020.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> & 25<sup>th</sup> and over south Coastal Andhra Pradesh & Rayalaseema on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	22 Nov 2020*	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at a few places	Rainfall at a many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at a many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	DRY	Rainfall at isolated places	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at a few places
<b>Rayalaseema</b>	DRY	Rainfall at isolated places	Rainfall at a many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places
<b>Telangana</b>	DRY	DRY	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places

### (ii) Wind warning

Squally weather with wind speed reaching 40-50 kmph gusting to 60 kmph likely to prevail over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal during next 06 hours. It is likely to increase with wind speed of the order of 45-55 kmph gusting to 65 kmph likely over Southwest & adjoining west-central Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> and of the order of 55-65 kmph gusting to 75 kmph likely over the same area and also along & off South Andhra Pradesh coast and over Gulf of Mannar on 24<sup>th</sup> November. It is very likely to increase gradually becoming 80-90 kmph gusting 100 kmph over southwest Bay of Bengal, and along and off Tamilnadu and Puducherry coasts around the region of landfall on 25<sup>th</sup> November 2020. Squally weather with wind speed reaching 55-65 kmph gusting to 75 kmph likely to prevail over Andhra Pradesh coast on 25<sup>th</sup> November 2020.

### (iii) Sea condition

Sea condition will be rough to very rough over Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal during next 06 hours; Southwest & adjoining west-central Bay of Bengal and along & off

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



Tamil Nadu & Puducherry coasts from 23<sup>rd</sup> morning and very rough to High over Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry & south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> and 25<sup>th</sup> November, 2020.

#### (iv) Fishermen Warning

Fishermen are advised not to venture into Equatorial Indian Ocean & adjoining central parts of South Bay of Bengal during next 06 hours; over Southwest & adjoining west-central Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 23-25<sup>th</sup> November.

Also the fishermen out at Sea are advised to return to the coast.

## 2. Very Severe Cyclonic Storm “GATI” crossed Somalia Coast

The very severe cyclonic storm “GATI” over southwest Arabian Sea moved nearly westwards with a speed of about 18 kmph during past 06 hours and crossed north Somalia coast near latitude 10.4°N around 2030 hrs IST as Very Severe Cyclonic Storm with an estimated sustained maximum wind speed of 130-140 kmph gusting to 155 kmph. It lay centred over north Somalia at 2330 hrs IST of 22<sup>nd</sup> November 2020 near Latitude 10.4°N and Longitude 50.5°E, 110 km south-southwest of Ras Binnah (Somalia). It is very likely to move nearly westwards and weaken gradually into a severe cyclonic storm during next 3 to 6 hours and into a cyclonic storm during subsequent 6 hours.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
22.11.20/2330	10.4/50.5	120-130 Gusting TO 145	Very Severe Cyclonic Storm
23.11.20/0530	10.5/49.5	90-100 Gusting TO 110	Severe Cyclonic Storm
23.11.20/1130	10.6/48.4	60-70 Gusting TO 80	Cyclonic Storm
23.11.20/1730	10.6/47.3	40-50 Gusting TO 60	Depression
23.11.20/2330	10.6/46.2	20-30 Gusting TO 40	Low Pressure Area

As the system has moved away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, warnings for Ship and Fishermen prevail over southwest Arabian Sea as specified below.

#### (i) Wind warning

Gale wind speed reaching 120-130 kmph gusting to 145 kmph is prevailing over southwest Arabian Sea and along and off north Somalia coast. It is very likely to continue with same speed for next 03 hours. It will gradually decrease thereafter becoming 50-60 kmph gusting to 70 kmph over this area by 23<sup>rd</sup> November forenoon.

#### (ii) Sea condition

Sea condition will be phenomenal over southwest Arabian Sea along and off north Somalia coast during next 03 hours and thereafter it will be very high to high till 23<sup>rd</sup> November morning and improve thereafter.

#### (iii) Fishermen Warning

Fishermen are advised not to venture into southwest Arabian Sea till 23<sup>rd</sup> November noon.

*The next bulletin will be issued at 0530 hrs IST of 23<sup>rd</sup> November, 2020.*

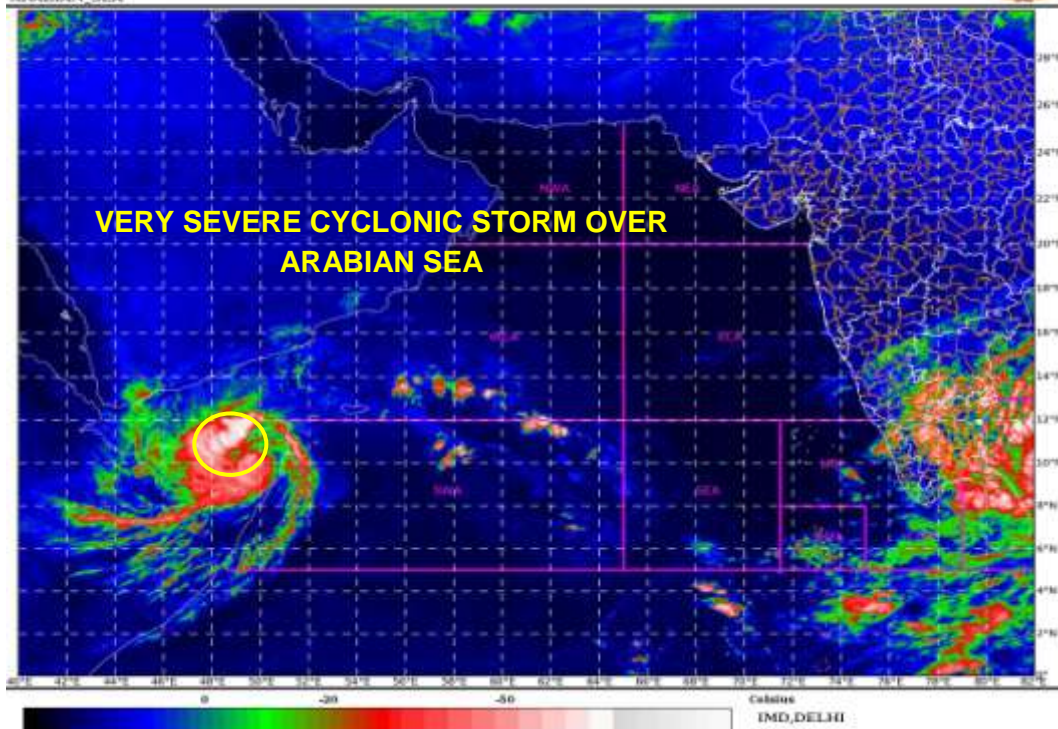
(D. R. PATTANAIK)  
Scientist-F, RSMC, New Delhi

Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC  
Thiruvananthapuram

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

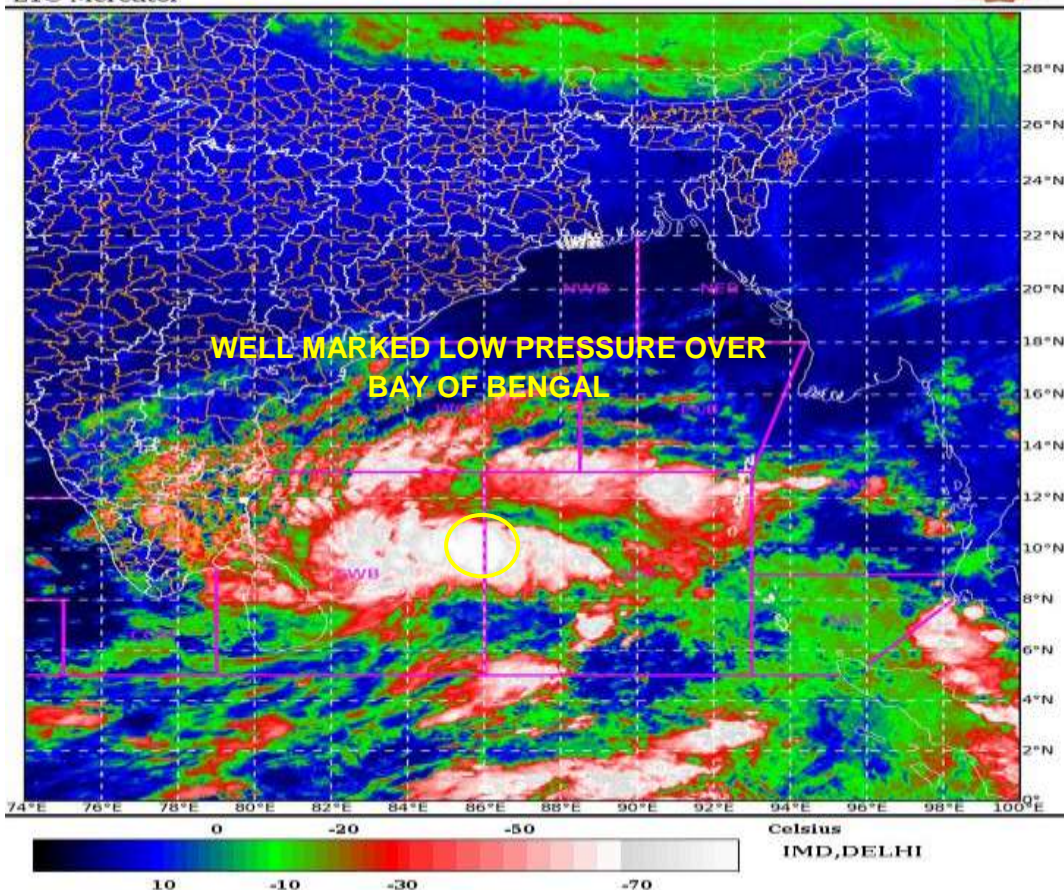
SAT : INSAT-3DR IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 ARABIAN\_SEA

22-11-2020(1915 to 1942) GMT  
 23-11-2020(0045 to 0112) IST



SAT : INSAT-3DR IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 L1C Mercator

22-11-2020/(1915 to 1942) GMT  
 23-11-2020/(0045 to 0112) IST

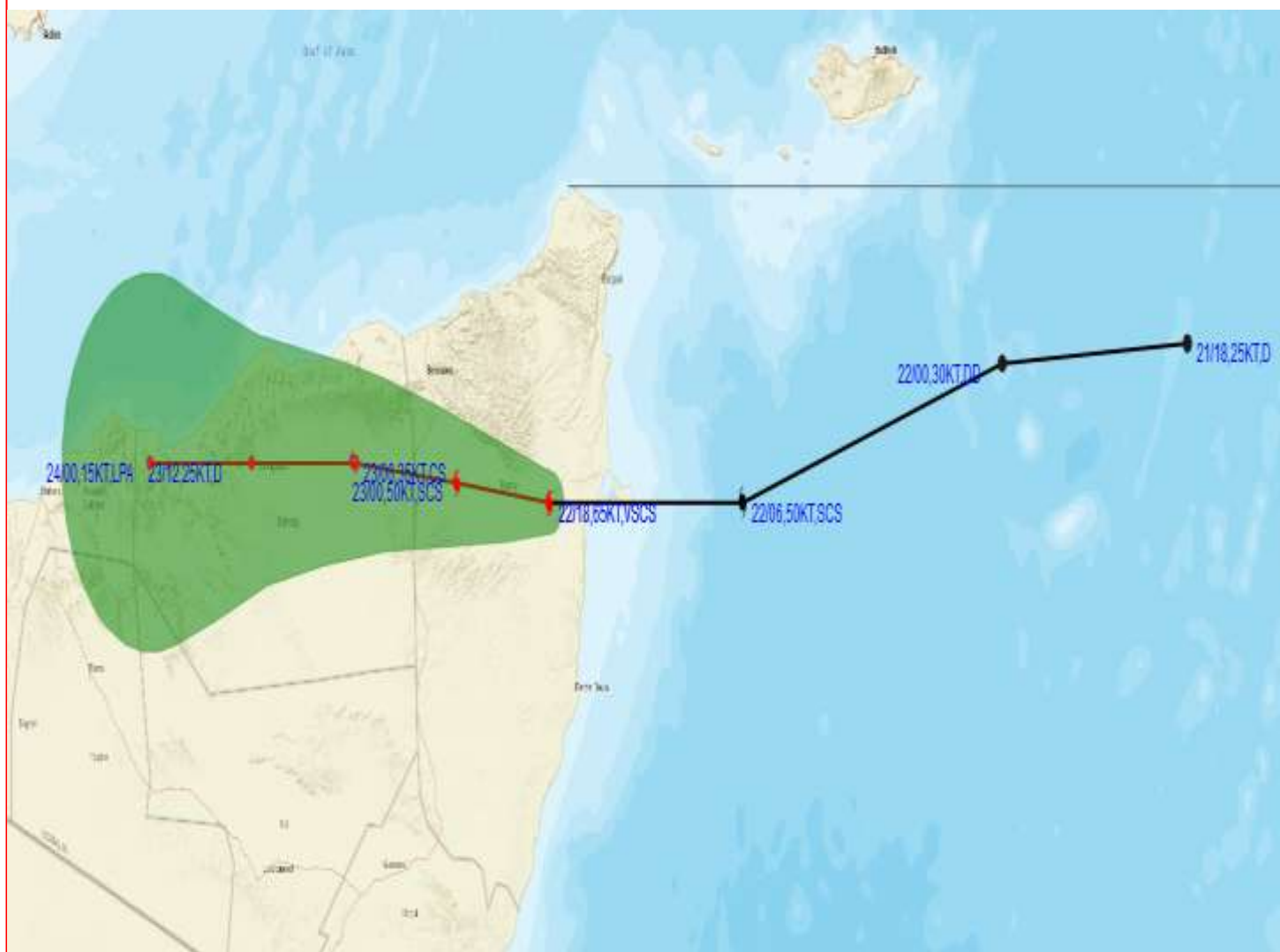


Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22<sup>nd</sup> Nov, 2020.



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

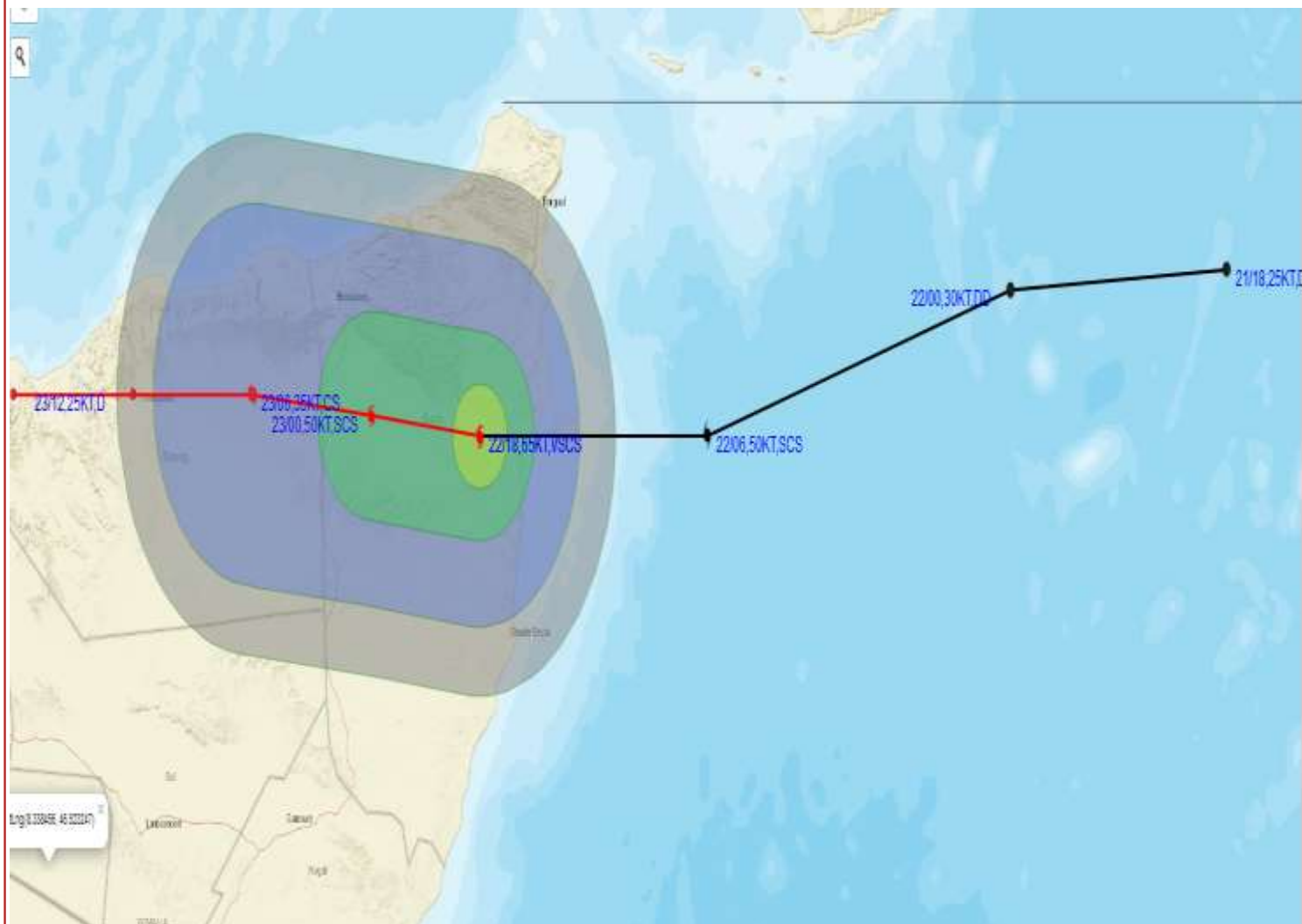
● LESS THAN 34 KT  
○ 34-47 KT  
○  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22<sup>nd</sup> Nov, 2020.



**DATE/TIME IN UTC**

**IST=UTC + 0530**

**L: LOW PRESSURE AREA**

**WML: WELL MARKED LOW PRESSURE AREA**

**D: DEPRESSION (17-27 KT)**

**DD: DEEP DEPRESSION (28-33 KT)**

**CS: CYCLONIC STORM (34-47 KT)**

**SCS: SEVERE CYCLONIC STORM (48-63KT)**

**VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)**

**ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)**

**SuCS: SUPER CYCLONIC STORM (≥20 KT)**

● LESS THAN 34 KT

● 34.47 KT

● ≥ 48 KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

**AREA OF MAXIMUM SUSTAINED WIND SPEED:**

■ 28-33 KT (52-61 KMPH)

■ 34-49 KT (62-91 KMPH)

■ 50-63 KT (92-117 KMPH)

■ ≥ 64 KT (≥118 KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

**Spatial rainfall distribution:** Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

**Rainfall amount (mm):** Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 09(ARB/04/2020)**

**TIME OF ISSUE: 0550 HOURS IST**

**DATED: 23.11.2020**

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES, (FAX NO. 24629777)

H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)

DIRECTOR GENERAL, DOORDARSHAN (23385843)

DIRECTOR GENERAL, AIR (23421105, 23421219)

PIB MOES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)

CHIEF SECRETARY, GOVT. OF MAHARASHTRA (FAX NO. 022 22028594)

CHIEF SECRETARY, GUJARAT (FAX NO.079-23250305)

CHIEF SECRETARY, DAMAN, DIU, NAGAR HAVELI (FAX NO.0260-2642702)

CHIEF SECRETARY, GOA (FAX NO. 0832-2415201)

CHIEF SECRETARY, KARNATAKA (FAX NO. 080-22256360)

CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)

CHIEF SECRETARY, LAKSHADWEEP ISLANDS (FAX NO. 04896-262184)

CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)

CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)

CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)

CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)

CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)

CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)

CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Well Marked Low Pressure area intensified into Depression over southwest and adjoining southeast Bay of Bengal—(cyclone Watch for Tamilnadu and Puducherry coasts)**

**(2) Very Severe Cyclonic Storm “GATI” weakened into a Severe Cyclonic Storm over Somalia**

**1) Well Marked Low Pressure area intensified into Depression over southwest and adjoining southeast Bay of Bengal—(Pre-cyclone Watch for Tamilnadu and Puducherry coasts)**

The well marked low pressure area over southwest & adjoining southeast Bay of Bengal concentrated into a depression over Southwest Bay of Bengal and lay centred at 0230 hrs IST of 23<sup>rd</sup> November 2020 near Latitude 8.6°N and Longitude 85.2°E, about 700 km south-southeast of Puducherry and 740 km south-southeast of Chennai. It is likely to intensify further into a cyclonic storm during next 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mamallapuram around 25<sup>th</sup> November 2020 noon/afternoon. The system while moving north-westwards, would skirt northeast Sri Lanka coast on 24th November, 2020.

**Warnings:**

**(i) Rainfall**

Under its influence, the rainfall activity is likely to increase over south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry &

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema & Telangana during 25<sup>th</sup> to 26<sup>th</sup> November, 2020.

Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> & 25<sup>th</sup> and over south Coastal Andhra Pradesh & Rayalaseema on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	Rainfall at isolated places	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at a few places
<b>Rayalaseema</b>	Rainfall at isolated places	Rainfall at many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places
<b>Telangana</b>	DRY	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places

### (ii) Wind warning

Squally weather with wind speed of 45-55 kmph gusting to 65 kmph likely over Southwest & adjoining west-central & southeast Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> and of the order of 55-65 kmph gusting to 75 kmph likely over the same area and also along & off South Andhra Pradesh coast and over Gulf of Mannar on 24<sup>th</sup> November. It is very likely to increase gradually becoming 80-90 kmph gusting 100 kmph over southwest Bay of Bengal, and along and off Tamilnadu and Puducherry coasts around the region of landfall on 25<sup>th</sup> November 2020. Squally weather with wind speed reaching 55-65 kmph gusting to 75 kmph likely to prevail over Andhra Pradesh coast on 25<sup>th</sup> November 2020.

### (iii) Sea condition

Sea condition will be rough to very rough over Southwest & adjoining west-central & southeast Bay of Bengal and along & off Tamil Nadu & Puducherry coasts from 23<sup>rd</sup> morning and very rough to High over

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



Southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry & south Andhra Pradesh coasts and also over Gulf of Mannar on 24<sup>th</sup> and 25<sup>th</sup> November, 2020.

**(iv) Fishermen Warning**

Fishermen are advised not to venture into Southwest & adjoining west-central & southeast Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 23-25<sup>th</sup> November.

Also the fishermen out at Sea are advised to return to the coast.

**2. Very Severe Cyclonic Storm “GATI” weakened into a Severe Cyclonic Storm over Somalia**

The very severe cyclonic storm “GATI” over north Somalia moved nearly westwards with a speed of about 16 kmph during past 06 hours and weakened into Severe Cyclonic Storm over the same region and lay centred at 0230 hrs IST of 23<sup>rd</sup> November 2020 near Latitude 10.4°N and Longitude 50.1°E, 140 km south-southwest of Ras Binnah (Somalia). It is very likely to move nearly westwards and weaken gradually into a cyclonic storm during next 6 to 12 hours.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/0230	10.4/50.1	105-115 Gusting TO 125	Severe Cyclonic Storm
23.11.20/0530	10.5/49.5	90-100 Gusting TO 110	Severe Cyclonic Storm
23.11.20/1130	10.6/48.4	60-70 Gusting TO 80	Cyclonic Storm
23.11.20/1730	10.6/47.3	40-50 Gusting TO 60	Depression
23.11.20/2330	10.6/46.2	20-30 Gusting TO 40	Low Pressure Area

As the system has moved away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, warnings for Ship and Fishermen prevail over southwest Arabian Sea as specified below.

**(i) Wind warning**

Gale wind speed reaching 105-115 kmph gusting to 125 kmph is prevailing over southwest Arabian Sea along and off north Somalia coast and adjoining areas. It will gradually decrease becoming 50-60 kmph gusting to 70 kmph over this area by 23<sup>rd</sup> November forenoon.

**(ii) Sea condition**

Sea condition will be very high to high over southwest Arabian Sea along and off north Somalia coast till 23<sup>rd</sup> November morning and improve thereafter.

**(iii) Fishermen Warning**

Fishermen are advised not to venture into southwest Arabian Sea till 23<sup>rd</sup> November noon.

*The next bulletin will be issued at 0830 hrs IST of 23<sup>rd</sup> November, 2020.*

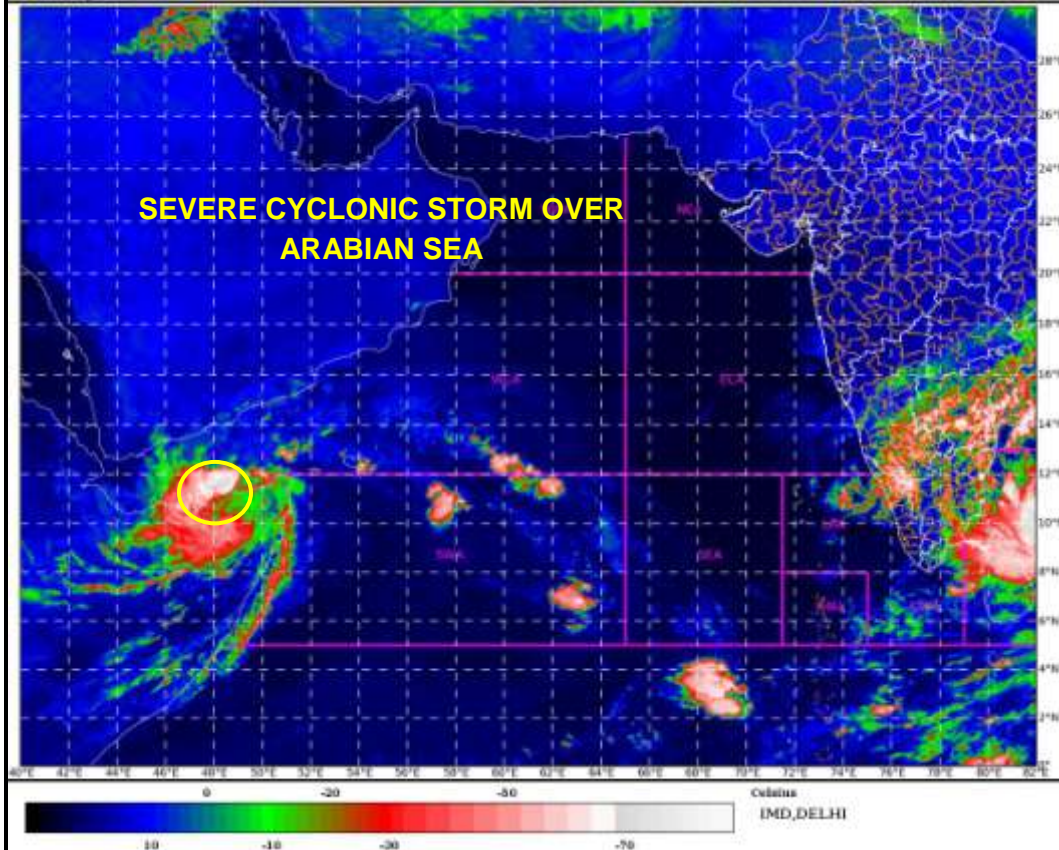
**(D. R. PATTANAIK)**  
Scientist-F, RSMC, New Delhi

Copy to: ACWC    Kolkata/Chennai/CWC    Bhubaneswar/CWC    Visakhapatnam/CWC  
Thiruvananthapuram

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

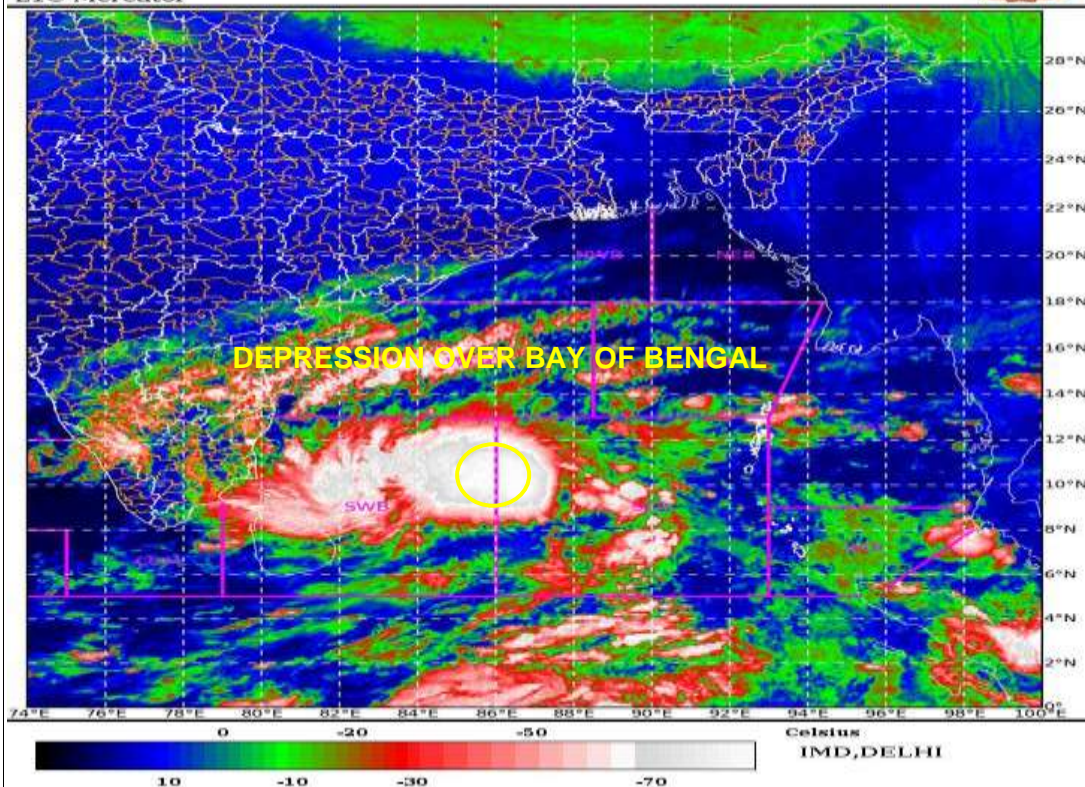
SAT : INSAT-3DR IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 ARABIAN SEA

22-11-2020(2315 to 2342) GMT  
 23-11-2020(0445 to 0512) IST



SAT : INSAT-3DR IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 L1C Mercator

22-11-2020(2315 to 2342) GMT  
 23-11-2020(0445 to 0512) IST



Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF DEPRESSION SOUTHWEST BAY OF BENGAL BASED ON 2100 UTC OF 22<sup>nd</sup> Nov, 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

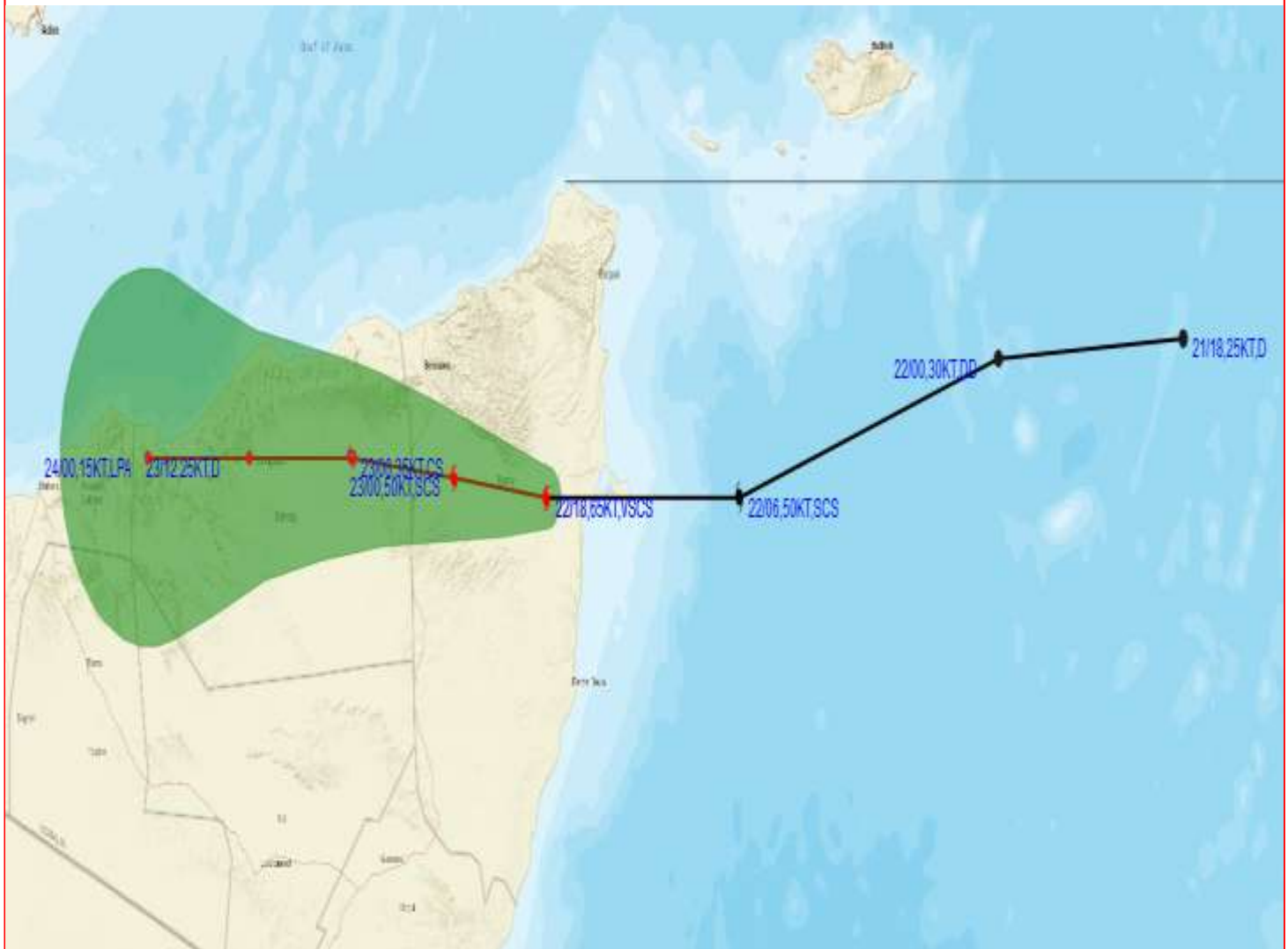
● LESS THAN 34 KT  
⬮ 34-47 KT  
⬮  $\geq 48$  KT  
■ OBSERVED TRACK  
■ FORECAST TRACK  
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22<sup>nd</sup> Nov, 2020.



## DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥20 KT)



LESS THAN 34 KT



34-47 KT



≥ 48 KT



OBSERVED TRACK



FORECAST TRACK



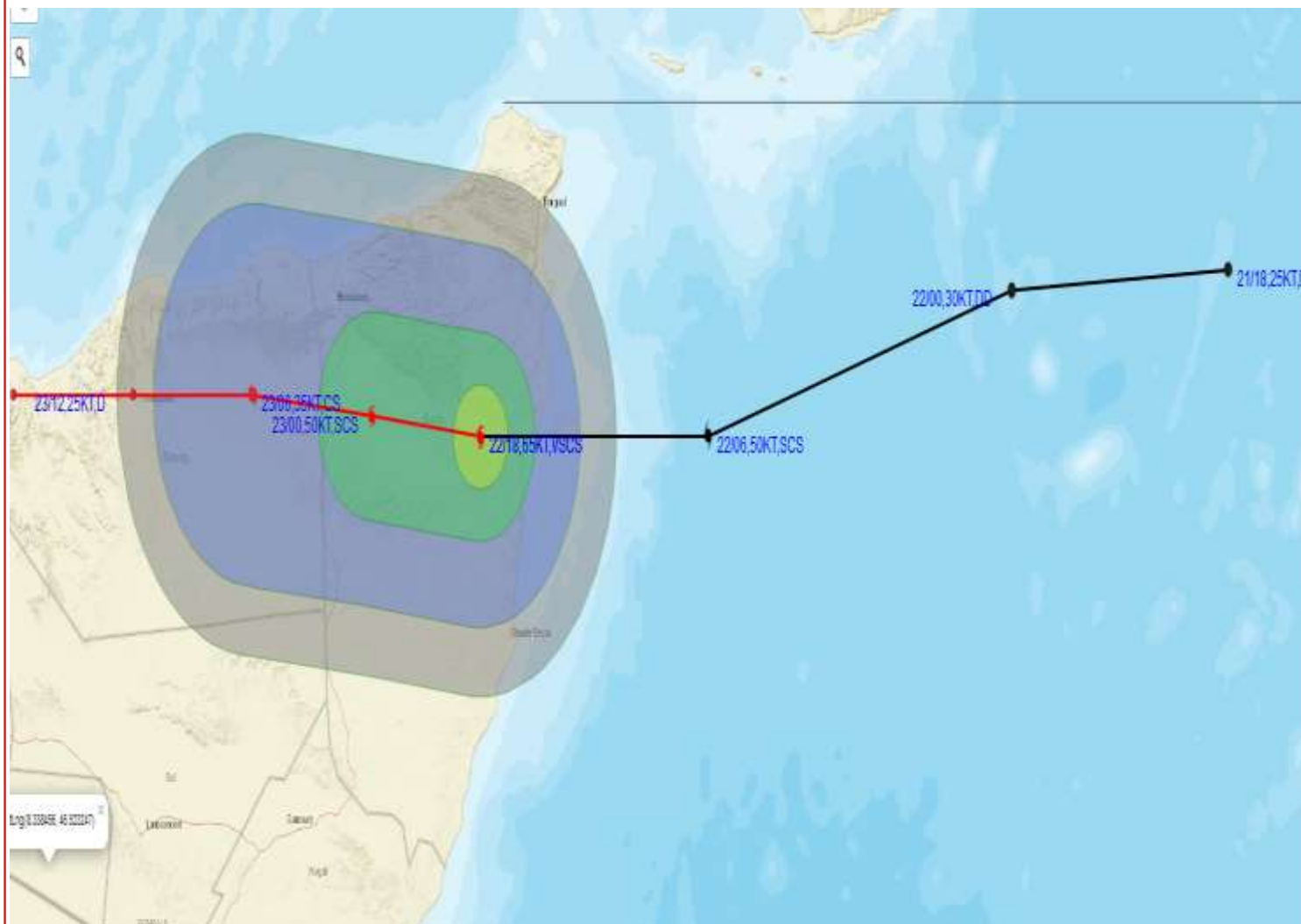
CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF VERY SEVERE CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 1800 UTC OF 22<sup>nd</sup> Nov, 2020.



**DATE/TIME IN UTC**

**IST=UTC + 0530**

**L: LOW PRESSURE AREA**

**WML: WELL MARKED LOW PRESSURE AREA**

**D: DEPRESSION (17-27 KT)**

**DD: DEEP DEPRESSION (28-33 KT)**

**CS: CYCLONIC STORM (34-47 KT)**

**SCS: SEVERE CYCLONIC STORM (48-63KT)**

**VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)**

**ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)**

**SuCS: SUPER CYCLONIC STORM (≥20 KT)**

● LESS THAN 34 KT

○ 34-47 KT

● ≥ 48 KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

**AREA OF MAXIMUM SUSTAINED WIND SPEED:**

■ 28-33 KT (52-61 KMPH)

■ 34-49 KT (62-91 KMPH)

■ 50-63 KT (92-117 KMPH)

■ ≥ 64 KT (≥118 KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

**Spatial rainfall distribution:** Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

**Rainfall amount (mm):** Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 10(ARB/04/2020) and 02(BOB/04/2020)**

**TIME OF ISSUE: 0830 HOURS IST**

**DATED: 23.11.2020**

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES, (FAX NO. 24629777)

H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)

DIRECTOR GENERAL, DOORDARSHAN (23385843)

DIRECTOR GENERAL, AIR (23421105, 23421219)

PIB MOES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)

CHIEF SECRETARY, GOVT. OF MAHARASHTRA (FAX NO. 022 22028594)

CHIEF SECRETARY, GUJARAT (FAX NO.079-23250305)

CHIEF SECRETARY, DAMAN, DIU, NAGAR HAVELI (FAX NO.0260-2642702)

CHIEF SECRETARY, GOA (FAX NO. 0832-2415201)

CHIEF SECRETARY, KARNATAKA (FAX NO. 080-22256360)

CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)

CHIEF SECRETARY, LAKSHADWEEP ISLANDS (FAX NO. 04896-262184)

CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)

CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)

CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)

CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)

CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)

CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)

CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Depression over southwest and adjoining southeast Bay of Bengal—(cyclone alert for Tamilnadu and Puducherry coasts)**

**(2) Severe Cyclonic Storm "GATI" over Somalia weakened into a cyclonic storm**

**(1) Depression over southwest and adjoining southeast Bay of Bengal—(cyclone alert for Tamilnadu and Puducherry coasts)**

The Depression over southwest and adjoining southeast Bay of Bengal moved nearly northwestwards in past 06 hours and lay centred at 0530 hrs IST of 23rd November 2020 near Latitude 9.3°N and Longitude 84.5°E, about 600 km south-southeast of Puducherry and 630 km south-southeast of Chennai. It is very likely to intensify into a cyclonic storm during next 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mamallapuram around 25<sup>th</sup> November 2020 afternoon.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/0530	9.3/84.5	40-50 Gusting To 60	Depression
23.11.20/1730	10.0/83.4	55-65 Gusting To 75	Deep Depression
24.11.20/0530	10.3/82.3	65-75 Gusting To 85	Cyclonic Storm
24.11.20/1730	10.6/81.5	90-100 Gusting To 110	Severe Cyclonic Storm
25.11.20/0530	11.2/80.8	100-110 Gusting To 120	Severe Cyclonic Storm
25.11.20/1730	12.0/79.8	90-100 Gusting To 110	Severe Cyclonic Storm
26.11.20/0530	13.0/78.5	55-65 Gusting To 75	Deep Depression

#### Warnings:

##### (i) Rainfall

Under its influence, the rainfall activity is likely to increase over south peninsular India from 23<sup>rd</sup> November onwards with fairly widespread to widespread rainfall/thunderstorm activity over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema & Telangana during 25<sup>th</sup> to 26<sup>th</sup> November, 2020. Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry during 24<sup>th</sup> & 25<sup>th</sup> and over south Coastal Andhra Pradesh & Rayalaseema on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*
Coastal Andhra Pradesh	Rainfall at isolated places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls
Tamilnadu, Puducherry & Karaikal	Rainfall at many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places
South Interior Karnataka	Rainfall at isolated places	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at a few places
Rayalaseema	Rainfall at isolated places	Rainfall at many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places
Telangana	DRY	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places

##### (ii) Wind warning

Squally weather with wind speed of 45-55 kmph gusting to 65 kmph likely over Southwest & adjoining west-central & southeast Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> November. It would increase gradually becoming 65-75 kmph gusting to 85 kmph over the southwest and adjoining westcentral Bay of Bengal and 55-65 kmph gusting to 75 kmph along and off Tamil Nadu and adjoining South Andhra Pradesh coast and over Gulf of Mannar from 24<sup>th</sup> November morning. It would

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

further increase becoming 100-110 kmph gusting to 120 kmph over the southwest Bay of Bengal along and off north Tamil Nadu and Puducherry coasts, 65-75 kmph gusting to 85 kmph very likely over adjoining westcentral Bay along and off South Andhra Pradesh, Gulf of Mannar and along and off south Tamil Nadu coast from 25<sup>th</sup> November morning for subsequent 12 hrs.

### (iii) Sea condition

Sea condition is rough to very rough over Southwest & adjoining west-central & southeast Bay of Bengal and along & off Tamil Nadu & Puducherry and south Andhra Pradesh coasts and over Gulf of Mannar. It would gradually become High over the southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry coast and very rough along and off south Andhra Pradesh coast and also over Gulf of Mannar on 24<sup>th</sup>. The sea condition would be very high over the southwest and adjoining west-central Bay of Bengal and along & off north Tamil Nadu, Puducherry coasts and high along and off south Tamil Nadu & south Andhra Pradesh coasts and also over Gulf of Mannar on 25<sup>th</sup> November, 2020.

### (iv) Fishermen Warning

Fishermen are advised not to venture into Southwest & adjoining west-central & southeast Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 23-25<sup>th</sup> November. Also the fishermen out at Sea are advised to return to the coast and avoid the above sea area.

## 2. Severe Cyclonic Storm "GATI" weakened into a Cyclonic Storm over Somalia

The severe cyclonic storm "GATI" over north Somalia moved nearly westwards with a speed of about 09 kmph during past 06 hours and weakened into a Cyclonic Storm over the same region and lay centred at 0530 hrs IST of 23<sup>rd</sup> November 2020 near Latitude 10.5°N and Longitude 50.0°E, 150 km south-southwest of Ras Binnah (Somalia). It is very likely to move nearly westwards and weaken gradually into a deep depression during next 6 hours.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/0530	10.5/50.0	80-90 Gusting TO 100	Cyclonic Storm
23.11.20/1130	10.6/48.8	55-65 Gusting TO 75	Deep Depression
23.11.20/1730	10.6/47.6	40-50 Gusting TO 60	Depression
23.11.20/2330	10.7/46.4	20-30 Gusting TO 40	Low Pressure Area

As the system has moved away from the Indian coast no adverse weather associated with this system is likely over the west coast of India. However, warnings for Ship and Fishermen prevail over southwest Arabian Sea as specified below.

### (i) Wind warning

Gale wind speed reaching 80-90 kmph gusting to 100 kmph is prevailing over Gulf of Eden along and off Somalia coast and 60-70 kmph gusting to 80 kmph prevails over southwest Arabian Sea along and off north Somalia coast. It will gradually decrease becoming 40-50 kmph gusting to 60 kmph over the above area by 23<sup>rd</sup> November evening.

### (ii) Sea condition

Sea condition will be high to very rough over Gulf of Eden and southwest Arabian Sea along and off north Somalia coast till 23<sup>rd</sup> November evening and improve thereafter.

### (iii) Fishermen Warning

Fishermen are advised not to venture into Gulf of Eden and southwest Arabian Sea along and off north Somalia coast till 23<sup>rd</sup> November evening.

*The next bulletin will be issued at 1130 hrs IST of 23<sup>rd</sup> November, 2020.*

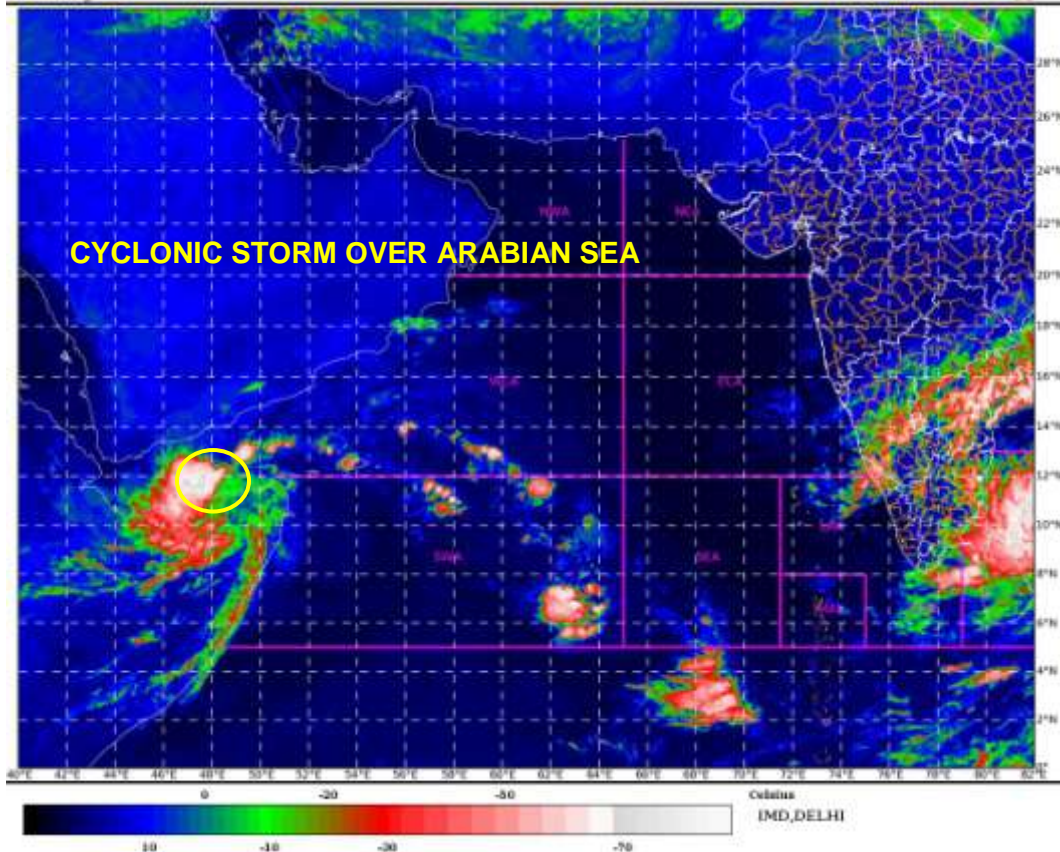
(D. R. PATTANAIK)  
Scientist-F, RSMC, New Delhi

Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC Thiruvananthapuram

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

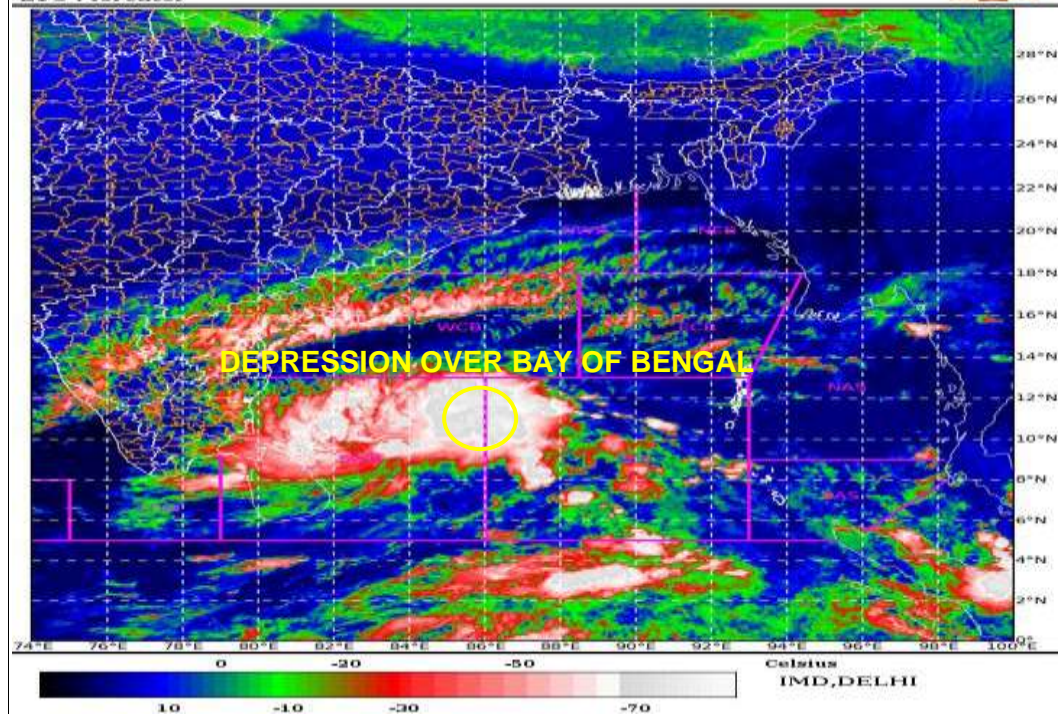
SAT : INSAT-3DR IMG  
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 ARABIAN SEA

23-11-2020(0215 to 0242) GMT  
 23-11-2020(0745 to 0812) IST



SAT : INSAT-3DR IMG  
 IMG\_TIR1\_TEMP 10.8 um  
 L1C Mercator

23-11-2020(0215 to 0242) GMT  
 23-11-2020(0745 to 0812) IST

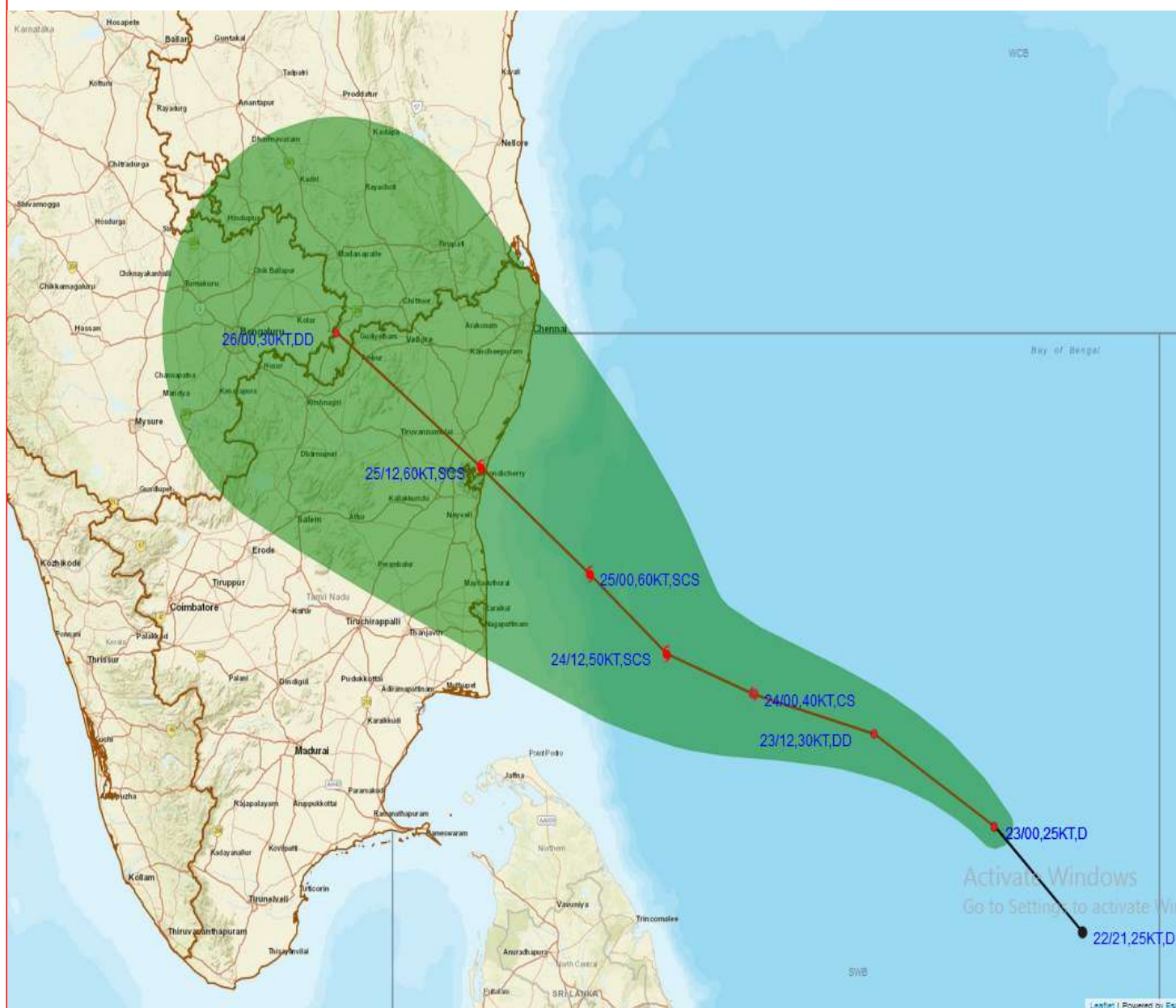


Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0000UTC OF 23<sup>rd</sup> Nov, 2020



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT

○ 34-47 KT

○  $\geq 48$  KT

— OBSERVED TRACK

— FORECAST TRACK

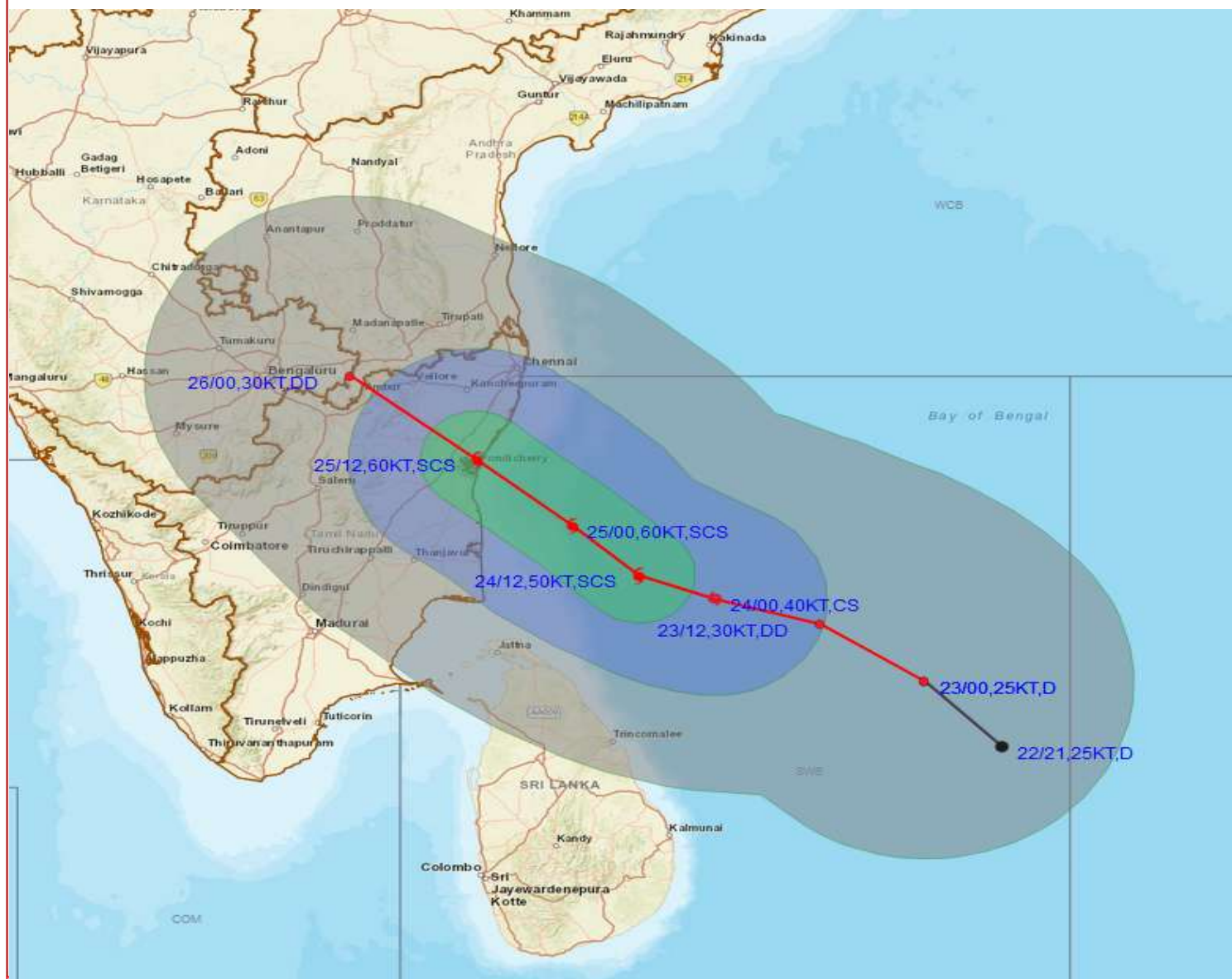
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND  
DISTRIBUTION OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL  
BASED ON 0000UTC OF 23<sup>rd</sup> Nov, 2020**



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥20 KT)

● LESS THAN 34 KT

○ 34-47 KT

● ≥ 48 KT

— OBSERVED TRACK

— FORECAST TRACK

— CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

— 28-33 KT (52-61 KMPH)

— 34-49 KT (62-91 KMPH)

— 50-63 KT (92-117 KMPH)

— ≥ 64 KT (≥118 KMPH)

**IMPACT OVER THE SEA**

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

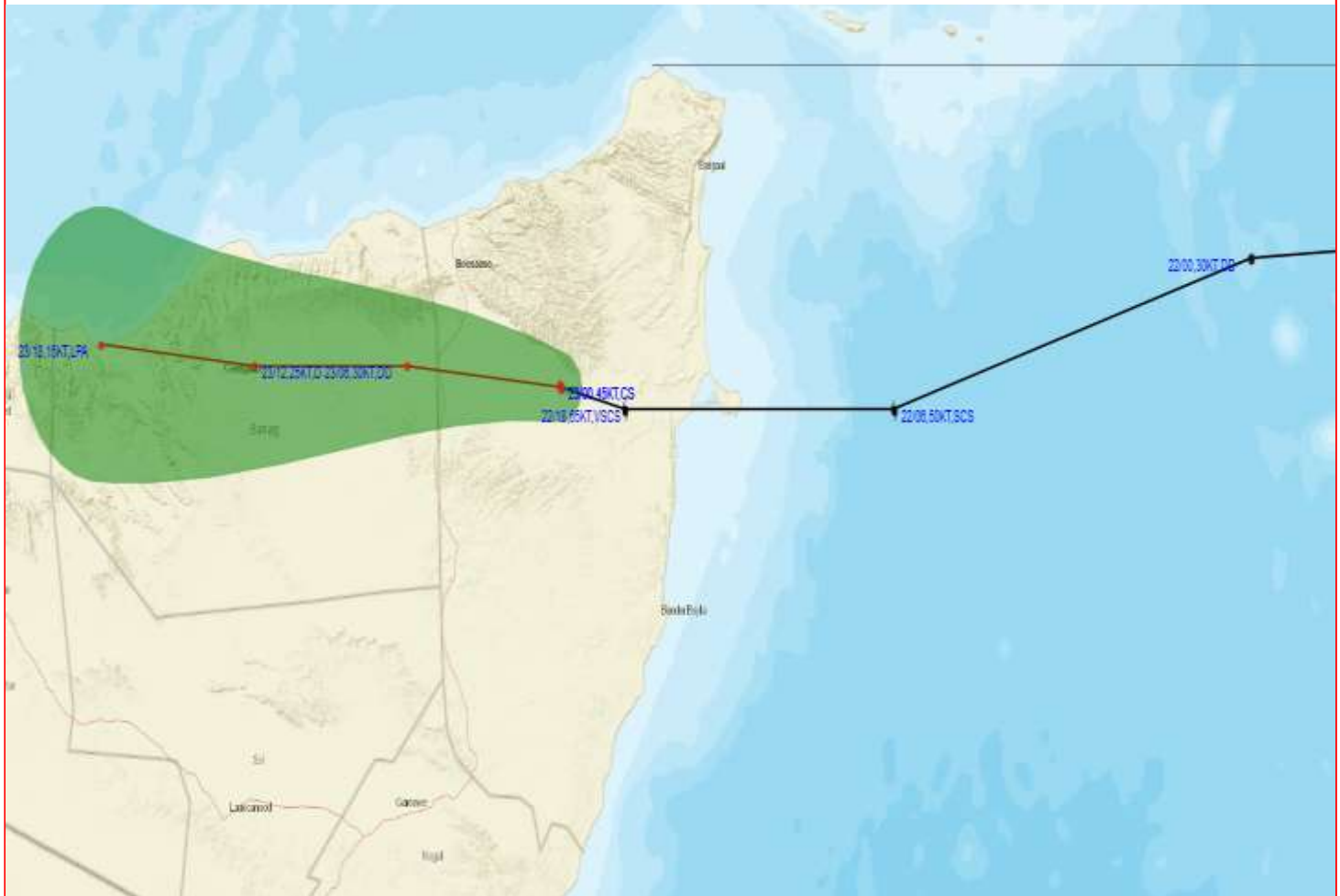
Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 0000UTC OF 23<sup>RD</sup> Nov, 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ( $\geq 20$  KT)

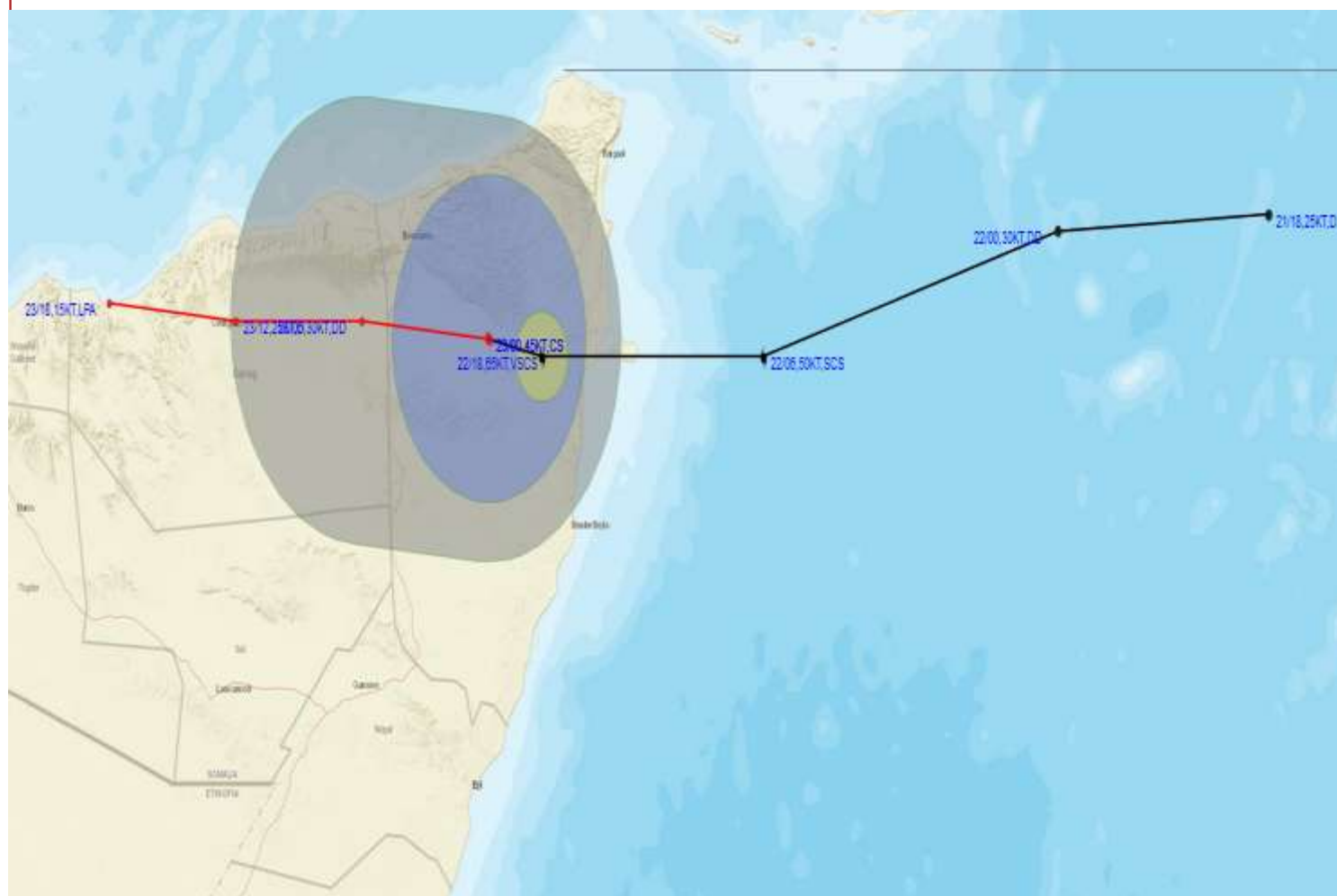
-  LESS THAN 34 KT
-  34-47 KT
-   $\geq 48$  KT
-  OBSERVED TRACK
-  FORECAST TRACK
-  CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONG WITH QUADRANT WIND DISTRIBUTION OF CYCLONIC STORM GATI OVER NORTH SOMALIA BASED ON 0000UTC OF 23<sup>RD</sup> Nov, 2020



## DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥20 KT)

● LESS THAN 34 KT

● 34-47 KT

● ≥ 48 KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

■ 28-33 KT (52-61 KMPH)

■ 34-49 KT (62-91 KMPH)

■ 50-63 KT (92-117 KMPH)

■ ≥ 64 KT (≥118 KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 11(ARB/04/2020) and 02(BOB/04/2020)**

**TIME OF ISSUE: 1200 HOURS IST**

**DATED: 23.11.2020**

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

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SECRETARY, MOES, (FAX NO. 24629777)

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CHIEF SECRETARY, LAKSHADWEEP ISLANDS (FAX NO. 04896-262184)

CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)

CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)

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CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Depression over southwest and adjoining southeast Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts- Yellow Message)**

**(2) Cyclonic Storm “GATI” over Somalia**

**(1) Depression over southwest and adjoining southeast Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts-Yellow Message)**

The Depression over southwest and adjoining southeast Bay of Bengal moved northwestwards with a speed of 25 kmph during past 06 hours and lay centred at 0830 hrs IST of 23<sup>rd</sup> November, 2020 over the same region near latitude 9.5°N and longitude 84.2°E, about 550 km east-southeast of Puducherry and 590 km southeast of Chennai. It is very likely to intensify into a cyclonic storm during next 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mamallapuram around 25<sup>th</sup> November 2020 afternoon as a severe cyclonic storm with a wind speed of 100-110 kmph gusting to 120 kmph.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/0830	9.5/84.2	45-55 gusting to 65	Depression
23.11.20/1730	10.0/83.4	55-65 gusting to 75	Deep Depression
24.11.20/0530	10.3/82.3	65-75 gusting to 85	Cyclonic Storm
24.11.20/1730	10.6/81.5	90-100 gusting to 110	Severe Cyclonic Storm
25.11.20/0530	11.2/80.8	100-110 gusting to 120	Severe Cyclonic Storm
25.11.20/1730	12.0/79.8	90-100 gusting to 110	Severe Cyclonic Storm
26.11.20/0530	13.0/78.5	55-65 gusting to 75	Deep Depression

#### Warnings:

##### (i) Heavy Rainfall Warning

Fairly widespread to widespread rainfall/thunderstorm activity very likely over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema during 25<sup>th</sup> to 26<sup>th</sup> and Telangana during 26<sup>th</sup> to 27<sup>th</sup> November, 2020. Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry (**Pudukottai, Thanjavur, Tiruvarur, Karaikal, Nagapattinam, Cuddalore, Ariyalur & Perabalu** districts during 24<sup>th</sup> and **Kadalur, Kallakurchi, Puducherry, Villupuram, Tiruvannamalai, Chengalpattu to Ariyalur, Perambalur and Karaikal** districts during 25<sup>th</sup>) and over south Coastal Andhra Pradesh & Rayalaseema (**Nellore and Chittoor districts**) on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*	27 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at many places with isolated heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places over north Tamilnadu	Rainfall at many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	Rainfall at isolated places	Rainfall at a few places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places
<b>Rayalaseema</b>	Rainfall at a few places	Rainfall at many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places
<b>Telangana</b>	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places
<b>South Chattisgarh and South Odisha</b>				Rainfall at many places with isolated heavy falls	

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



## **(ii) Wind warning**

Squally weather with wind speed of 45-55 kmph gusting to 65 kmph likely over Southwest & adjoining west-central & southeast Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> November. It would increase gradually becoming 65-75 kmph gusting to 85 kmph over the southwest and adjoining westcentral Bay of Bengal and 55-65 kmph gusting to 75 kmph along and off Tamil Nadu and adjoining South Andhra Pradesh coast and over Gulf of Mannar from 24<sup>th</sup> November morning. It would further increase becoming 100-110 kmph gusting to 120 kmph over the southwest Bay of Bengal along and off coastal districts of north Tamil Nadu and Puducherry (**Nagapattinam, Karaikal, Myladuthurai, Cuddalore, Puducherry, Villupuram & Chengalpattu districts**), 65-75 kmph gusting to 85 kmph very likely over adjoining westcentral Bay along and off South Andhra Pradesh (Nellore & Prakasham districts), Gulf of Mannar and along and off districts of south coastal districts of Tamil Nadu from 25<sup>th</sup> November morning for subsequent 12 hrs.

## **(iii) Sea condition**

Sea condition is rough to very rough over Southwest & adjoining west-central & southeast Bay of Bengal and along & off Tamil Nadu & Puducherry and south Andhra Pradesh coasts and over Gulf of Mannar. It would gradually become High over the southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry coast and very rough along and off south Andhra Pradesh coast and also over Gulf of Mannar on 24<sup>th</sup>. The sea condition would be very high over the southwest and adjoining west-central Bay of Bengal and along & off north Tamil Nadu, Puducherry coasts and high along and off south Tamil Nadu & south Andhra Pradesh coasts and also over Gulf of Mannar on 25<sup>th</sup> November, 2020.

## **(iv) Fishermen Warning**

Fishermen are advised not to venture into Southwest & adjoining west-central & southeast Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 23-25<sup>th</sup> November. Also the fishermen out at Sea are advised to return to the coast and avoid the above sea area.

## **(v) Damage expected over and Action suggested:**

- Major damage to thatched houses/ huts with possibility of roof tops being blown off and Unattached metal sheets may fly.
- Damage to power and communication lines.
- Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- Breaking of tree branches, uprooting of large avenue trees. Severe damage to banana and papaya trees, horticulture and crops & orchards. Large dead limbs blown from trees.
- Major damage to coastal crops.
- Damage to embankments/ salt pans.

## **(vi) Fishermen Warning & Action Suggested:**

- Total suspension of fishing operations.
- Coastal hutment dwellers to be moved to safer places. People in affected areas to remain indoors. Movement in motor boats unsafe.

## **2. Cyclonic Storm “GATI” over Somalia**

The cyclonic storm “GATI” over north Somalia moved nearly westwards with a speed of about 08 kmph during past 06 hours and lay centered at 0830 hrs IST of 23<sup>rd</sup> November 2020 over the same region near Latitude 10.5°N and Longitude 49.7°E, 180 km west-southwest of Ras Binnah (Somalia). It is very likely to move nearly westwards and weaken gradually into a deep depression during next 03 hours and into a depression during subsequent 06 hours.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/0830	10.5/49.7	60-70 Gusting TO 80	Cyclonic Storm
23.11.20/1130	10.6/49.2	55-65 Gusting TO 75	Deep Depression
23.11.20/1730	10.6/48.5	40-50 Gusting TO 60	Depression
23.11.20/2330	10.7/47.6	20-30 Gusting TO 40	Low Pressure Area

**(i) Wind warning**

Gale wind speed reaching 60-70 kmph gusting to 80 kmph is prevailing over Gulf of Eden along and off Somalia coast and 50-60 kmph gusting to 70 kmph prevails over southwest Arabian Sea along and off north Somalia coast. It will gradually decrease becoming 40-50 kmph gusting to 60 kmph over the above areas by 23<sup>rd</sup> November evening.

**(ii) Sea condition**

Sea condition will be high to very rough over Gulf of Eden along and off north Somalia coast during next 06 hours becoming rough to very rough during subsequent 06 hours. It will be rough to very rough over southwest Arabian Sea till 23<sup>rd</sup> November evening and improve thereafter.

**(iii) Fishermen Warning**

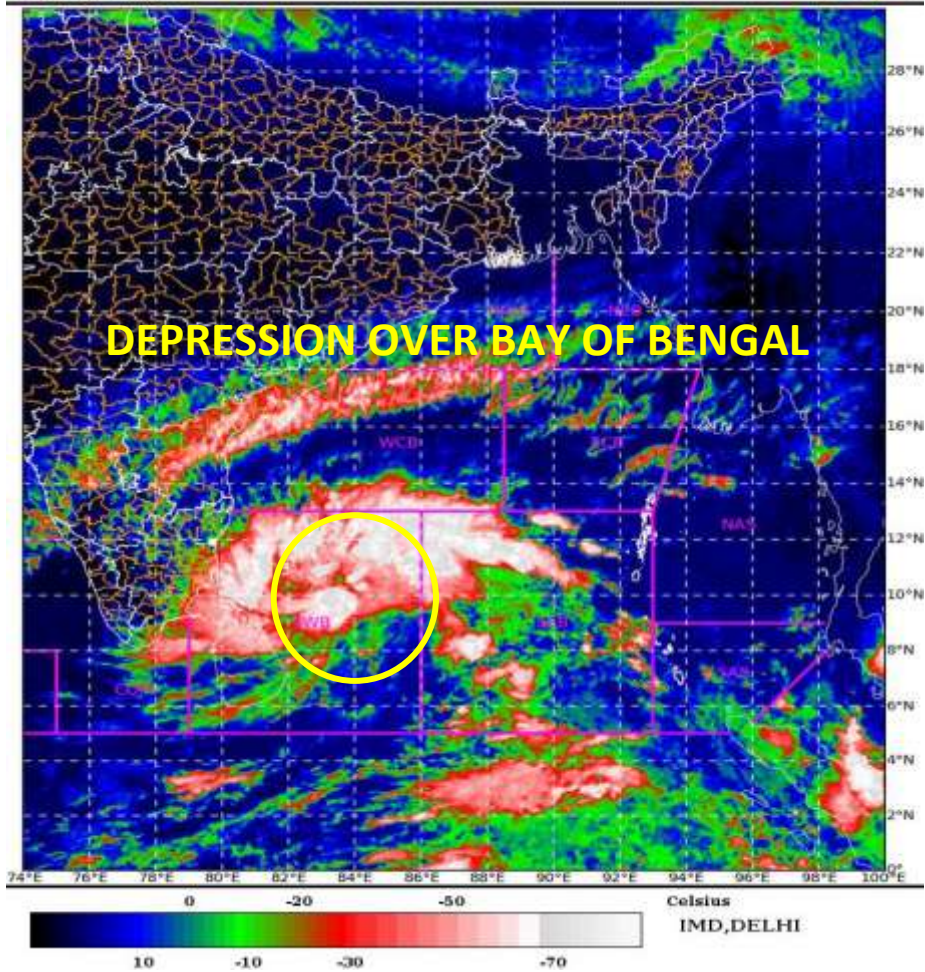
Fishermen are advised not to venture into Gulf of Eden and southwest Arabian Sea along and off north Somalia coast till 23<sup>rd</sup> November evening.

*The next bulletin will be issued at 1430 hrs IST of 23<sup>rd</sup> November, 2020.*

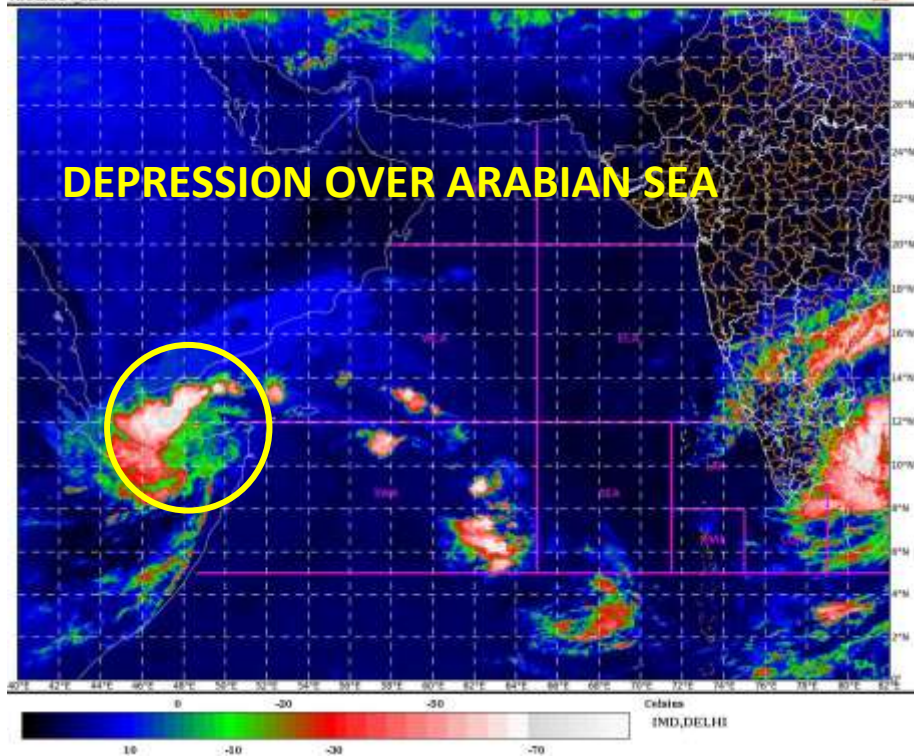
**(R.K. Jenamani)**  
**Scientist-F, RSMC, New Delhi**

*Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC Thiruvananthapuram*

SAT : INSAT-3D IMG 23-11-2020/(0500 to 0527) GMT  
 IMG\_TIR1\_TEMP 10.8 um 23-11-2020/(1030 to 1057) IST  
 L1C Mercator



SAT : INSAT-3D IMG 23-11-2020/(0500 to 0527) GMT  
 IMG\_TIR1\_TEMP 10.8 um 23-11-2020/(1030 to 1057) IST  
 ARABIAN SEA

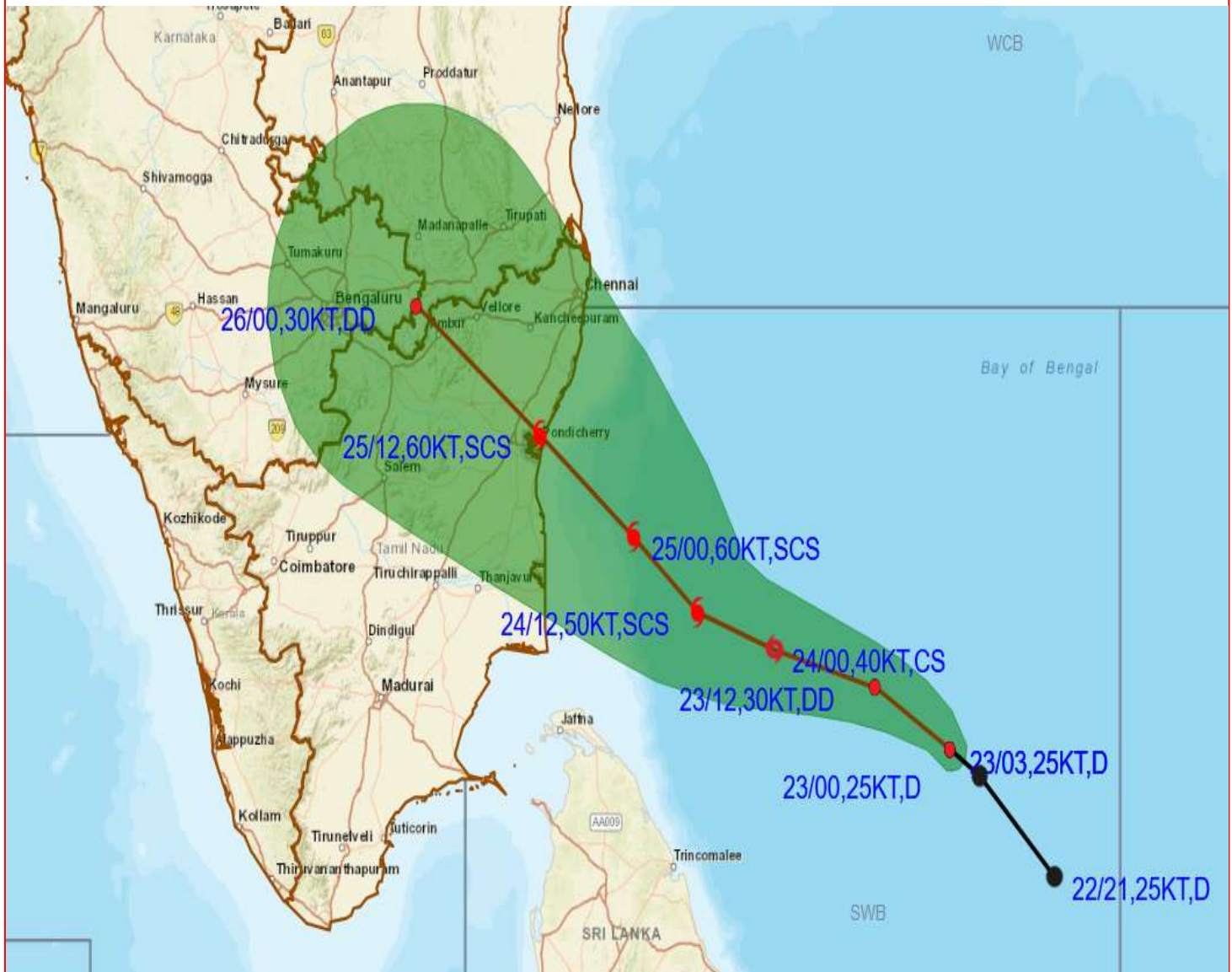


Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0300UTC OF 23<sup>rd</sup> Nov, 2020



## DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT

○ 34-47 KT

○  $\geq 48$  KT

— OBSERVED TRACK

— FORECAST TRACK

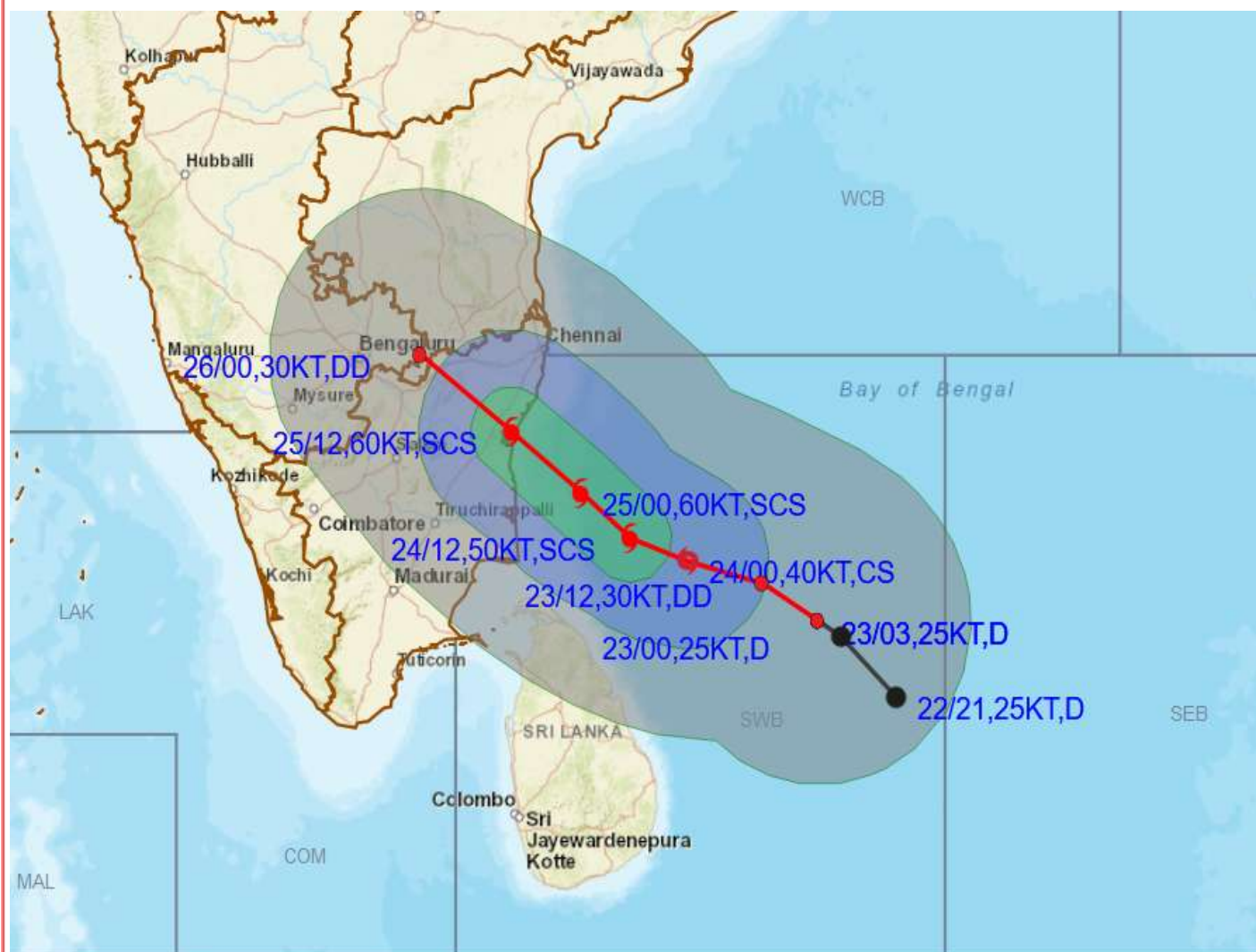
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0300UTC OF 23<sup>rd</sup> Nov, 2020



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

● LESS THAN 34 KT

○ 34-47 KT

● ≥ 48 KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

28-33 KT (52-61 KMPH)

34-49 KT (62-91 KMPH)

50-63 KT (92-117 KMPH)

≥ 64 KT (≥ 118 KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥ 118)	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 12(ARB/04/2020) and 04(BOB/04/2020)**

**TIME OF ISSUE: 1530 HOURS IST**

**DATED: 23.11.2020**

FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)

CONTROL ROOM NDMA (FAX.NO. 26701729)

CABINET SECRETARIAT (FAX.NO.23012284, 23018638)

PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)

SECRETARY, MOES, (FAX NO. 24629777)

H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)

DIRECTOR GENERAL, DOORDARSHAN (23385843)

DIRECTOR GENERAL, AIR (23421105, 23421219)

PIB MOES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)

DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)

CHIEF SECRETARY, GOVT. OF MAHARASHTRA (FAX NO. 022 22028594)

CHIEF SECRETARY, GUJARAT (FAX NO.079-23250305)

CHIEF SECRETARY, DAMAN, DIU, NAGAR HAVELI (FAX NO.0260-2642702)

CHIEF SECRETARY, GOA (FAX NO. 0832-2415201)

CHIEF SECRETARY, KARNATAKA (FAX NO. 080-22256360)

CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)

CHIEF SECRETARY, LAKSHADWEEP ISLANDS (FAX NO. 04896-262184)

CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)

CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)

CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)

CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)

CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)

CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)

CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Depression over southwest and adjoining southeast Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts- Yellow Message)**

**(2) Cyclonic Storm "GATI" weakened into Deep Depression over Somalia**

**(1) Depression over southwest and adjoining southeast Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts-Yellow Message)**

The Depression over southwest and adjoining southeast Bay of Bengal moved west-northwestwards with a speed of 11 kmph during past 06 hours and lay centred at 1130 hrs IST of 23<sup>rd</sup> November, 2020 over the same region near latitude 9.6°N and longitude 84.0°E, about 520 km east-southeast of Puducherry and 560 km southeast of Chennai. It is very likely to intensify into a cyclonic storm during next 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mamallapuram around 25<sup>th</sup> November 2020 afternoon as a severe cyclonic storm with a wind speed of 100-110 kmph gusting to 120 kmph.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/1130	9.6/84.0	45-55 gusting to 65	Depression
23.11.20/2330	10.1/82.8	55-65 gusting to 75	Deep Depression
24.11.20/1130	10.5/81.9	70-80 gusting to 90	Cyclonic Storm
24.11.20/2330	10.9/81.1	90-100 gusting to 110	Severe Cyclonic Storm
25.11.20/1130	11.6/80.3	110-120 gusting to 135	Severe Cyclonic Storm
25.11.20/2330	12.5/79.2	70-80 gusting to 90	Cyclonic Storm
26.11.20/1130	13.5/78.3	30-40 gusting to 50	Depression

#### Warnings:

##### (i) Heavy Rainfall Warning

Fairly widespread to widespread rainfall/thunderstorm activity very likely over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema during 25<sup>th</sup> to 26<sup>th</sup> and Telangana during 26<sup>th</sup> to 27<sup>th</sup> November, 2020. Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry (**Pudukottai, Thanjavur, Tiruvarur, Karaikal, Nagapattinam, Cuddalore, Ariyalur & Perabalu** districts during 24<sup>th</sup> and **Kadalur, Kallakurchi, Puducherry, Villupuram, Tiruvannamalai, Chengalpattu to Ariyalur, Perambalur and Karaikal** districts during 25<sup>th</sup>) and over south Coastal Andhra Pradesh & Rayalaseema (**Nellore and Chittoor districts**) on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*	27 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at many places with isolated heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at many places with heavy rainfall at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places over north Tamilnadu	Rainfall at many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	Rainfall at isolated places	Rainfall at a few places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places
<b>Rayalaseema</b>	Rainfall at a few places	Rainfall at many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places
<b>Telangana</b>	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places
<b>South Chattisgarh and South Odisha</b>				Rainfall at many places with isolated heavy falls	

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

## **(ii) Wind warning**

Squally weather with wind speed of 45-55 kmph gusting to 65 kmph likely over Southwest & adjoining west-central & southeast Bay of Bengal and along & off Tamil Nadu and south Andhra Pradesh coasts on 23<sup>rd</sup> November. It would increase gradually becoming 65-75 kmph gusting to 85 kmph over the southwest and adjoining westcentral Bay of Bengal and 55-65 kmph gusting to 75 kmph along and off Tamil Nadu and adjoining South Andhra Pradesh coast and over Gulf of Mannar from 24<sup>th</sup> November morning. It would further increase becoming 100-110 kmph gusting to 120 kmph over the southwest Bay of Bengal along and off coastal districts of north Tamil Nadu and Puducherry (**Nagapattinam, Karaikal, Myladuthurai, Cuddalore, Puducherry, Villupuram & Chengalpattu districts**), 65-75 kmph gusting to 85 kmph very likely over adjoining westcentral Bay along and off South Andhra Pradesh (Nellore & Prakasham districts), Gulf of Mannar and along and off districts of south coastal districts of Tamil Nadu from 25<sup>th</sup> November morning for subsequent 12 hrs.

## **(iii) Sea condition**

Sea condition is rough to very rough over Southwest & adjoining west-central & southeast Bay of Bengal and along & off Tamil Nadu & Puducherry and south Andhra Pradesh coasts and over Gulf of Mannar. It would gradually become High over the southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry coast and very rough along and off south Andhra Pradesh coast and also over Gulf of Mannar on 24<sup>th</sup>. The sea condition would be very high over the southwest and adjoining west-central Bay of Bengal and along & off north Tamil Nadu, Puducherry coasts and high along and off south Tamil Nadu & south Andhra Pradesh coasts and also over Gulf of Mannar on 25<sup>th</sup> November, 2020.

## **(iv) Strom Surge Warning**

Tidal wave of about 1m height above the astronomical tide is very likely to inundate the low lying areas near the place of landfall.

## **(v) Fishermen Warning**

Fishermen are advised not to venture into Southwest & adjoining west-central & southeast Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 23-25<sup>th</sup> November. Also the fishermen out at Sea are advised to return to the coast and avoid the above sea area.

## **(vi) Damage expected over and Action suggested:**

- Major damage to thatched houses/ huts with possibility of roof tops being blown off and Unattached metal sheets may fly.
- Damage to power and communication lines.
- Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- Breaking of tree branches, uprooting of large avenue trees. Severe damage to banana and papaya trees, horticulture and crops & orchards. Large dead limbs blown from trees.
- Major damage to coastal crops.
- Damage to embankments/ salt pans.

## **(vii) Fishermen Warning & Action Suggested:**

- Total suspension of fishing operations.
- Coastal hutment dwellers to be moved to safer places. People in affected areas to remain indoors. Movement in motor boats unsafe.

## **2. Cyclonic Storm “GATI” weakened into a Deep Depression**

The cyclonic storm “GATI” over north Somalia moved nearly westwards with a speed of about 15 kmph during past 06 hours, weakened into a Deep Depression and lay centered at 1130 hrs IST of 23<sup>rd</sup> November 2020 over the same region near Latitude 10.7°N and Longitude 49.2°E, 220 km west-southwest of Ras Binnah (Somalia). It is very likely to move nearly westwards and weaken gradually into a depression during next 06 hours and into a well marked low pressure area during subsequent 06 hours.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/1130	10.7/49.2	55-65 Gusting TO 75	Deep Depression
23.11.20/1730	10.6/48.5	40-50 Gusting TO 60	Depression
23.11.20/2330	10.7/47.6	20-30 Gusting TO 40	Low Pressure Area

**(i) Wind warning**

Gale wind speed reaching 55-65 kmph gusting to 75 kmph is prevailing over Gulf of Eden along and off Somalia coast and 50-60 kmph gusting to 70 kmph prevails over southwest Arabian Sea along and off north Somalia coast during next 06 hours. It will gradually decrease and becoming 40-50 kmph gusting to 60 kmph over the above areas during subsequent 06 hours.

**(ii) Sea condition**

Sea condition will be rough to very rough over Gulf of Eden along and off north Somalia coast and over southwest Arabian Sea during next 12 hours and improve thereafter.

**(iii) Fishermen Warning**

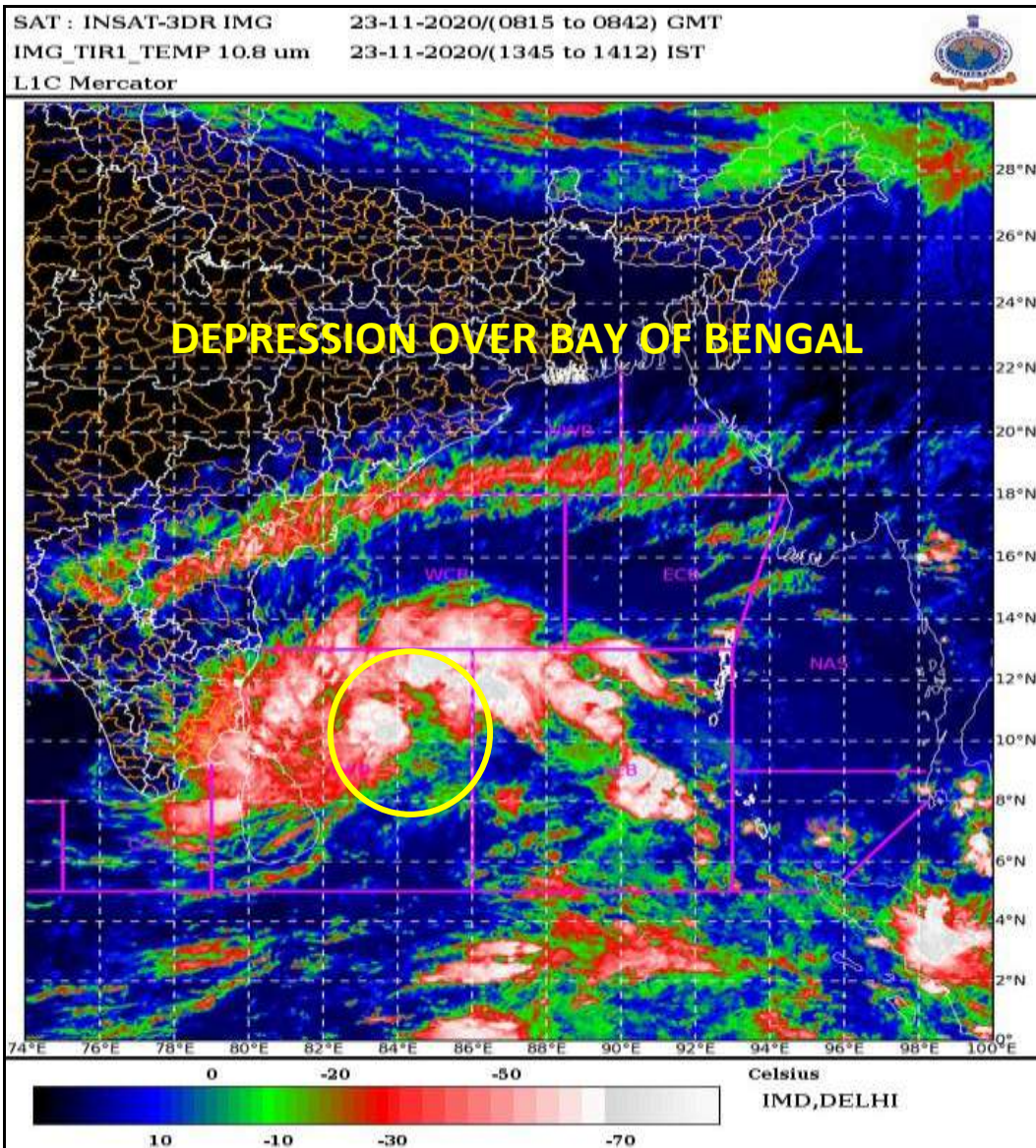
Fishermen are advised not to venture into Gulf of Eden and southwest Arabian Sea along and off north Somalia coast during next 12 hours.

*The next bulletin will be issued at 2030 hrs IST of 23<sup>rd</sup> November, 2020.*

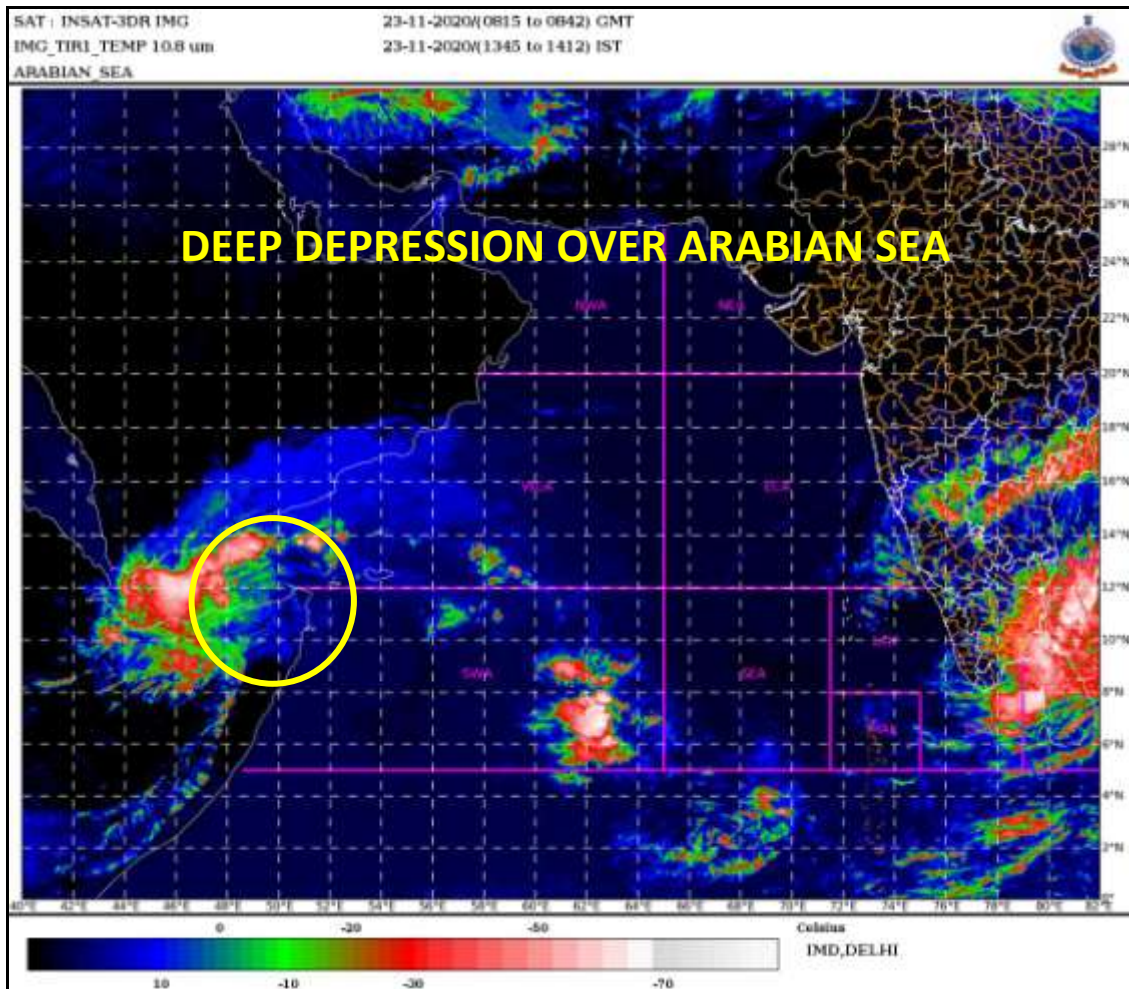
**(R.K. Jenamani)**  
**Scientist-F, RSMC, New Delhi**

*Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC Thiruvananthapuram*





Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

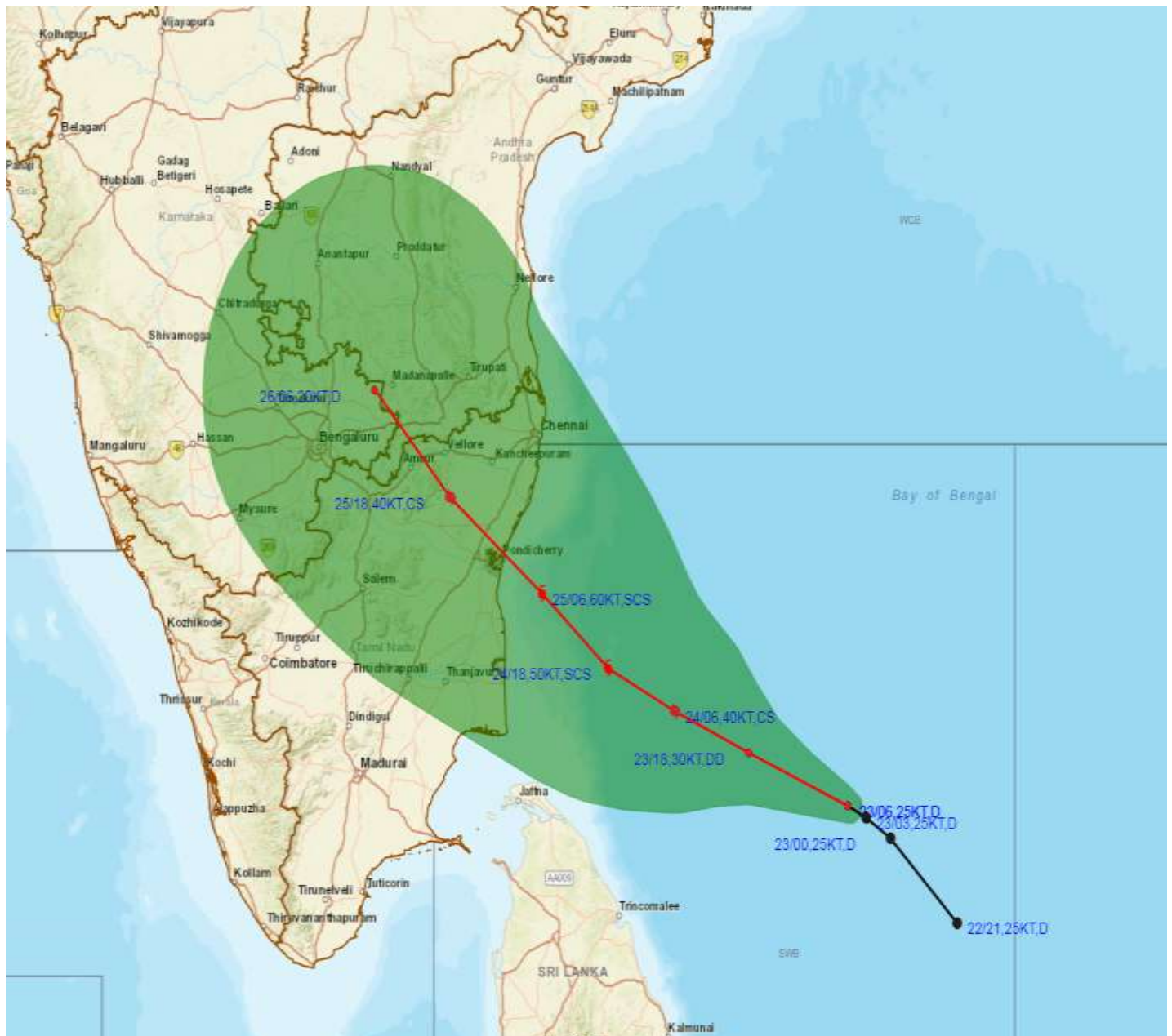


Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 0600UTC OF 23<sup>rd</sup> Nov, 2020



DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM ( $\geq$  120 KT)

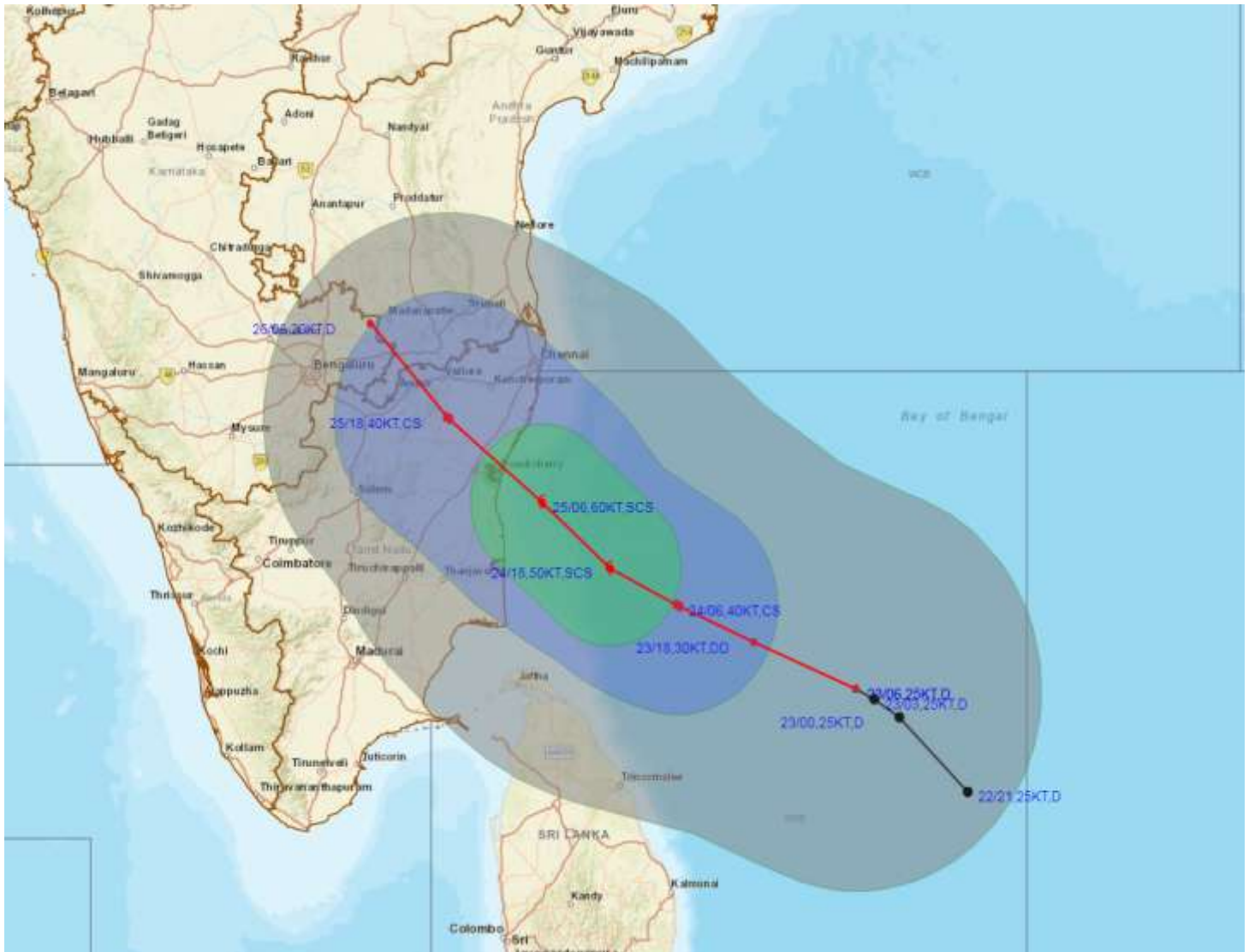
- LESS THAN 34 KT
- 34-47 KT
- $\geq$  48 KT
- OBSERVED TRACK
- FORECAST TRACK
- CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq$ 25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND  
DISTRIBUTION OF DEPRESSION OVER SOUTHWEST BAY OF BENGAL  
BASED ON 0600UTC OF 23<sup>rd</sup> Nov, 2020**



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

● LESS THAN 34 KT  
○ 34-47 KT  
● ≥ 48 KT  
— OBSERVED TRACK  
— FORECAST TRACK  
▲ CONE OF UNCERTAINTY  
AREA OF MAXIMUM SUSTAINED WIND SPEED:  
28-33 KT (52-61 KMPH)  
34-49 KT (62-91 KMPH)  
50-63 KT (92-117 KMPH)  
≥ 64 KT (≥118 KMPH)

**IMPACT OVER THE SEA**

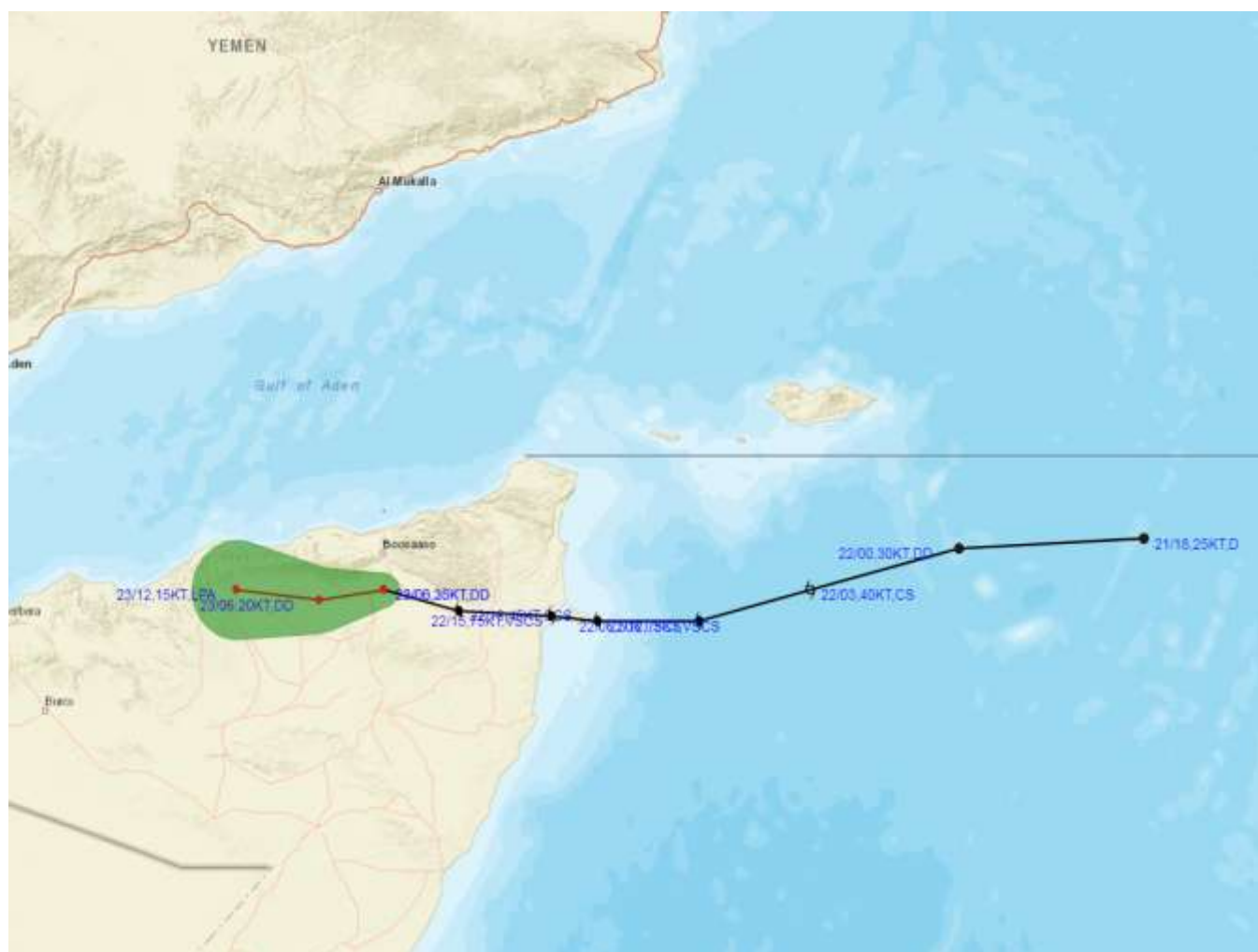
MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF DEEP DEPRESSION OVER SOMALIA BASED ON 0600 UTC OF 23<sup>rd</sup> Nov, 2020



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM (≥20 KT)

● LESS THAN 34 KT

○ 34-47 KT

○ ≥ 48 KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 13(ARB/04/2020) and 05(BOB/04/2020)**

**TIME OF ISSUE: 2100 HOURS IST**

**DATED: 23.11.2020**

**FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)**

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)  
CONTROL ROOM NDMA (FAX.NO. 26701729)  
CABINET SECRETARIAT (FAX.NO.23012284, 23018638)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MOES, (FAX NO. 24629777)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (23421105, 23421219)  
PIB MOES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)  
CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)  
CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)  
CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)  
CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)  
CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)  
CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)  
CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)  
CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Depression intensified into a Deep Depression over southwest Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts- Yellow Message)**

**(2) Deep Depression over Gulf of Aden and adjoining Somalia**

**(1) Depression intensified into a Deep Depression over southwest Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts- Yellow Message)**

The Depression over southwest and adjoining southeast Bay of Bengal moved west-northwestwards with a speed of 14 kmph during past 06 hours, intensified into a Deep Depression and lay centred at 1730 hrs IST of today, the 23<sup>rd</sup> November, 2020 over southwest Bay of Bengal near latitude 9.9°N and longitude 83.3°E, about 450 km east-southeast of Puducherry and 480 km southeast of Chennai. It is very likely to intensify into a cyclonic storm during next 12 hours and into a Severe Cyclonic Storm during subsequent 24 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mamallapuram around Puducherry during 25<sup>th</sup> November 2020 evening as a severe cyclonic storm with a wind speed of 100-110 kmph gusting to 120 kmph.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/1730	9.9/83.3	50-60 gusting to 70	Deep Depression
23.11.20/2330	10.1/82.8	55-65 gusting to 75	Deep Depression
24.11.20/0530	10.3/82.3	65-75 gusting to 85	Cyclonic Storm
24.11.20/1130	10.5/81.9	75-85 gusting to 95	Cyclonic Storm
24.11.20/1730	10.7/81.5	90-100 gusting to 110	Severe Cyclonic Storm
25.11.20/0530	11.3/80.7	100-110 gusting to 120	Severe Cyclonic Storm
25.11.20/1730	12.0/79.8	100-110 gusting to 120	Severe Cyclonic Storm
26.11.20/0530	13.0/78.9	65-75 gusting to 85	Cyclonic Storm
26.11.20/1730	14.0/78.0	30-40 gusting to 50	Depression

#### (i) Heavy Rainfall Warning

Fairly widespread to widespread rainfall/thunderstorm activity very likely over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema during 25<sup>th</sup> to 26<sup>th</sup> and Telangana during 26<sup>th</sup> to 27<sup>th</sup> November, 2020. Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry (**Pudukottai, Thanjavur, Tiruvarur, Karaikal, Nagapattinam, Cuddalore, Ariyalur & Perabalu** districts during 24<sup>th</sup> and **Kadalur, Kallakurchi, Puducherry, Villupuram, Tiruvannamalai, Chengalpattu to Ariyalur, Perambalur and Karaikal** districts during 25<sup>th</sup>) and over south Coastal Andhra Pradesh & Rayalaseema (**Nellore and Chittoor districts**) on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	23 Nov 2020*	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*	27 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at a few places	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at many places with isolated heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at a few places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places over north Tamilnadu	Rainfall at many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	Rainfall at isolated places	Rainfall at a few places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places
<b>Rayalaseema</b>	Rainfall at a few places	Rainfall at many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places
<b>Telangana</b>	Rainfall at isolated places	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places
<b>South Chattisgarh and South Odisha</b>				Rainfall at many places with isolated heavy falls	

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

## **(ii) Wind warning**

- Squally weather with wind speed of 50-60 kmph gusting to 70 kmph is prevailing over Southwest & adjoining southeast Bay of Bengal. It would increase gradually becoming 65-75 kmph gusting to 85 kmph over the southwest and adjoining westcentral Bay of Bengal from 24<sup>th</sup> November morning. It would further increase becoming 100-110 kmph gusting to 120 kmph over the southwest Bay of Bengal from 25<sup>th</sup> November morning for subsequent 12 hours.
- Squally wind speed reaching 45-55 kmph gusting to 65 kmph would prevail along & off Tamil Nadu & Puducherry and adjoining South Andhra Pradesh coast and over Gulf of Mannar from 24<sup>th</sup> November morning. It will gradually increase and become 100-110 kmph gusting to 120 kmph along & off coastal districts of north Tamil Nadu and Puducherry (**Nagapattinam, Karaikal, Myladuthurai, Cuddalore, Puducherry, Villupuram & Chengalpattu districts**), 80-90 gusting to 100 kmph very likely over Tiruvarur, Kanchipuram, Chennai, Tiruvallur districts from 25<sup>th</sup> November forenoon for subsequent 12 hours.
- Gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely over adjoining westcentral Bay of Bengal and along & off South Andhra Pradesh (Nellore & Chittoor districts), Gulf of Mannar and along and off districts of south coastal districts of Tamil Nadu from 25<sup>th</sup> November morning for subsequent 12 hours.

## **(iii) Sea condition**

- Sea condition is rough to very rough over Southwest & southeast Bay of Bengal and along & off Tamil Nadu & Puducherry and south Andhra Pradesh coasts and over Gulf of Mannar. It would gradually become High over the southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry coast and very rough along and off south Andhra Pradesh coast and also over Gulf of Mannar on 24<sup>th</sup> November.
- The sea condition would be very high over the southwest and adjoining west-central Bay of Bengal and along & off north Tamil Nadu, Puducherry coasts and high along and off south Tamil Nadu & south Andhra Pradesh coasts and also over Gulf of Mannar on 25<sup>th</sup> November, 2020.

## **(iv) Storm Surge Warning**

- Tidal wave of about 1m height above the astronomical tide is very likely to inundate the low lying areas of north coastal districts of Tamilnadu & Puducherry near the place of landfall.

## **(v) Damage expected over and Action suggested over coastal districts of Tamilnadu & Puducherry and adjoining Andhra Pradesh:**

- Major damage to thatched houses/ huts with possibility of roof tops being blown off and unattached metal sheets may fly.
- Damage to power and communication lines.
- Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- Breaking of tree branches, uprooting of large avenue trees. Severe damage to banana and papaya trees, horticulture and crops & orchards. Large dead limbs blown from trees.
- Major damage to coastal crops.
- Damage to embankments/ salt pans.

## **(vi) Fishermen Warning & Action Suggested:**

- Total suspension of fishing operations.
- Fishermen are advised not to venture into Southwest & adjoining west-central & southeast Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 23-25th November.
- Fishermen out at Sea are advised to return to the coast and avoid the above sea area.
- Coastal hutment dwellers to be moved to safer places. People in affected areas to remain indoors. Movement in motor boats unsafe.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

## 2. Deep Depression over Gulf of Aden and adjoining Somalia

The Deep Depression over north Somalia moved nearly northwestwards with a speed of about 17 kmph during past 06 hours and lay centered at 1730 hrs IST of 23<sup>rd</sup> November 2020 over the Gulf of Aden and adjoining Somalia near Latitude 11.3°N and Longitude 48.5°E, about 290 km west of Ras Binnah (Somalia). It is very likely to move nearly westwards and weaken gradually into a depression during next 12 hours and into a well marked low pressure area during subsequent 06 hours.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/1730	11.3/48.5	45-55 Gusting TO 65	Deep Depression
24.11.20/0530	11.7/47.5	40-50 Gusting TO 60	Depression
24.11.20/1730	11.7/46.4	20-30 Gusting TO 40	Low Pressure Area

### (i) Wind warning

Gale wind speed reaching 55-65 kmph gusting to 75 kmph is prevailing over Gulf of Eden along and off Somalia coast and 50-60 kmph gusting to 70 kmph prevails over southwest Arabian Sea along and off north Somalia coast during next 06 hours. It will gradually decrease and becoming 40-50 kmph gusting to 60 kmph over the above areas during subsequent 06 hours.

### (ii) Sea condition

Sea condition will be rough to very rough over Gulf of Eden along and off north Somalia coast and over southwest Arabian Sea during next 12 hours and improve thereafter.

### (iii) Fishermen Warning

Fishermen are advised not to venture into Gulf of Eden and southwest Arabian Sea along and off north Somalia coast during next 12 hours.

*The next bulletin will be issued at 0230 hrs IST of 24<sup>th</sup> November, 2020.*

(R.K. Jenamani)  
Scientist-F, RSMC, New Delhi

*Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC Thiruvananthapuram*

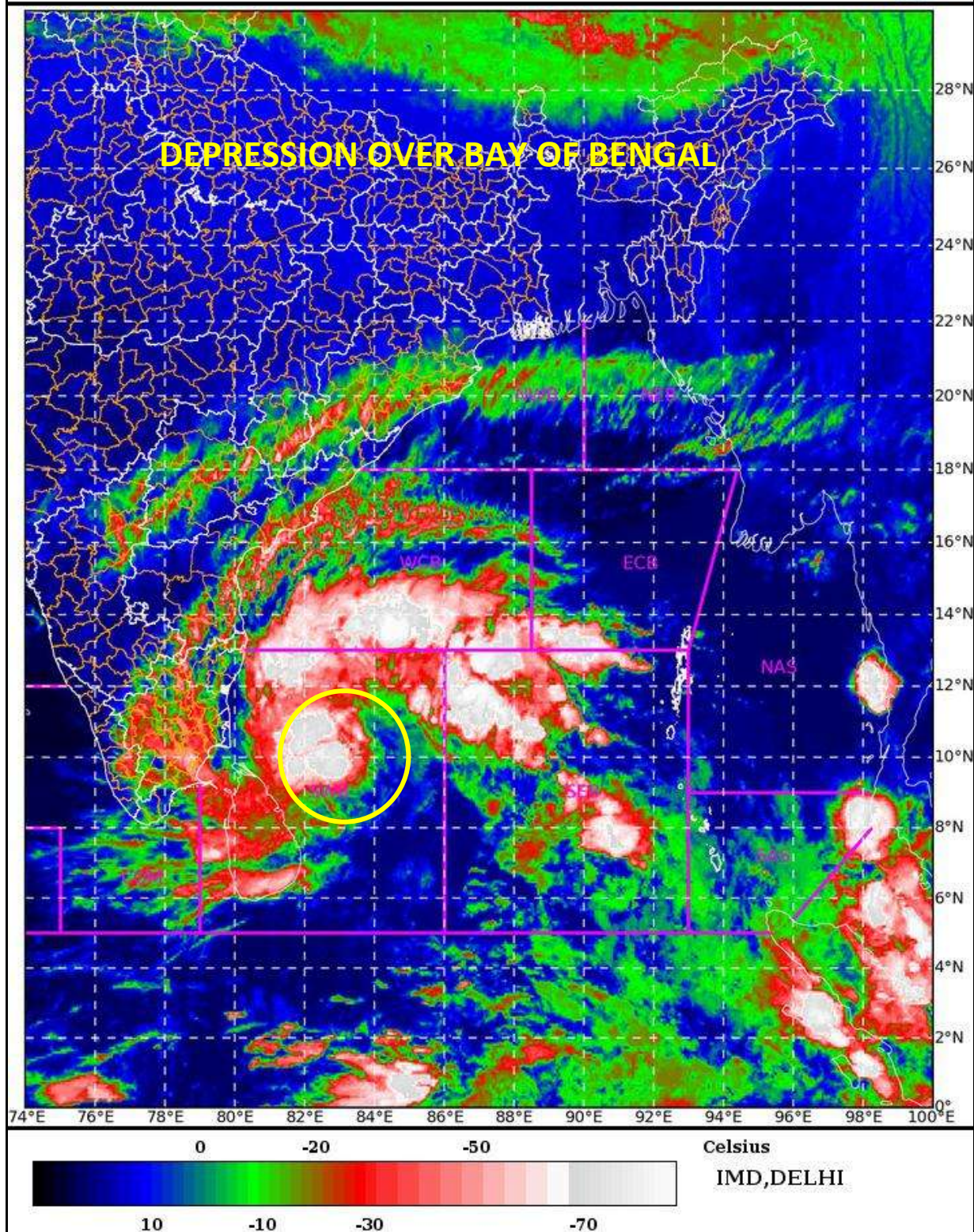
**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



SAT : INSAT-3D IMG 23-11-2020/(1330 to 1356) GMT

IMG\_TIR1\_TEMP 10.8 um 23-11-2020/(1900 to 1926) IST

L1C Mercator



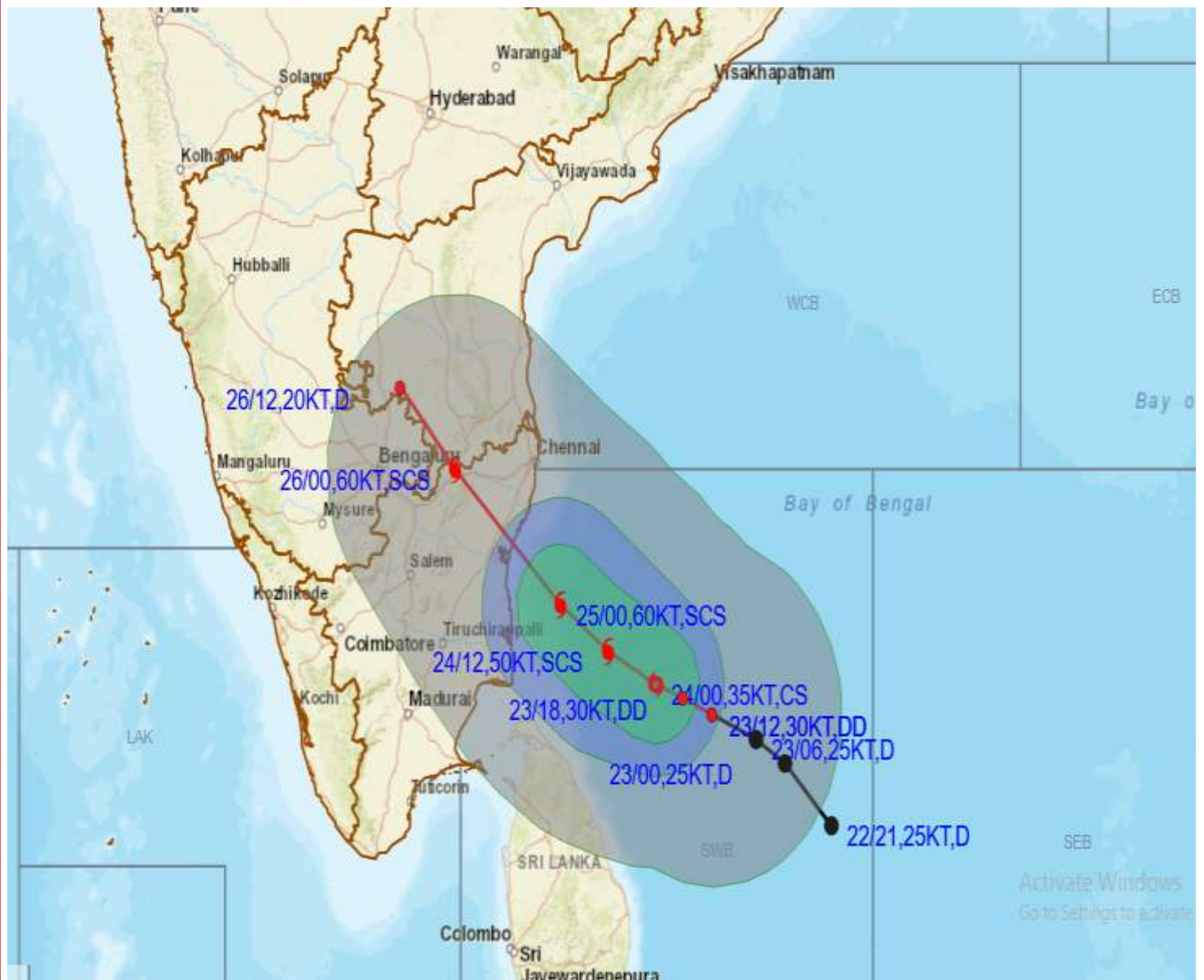
Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 1200 UTC OF 23RD NOV, 2020



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT

○ 34-47 KT

●  $\geq 48$  KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

28-33 KT (52-61 KMPH)

34-49 KT (62-91 KMPH)

50-63 KT (92-117 KMPH)

$\geq 64$  KT ( $\geq 118$  KMPH)

## IMPACT OVER THE SEA

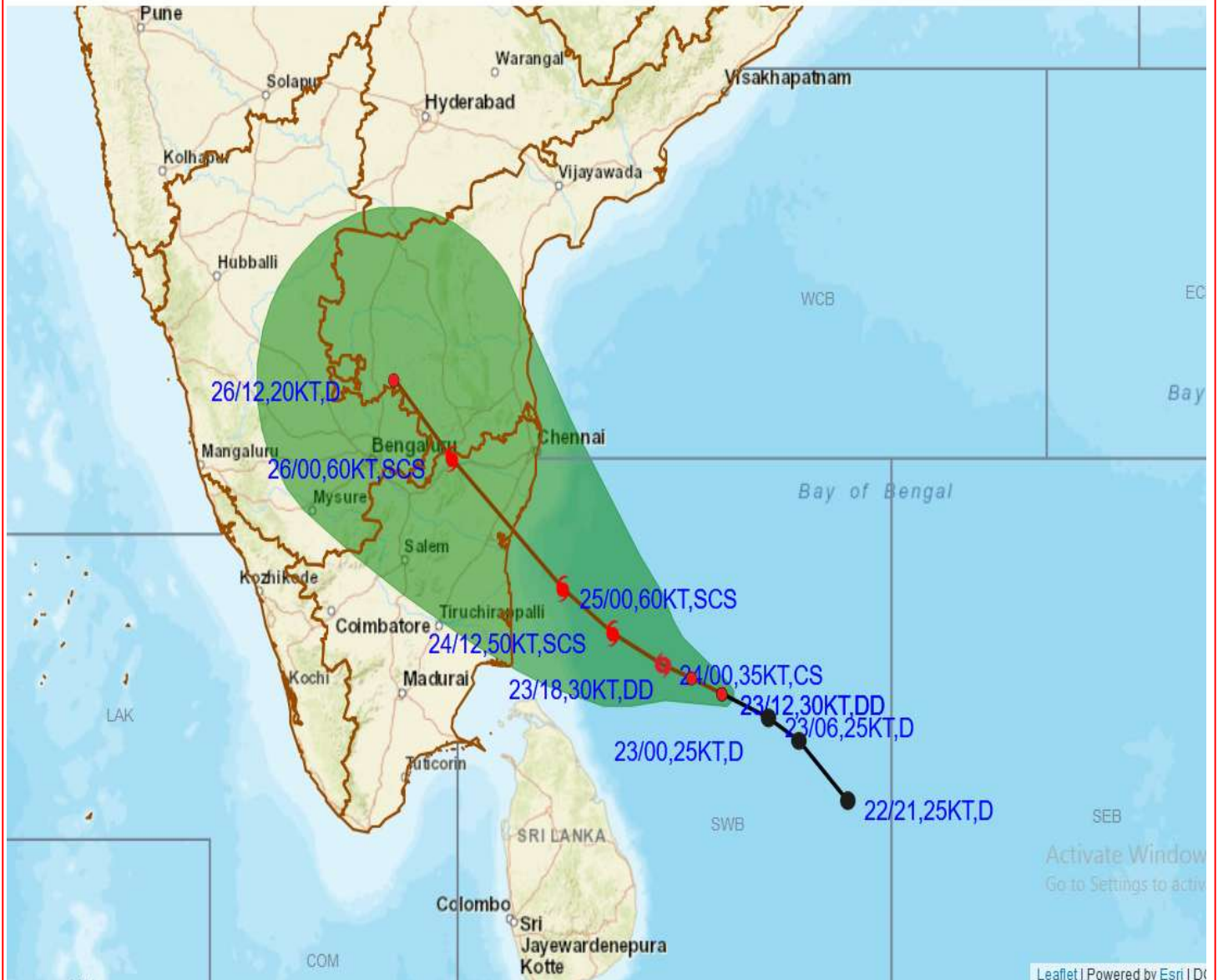
MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
$\geq 64$ ( $\geq 118$ )	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 1200 UTC OF 23<sup>RD</sup> NOVEMBER, 2020.

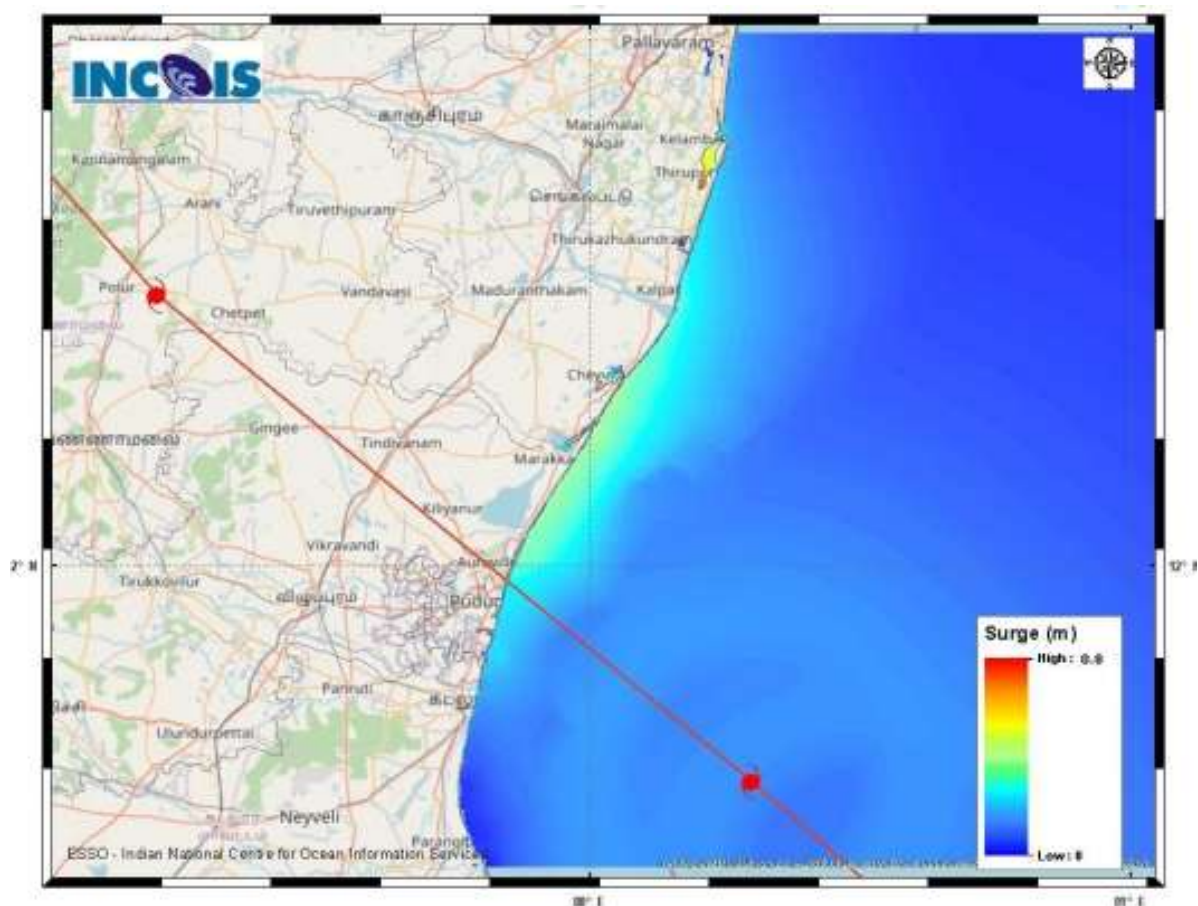


DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT  
 ○ 34-47 KT  
 ○  $\geq 48$  KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





**Figure: Storm surge map**

**STORM SURGE HEIGHT INFORMATION:**

\* The below listed surge heights are over and above astronomical tide.

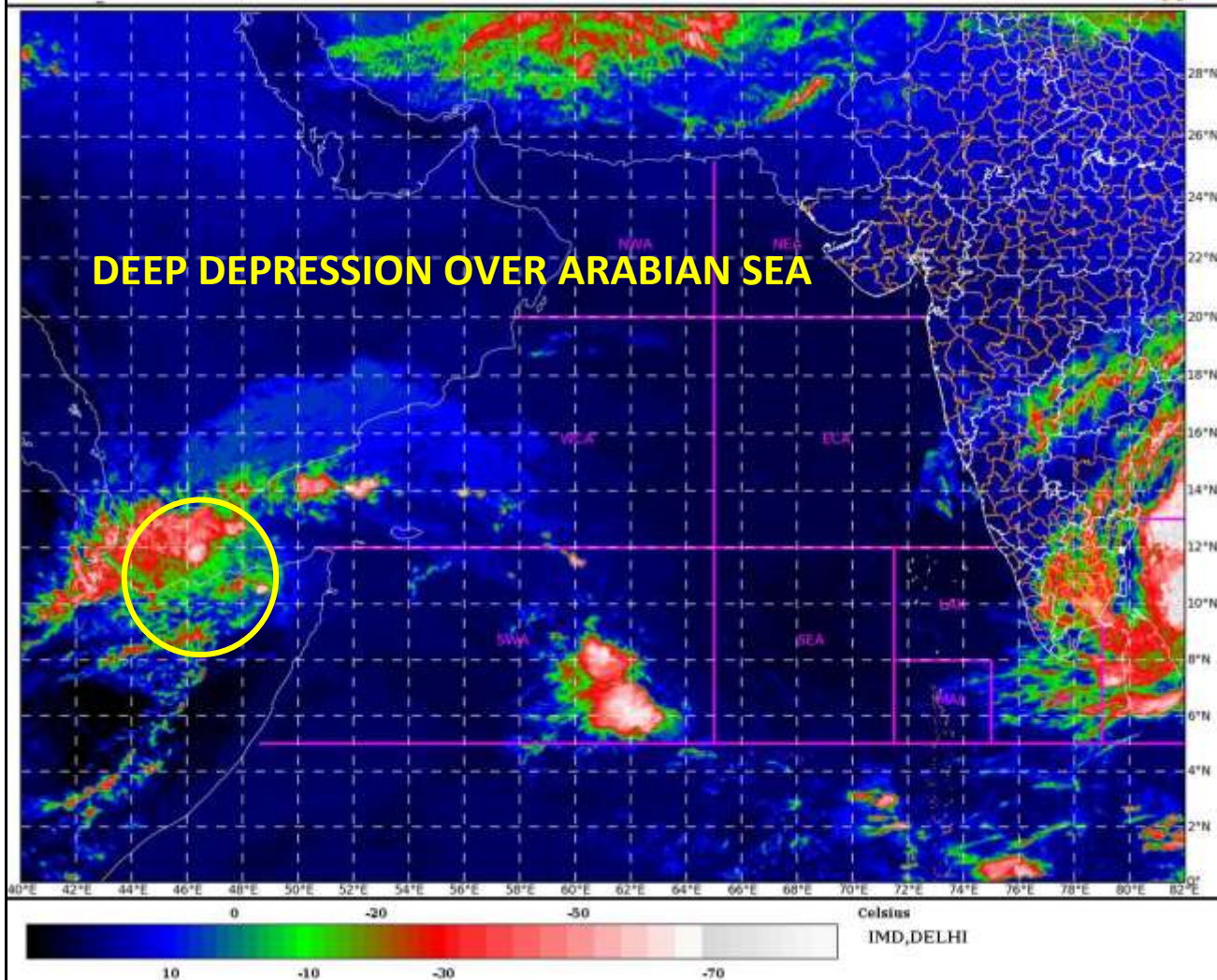
MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.8	Upto 0.20
Cheyyur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.6	Upto 0.11
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaivedu west	0.3-0.5	Upto 0.11

**Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

SAT : INSAT-3D IMG  
IMG\_TIR1\_TEMP 10.8 um  
ARABIAN\_SEA

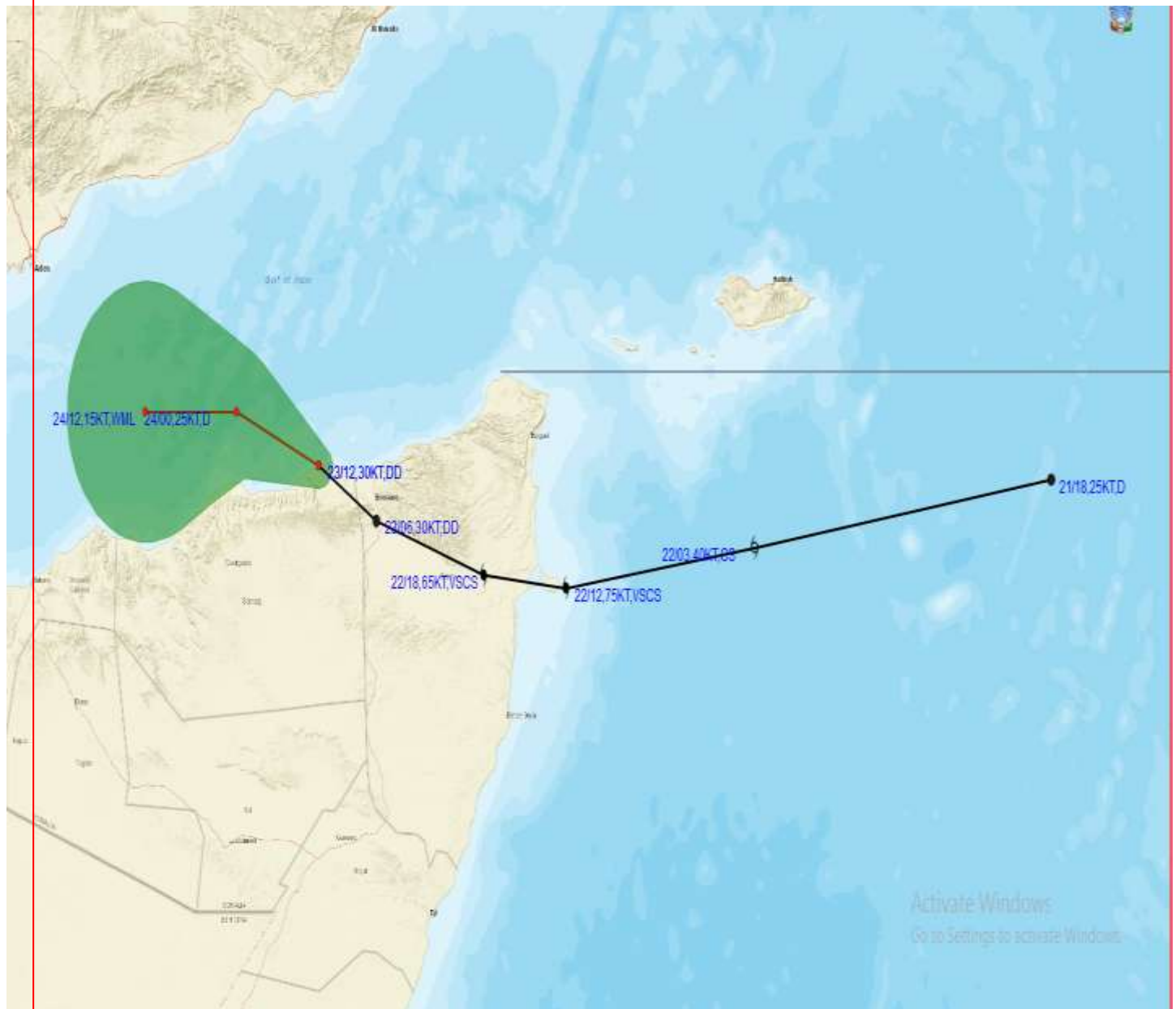
23-11-2020/(1330 to 1356) GMT  
23-11-2020/(1900 to 1926) IST



Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF DEEP DEPRESSION OVER GULF OF ADEN BASED ON 1200 UTC OF 23<sup>RD</sup> NOV, 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

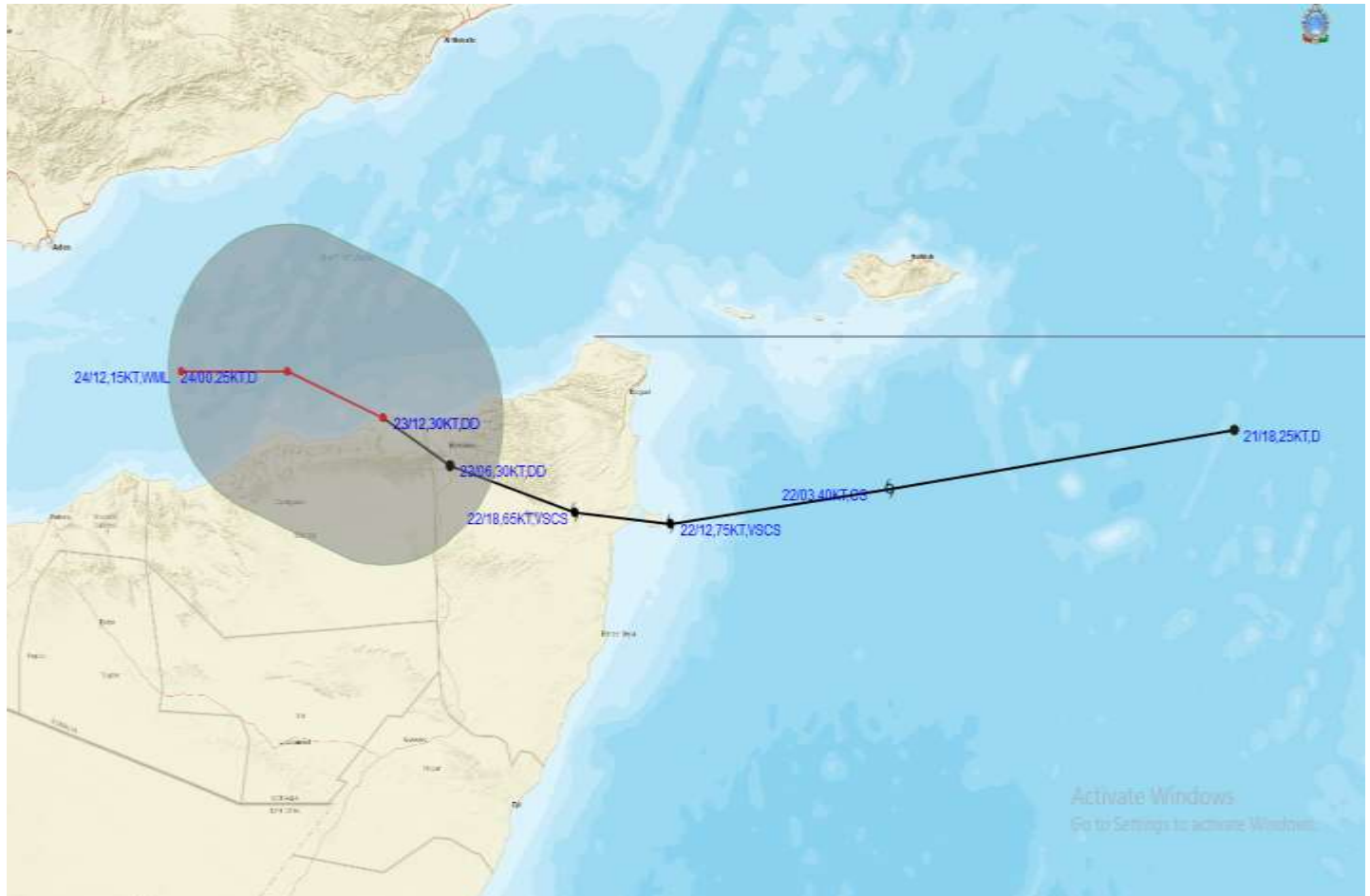
● LESS THAN 34 KT  
● 34-47 KT  
●  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION (REMNANT OF CYCLONE GATI) OVER GULF OF ADEN ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 1200 UTC OF 23<sup>RD</sup> NOV, 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT  
● 34-47 KT  
●  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
▲ CONE OF UNCERTAINTY  
AREA OF MAXIMUM SUSTAINED WIND SPEED:  
■ 28-33 KT (52-61 KMPH)  
■ 34-49 KT (62-91 KMPH)  
■ 50-63 KT (92-117 KMPH)  
■  $\geq 64$  KT ( $\geq 118$  KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
$\geq 64$ ( $\geq 118$ )	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 14(ARB/04/2020) and 06(BOB/04/2020)**

**TIME OF ISSUE: 0230 HOURS IST**

**DATED: 24.11.2020**

**FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)**

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)  
CONTROL ROOM NDMA (FAX.NO. 26701729)  
CABINET SECRETARIAT (FAX.NO.23012284, 23018638)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MOES, (FAX NO. 24629777)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (23421105, 23421219)  
PIB MOES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)  
CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)  
CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)  
CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)  
CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)  
CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)  
CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)  
CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)  
CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Deep Depression over southwest Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts- Yellow Message)**

**(2) Deep Depression over Gulf of Aden and adjoining Somalia**

**(1) Deep Depression over southwest Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts- Yellow Message)**

The Deep Depression over southwest Bay of Bengal moved northwestwards with a speed of 04 kmph during past 06 hours and lay centred at 2330 hrs IST of 23<sup>rd</sup> November, 2020 over southwest Bay of Bengal near latitude 10.0°N and longitude 83.3°E, about 440 km east-southeast of Puducherry and 470 km southeast of Chennai. It is very likely to intensify into a cyclonic storm during next 12 hours and into a Severe Cyclonic Storm during subsequent 12 hours. It is very likely to move northwestwards and cross Tamil Nadu and Puducherry coasts between Karaikal and Mamallapuram around Puducherry during 25<sup>th</sup> November 2020 evening as a severe cyclonic storm with a wind speed of 100-110 kmph gusting to 120 kmph.

Forecast track and intensity are given below:

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/2330	10.0/83.3	55-65 gusting to 75	Deep Depression
24.11.20/0530	10.1/82.8	65-75 gusting to 85	Cyclonic Storm
24.11.20/1130	10.4/82.2	75-85 gusting to 95	Cyclonic Storm
24.11.20/1730	10.7/81.6	90-100 gusting to 110	Severe Cyclonic Storm
24.11.20/2330	11.0/81.1	95-105 gusting to 115	Severe Cyclonic Storm
25.11.20/1130	11.5/80.4	100-110 gusting to 120	Severe Cyclonic Storm
25.11.20/2330	12.5/79.3	75-85 gusting to 95	Cyclonic Storm
26.11.20/1130	13.5/78.5	40-50 gusting to 60	Depression
26.11.20/2330	14.4/77.7	20-30 gusting to 40	Well Marked Low Pressure Area

### (i) Heavy Rainfall Warning

Fairly widespread to widespread rainfall/thunderstorm activity very likely over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema during 25<sup>th</sup> to 26<sup>th</sup> and Telangana during 26<sup>th</sup> to 27<sup>th</sup> November, 2020. Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry (**Pudukottai, Thanjavur, Tiruvarur, Karaikal, Nagapattinam, Cuddalore, Ariyalur & Perabalu** districts during 24<sup>th</sup> and **Kadalur, Kallakurichi, Puducherry, Villupuram, Tiruvannamalai, Chengalpattu to Ariyalur, Perambalur and Karaikal** districts during 25<sup>th</sup>) and over south Coastal Andhra Pradesh & Rayalaseema (**Nellore and Chittoor districts**) on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*	27 Nov 2020*
<b>Coastal Andhra Pradesh</b>	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at many places with isolated heavy falls
<b>Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places over north Tamilnadu	Rainfall at many places with heavy rainfall at isolated places
<b>South Interior Karnataka</b>	Rainfall at a few places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places
<b>Rayalaseema</b>	Rainfall at many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places
<b>Telangana</b>	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places
<b>South Chattisgarh and South Odisha</b>			Rainfall at many places with isolated heavy falls	

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



## **(ii) Wind warning**

- Squally weather with wind speed of 55-65 kmph gusting to 75 kmph is prevailing over Southwest & adjoining southeast Bay of Bengal. It would increase gradually becoming 65-75 kmph gusting to 85 kmph over the southwest and adjoining westcentral Bay of Bengal from 24<sup>th</sup> November morning. It would further increase becoming 100-110 kmph gusting to 120 kmph over the southwest Bay of Bengal from 25<sup>th</sup> November morning for subsequent 12 hours.
- Squally wind speed reaching 45-55 kmph gusting to 65 kmph would prevail along & off Tamil Nadu & Puducherry and adjoining South Andhra Pradesh coast and over Gulf of Mannar from 24<sup>th</sup> November morning. It will gradually increase and become 100-110 kmph gusting to 120 kmph along & off coastal districts of north Tamil Nadu and Puducherry (**Nagapattinam, Karaikal, Myladuthurai, Cuddalore, Puducherry, Villupuram & Chengalpattu districts**), 80-90 gusting to 100 kmph very likely over Tiruvarur, Kanchipuram, Chennai, Tiruvallur districts from 25<sup>th</sup> November forenoon for subsequent 12 hours.
- Gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely over adjoining westcentral Bay of Bengal and along & off South Andhra Pradesh (Nellore & Chittoor districts), Gulf of Mannar and along and off districts of south coastal districts of Tamil Nadu from 25<sup>th</sup> November morning for subsequent 12 hours.

## **(iii) Sea condition**

- Sea condition is rough to very rough over Southwest & southeast Bay of Bengal and along & off Tamil Nadu & Puducherry and south Andhra Pradesh coasts and over Gulf of Mannar. It would gradually become High over the southwest and adjoining west-central Bay of Bengal and along & off Tamil Nadu, Puducherry coast and very rough along and off south Andhra Pradesh coast and also over Gulf of Mannar on 24<sup>th</sup> November.
- The sea condition would be very high over the southwest and adjoining west-central Bay of Bengal and along & off north Tamil Nadu, Puducherry coasts and high along and off south Tamil Nadu & south Andhra Pradesh coasts and also over Gulf of Mannar on 25<sup>th</sup> November, 2020.

## **(iv) Storm Surge Warning**

- Tidal wave of about 1m height above the astronomical tide is very likely to inundate the low lying areas of north coastal districts of Tamilnadu & Puducherry near the place of landfall.

## **(v) Damage expected over and Action suggested over coastal districts of Tamilnadu & Puducherry and adjoining Andhra Pradesh:**

- Major damage to thatched houses/ huts with possibility of roof tops being blown off and unattached metal sheets may fly.
- Damage to power and communication lines.
- Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- Breaking of tree branches, uprooting of large avenue trees. Severe damage to banana and papaya trees, horticulture and crops & orchards. Large dead limbs blown from trees.
- Major damage to coastal crops.
- Damage to embankments/ salt pans.

## **(vi) Fishermen Warning & Action Suggested:**

- Total suspension of fishing operations.
- Fishermen are advised not to venture into Southwest & adjoining west-central & southeast Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 24-25th November.
- Fishermen out at Sea are advised to return to the coast and avoid the above sea area.
- Coastal hutment dwellers to be moved to safer places. People in affected areas to remain indoors. Movement in motor boats unsafe.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

## 2. Deep Depression over Gulf of Aden and adjoining Somalia

The Deep Depression over Gulf of Aden and adjoining Somalia moved nearly west-northwestwards with a speed of about 19 kmph during past 06 hours and lay centered at 2330 hrs IST of 23<sup>rd</sup> November 2020 over the Gulf of Aden and adjoining Somalia near Latitude 11.7°N and Longitude 47.5°E, about 400 km nearly west of Ras Binnah (Somalia). It is very likely to move nearly westwards and weaken gradually into a depression during next 06 hours and into a low pressure area during subsequent 06 hours.

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
23.11.20/2330	11.7/47.5	45-55 Gusting TO 65	Deep Depression
24.11.20/0530	11.7/46.5	40-50 Gusting TO 60	Depression
24.11.20/1730	11.6/45.5	20-30 Gusting TO 40	Low Pressure Area

### (i) Wind warning

Gale wind speed reaching 45-55 kmph gusting to 65 kmph is prevailing over Gulf of Eden along and off Somalia coast and 40-50 kmph gusting to 60 kmph prevails over southwest Arabian Sea along and off north Somalia coast during next 06 hours. It will gradually decrease and becoming 40-50 kmph gusting to 60 kmph over the above areas during subsequent 06 hours.

### (ii) Sea condition

Sea condition will be rough to very rough over Gulf of Eden along and off north Somalia coast and over southwest Arabian Sea during next 12 hours and improve thereafter.

### (iii) Fishermen Warning

Fishermen are advised not to venture into Gulf of Eden and southwest Arabian Sea along and off north Somalia coast during next 12 hours.

*The next bulletin will be issued at 0830 hrs IST of 24<sup>th</sup> November, 2020.*

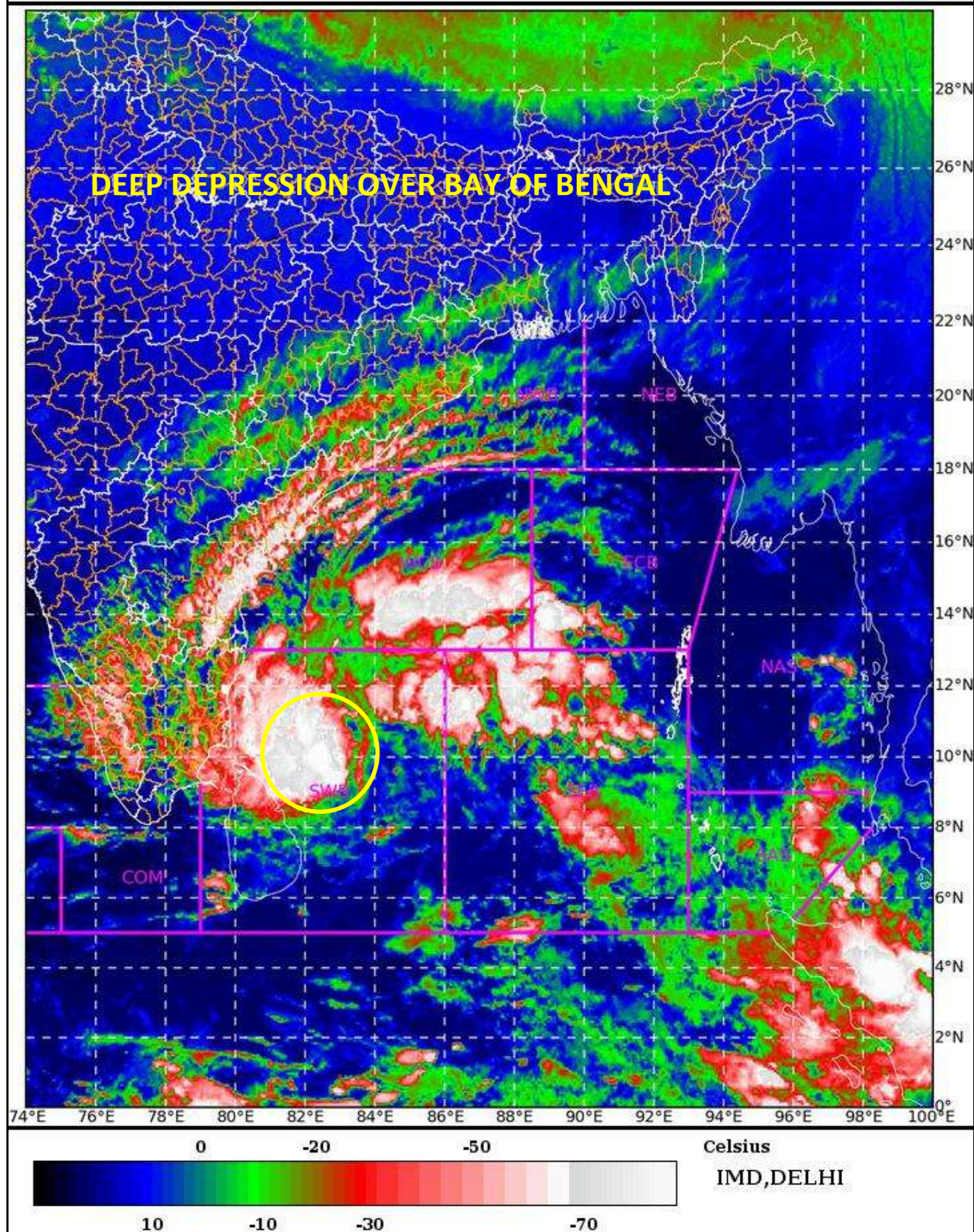
**(Shobhit Katiyar)**  
**Scientist-C, RSMC, New Delhi**

*Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC Thiruvananthapuram*

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



SAT : INSAT-3D IMG 23-11-2020/(1930 to 1956) GMT  
 IMG\_TIR1\_TEMP 10.8 um 24-11-2020/(0100 to 0126) IST  
 L1C Mercator

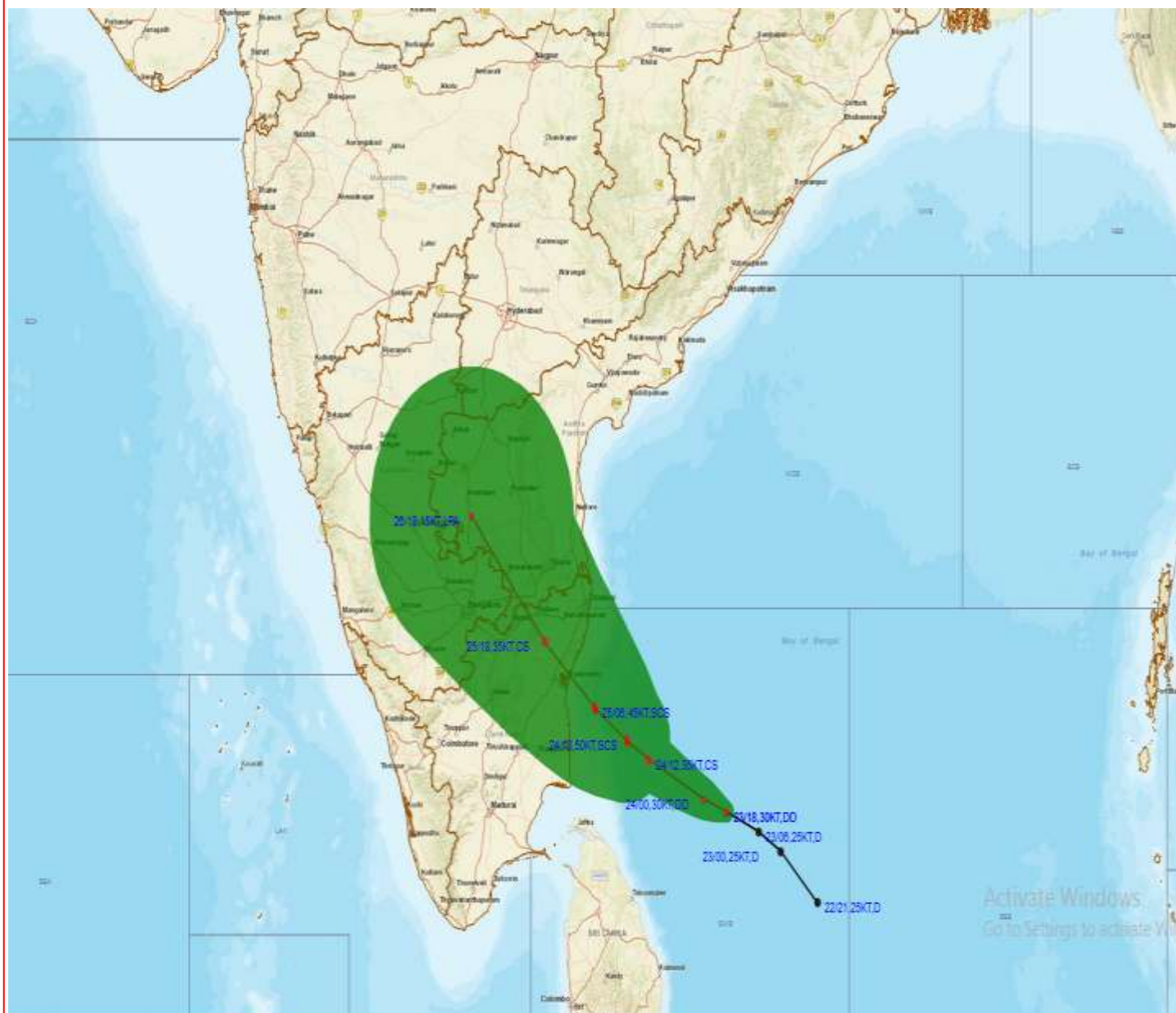


Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# **OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL BASED ON 1800 UTC OF 23<sup>RD</sup> NOVEMBER, 2020.**



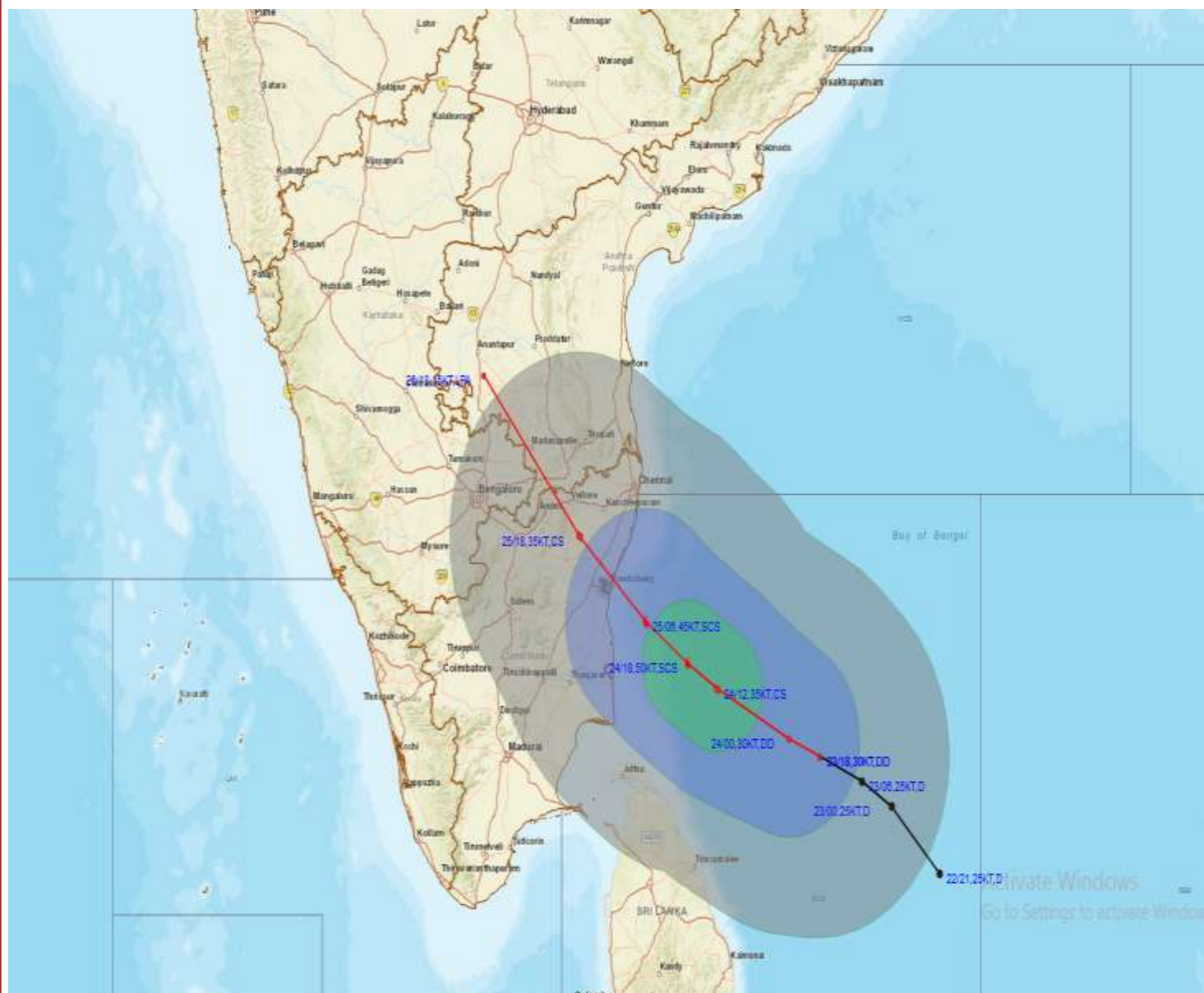
DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT  
 6 34-47 KT  
 6  $\geq 48$  KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION OVER SOUTHWEST BAY OF BENGAL ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 1800 UTC OF 23<sup>RD</sup> NOVEMBER



## DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM ( $\geq 20$  KT)

● LESS THAN 34 KT

● 34-47 KT

●  $\geq 48$  KT

— OBSERVED TRACK

— FORECAST TRACK

— CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

— 28-33 KT (52-61 KMPH)

— 34-49 KT (62-91 KMPH)

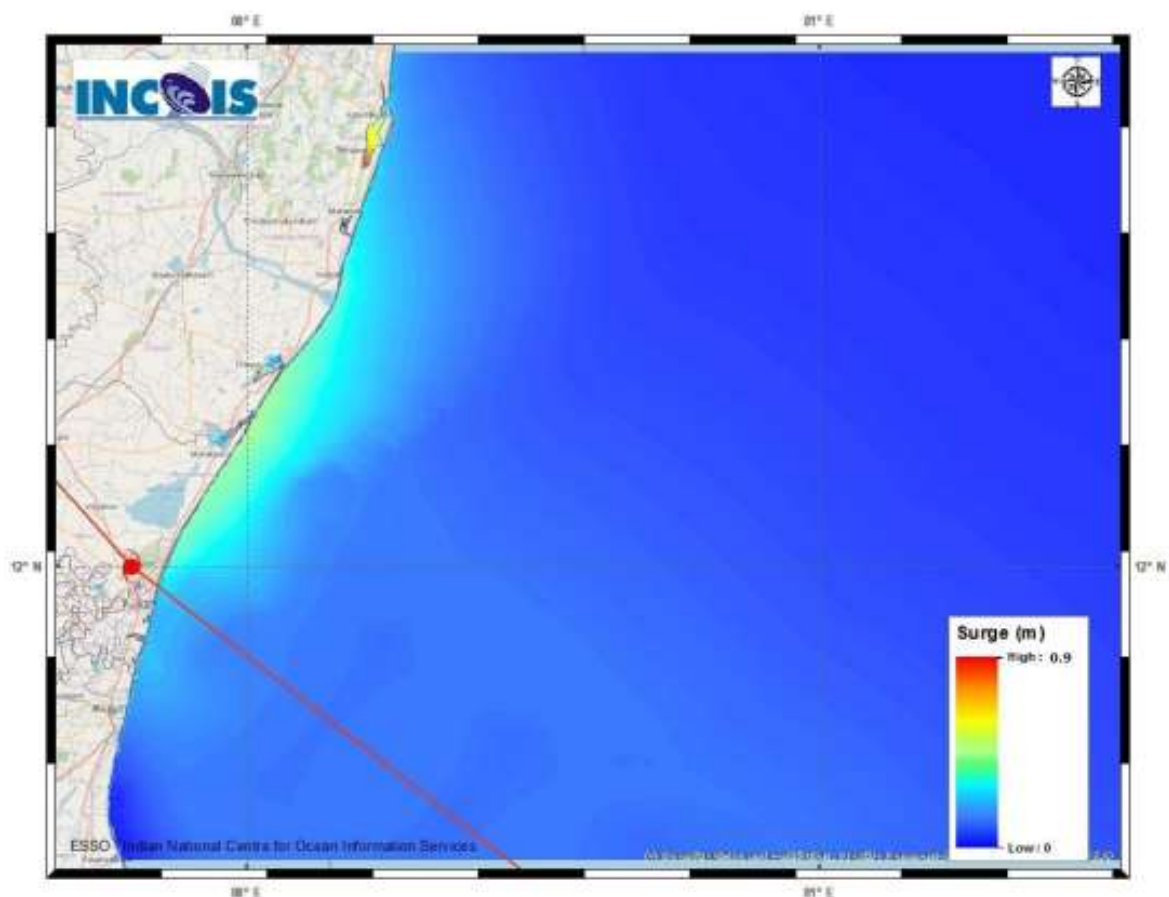
— 50-63 KT (92-117 KMPH)

—  $\geq 64$  KT ( $\geq 118$  KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
$\geq 64$ ( $\geq 118$ )	Phenomenal	Total suspension of fishing operations

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**Figure: Storm surge map**

**STORM SURGE HEIGHT INFORMATION:**

\* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.9	Upto 0.20
Cheyyur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.6	Upto 0.11
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaimedu west	0.3-0.5	Upto 0.11

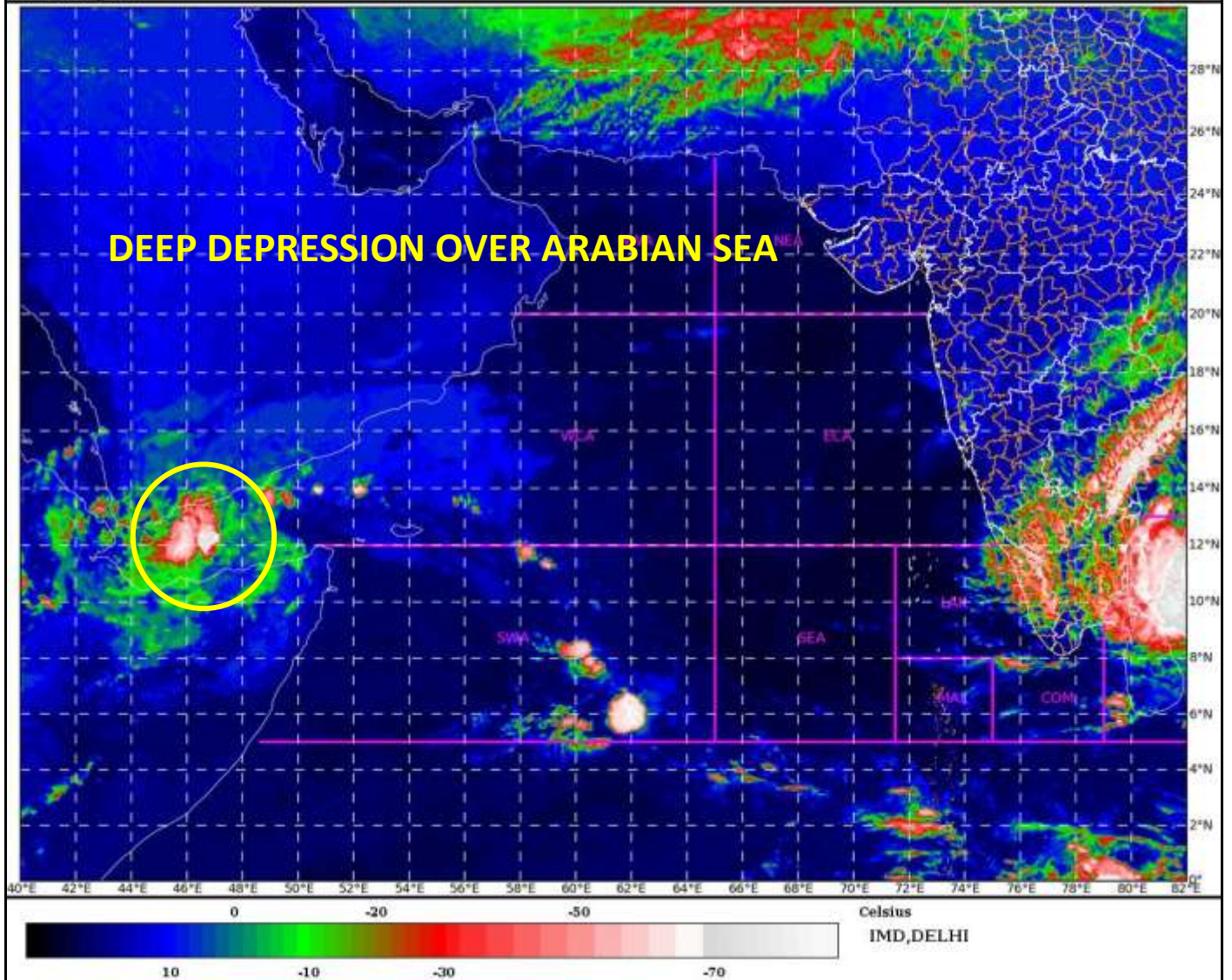
**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



SAT : INSAT-3D IMG  
IMG\_TIR1\_TEMP 10.8 um  
ARABIAN SEA

23-11-2020/(1930 to 1956) GMT  
24-11-2020/(0100 to 0126) IST



Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF DEEP DEPRESSION OVER GULF OF ADEN BASED ON 1800 UTC OF 23<sup>RD</sup> NOV, 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

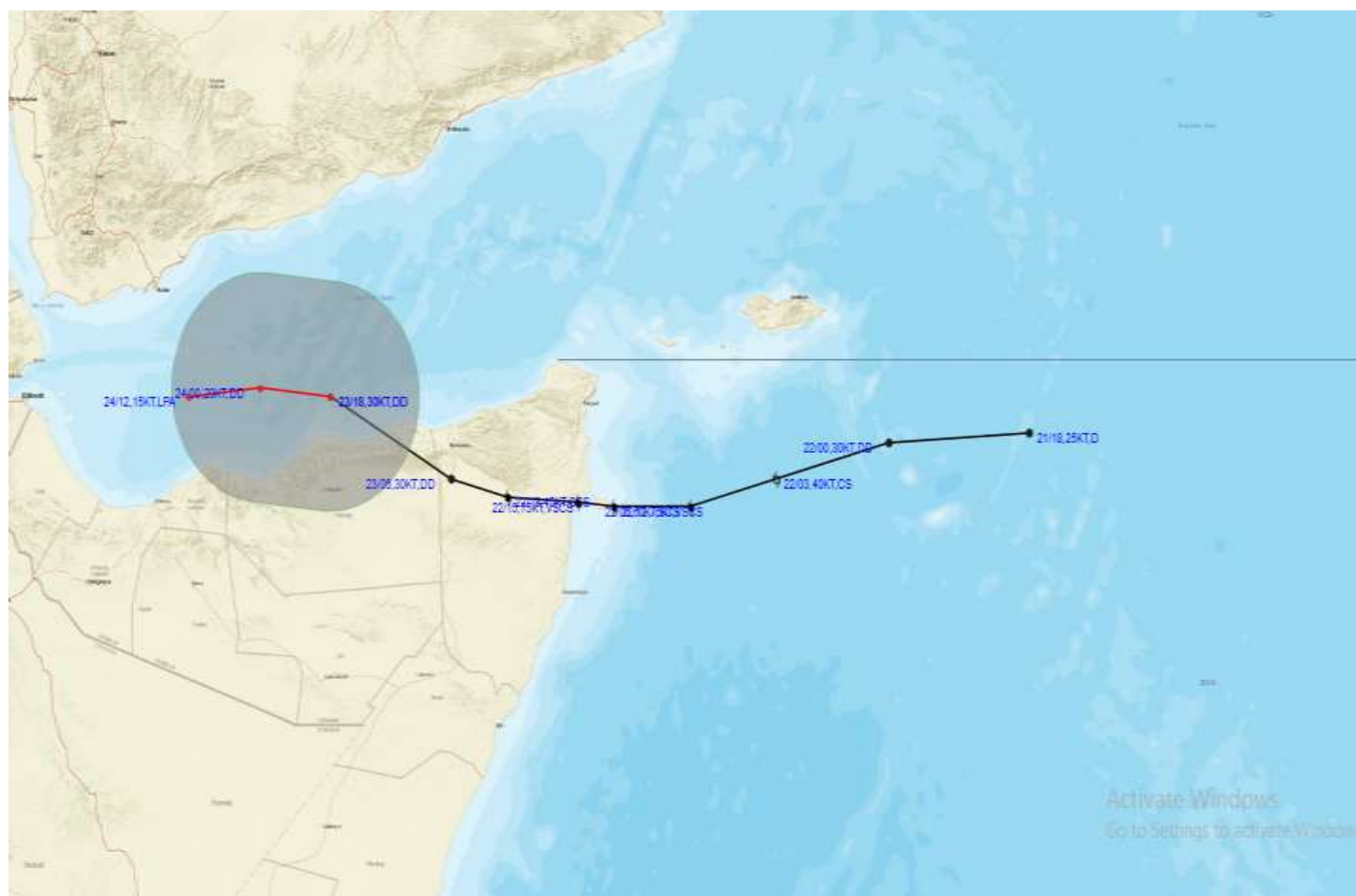
● LESS THAN 34 KT  
● 34-47 KT  
●  $\geq 48$  KT  
■ OBSERVED TRACK  
■ FORECAST TRACK  
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# **OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION (REMNANT OF CYCLONE GATI) OVER GULF OF ADEN ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 1800 UTC OF 23<sup>RD</sup> NOV, 2020**



DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM (≥20 KT)

● LESS THAN 34 KT  
 ○ 34-47 KT  
 ● ≥ 48 KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 — CONE OF UNCERTAINTY  
 AREA OF MAXIMUM SUSTAINED WIND SPEED:  
 ■ 28-33 KT (52-61 KMPH)  
 ■ 34-49 KT (62-91 KMPH)  
 ■ 50-63 KT (92-117 KMPH)  
 ■ ≥ 64 KT (≥118 KMPH)

## **IMPACT OVER THE SEA**

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
≥ 64 (≥118)	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated: 25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





**India Meteorological Department  
(Ministry of Earth Sciences)**

**BULLETIN NO. : 15(ARB/04/2020) and 06(BOB/04/2020)**

**TIME OF ISSUE: 0830 HOURS IST**

**DATED: 24.11.2020**

**FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)**

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)  
CONTROL ROOM NDMA (FAX.NO. 26701729)  
CABINET SECRETARIAT (FAX.NO.23012284, 23018638)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MOES, (FAX NO. 24629777)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (23421105, 23421219)  
PIB MOES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)  
CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)  
CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)  
CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)  
CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)  
CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)  
CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)  
CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)  
CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Deep Depression intensified into a Cyclonic Storm "NIVAR" over southwest Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts- Yellow Message)**

**(2) Deep Depression weakened into a Depression over Gulf of Aden and adjoining Somalia**

**(1) Deep Depression intensified into a Cyclonic Storm "NIVAR" over southwest Bay of Bengal—(Cyclone Alert for Tamilnadu and Puducherry coasts- Yellow Message)**

The Deep Depression over southwest Bay of Bengal moved west-northwestwards with a speed of 05 kmph during past 06 hours, intensified into a Cyclonic Storm "NIVAR" and lay centred at 0530 hrs IST of 24<sup>th</sup> November, 2020 over southwest Bay of Bengal near latitude 10.0°N and longitude 83.0°E, about 410 km east-southeast of Puducherry and 450 km southeast of Chennai. It is very likely to intensify further into a severe cyclonic storm during next 24 hours. It is very likely to move west-northwestwards for next 12 hours and then northwestwards. It is very likely to cross Tamil Nadu and Puducherry coasts between Karaikal and Mamallapuram around Puducherry during 25<sup>th</sup> November 2020 evening as a severe cyclonic storm with a wind speed of 100-110 kmph gusting to 120 kmph.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
24.11.20/0530	10.0/83.0	65-75 gusting to 85	Cyclonic Storm
24.11.20/1130	10.1/82.7	75-85 gusting to 95	Cyclonic Storm
24.11.20/1730	10.2/82.4	85-95 gusting to 105	Cyclonic Storm
24.11.20/2330	10.4/81.9	90-100 gusting to 110	Severe Cyclonic Storm
25.11.20/0530	10.9/81.2	100-110 gusting to 120	Severe Cyclonic Storm
25.11.20/1730	11.7/80.0	100-110 gusting to 120	Severe Cyclonic Storm
26.11.20/0530	12.5/79.0	80-90 gusting to 100	Cyclonic Storm
26.11.20/1730	13.5/77.8	50-60 gusting to 70	Deep Depression
27.11.20/0530	14.3/76.9	30-40 gusting to 50	Depression

Fairly widespread to widespread rainfall/thunderstorm activity very likely over Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south Coastal Andhra Pradesh, Rayalaseema during 25<sup>th</sup> to 26<sup>th</sup> and Telangana during 26<sup>th</sup> to 27<sup>th</sup> November, 2020. Isolated extremely heavy rainfall activity also very likely over Tamilnadu & Puducherry (**Pudukottai, Thanjavur, Tiruvarur, Karaikal, Nagapattinam, Cuddalore, Ariyalur & Perabalu** districts during 24<sup>th</sup> and **Kadalur, Kallakurchi, Puducherry, Villupuram, Tiruvannamalai, Chengalpattu to Ariyalur, Perambalur and Karaikal** districts during 25<sup>th</sup>) and over south Coastal Andhra Pradesh & Rayalaseema (**Nellore and Chittoor districts**) on 25<sup>th</sup> & 26<sup>th</sup> and over Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*	27 Nov 2020*
South Coastal Andhra Pradesh	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at most places with isolated heavy to very heavy with extremely heavy falls	Rainfall at many places with isolated heavy falls
Tamilnadu, Puducherry & Karaikal	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places over north Tamilnadu	Rainfall at many places with heavy rainfall at isolated places
South Interior Karnataka	Rainfall at a few places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places	<u>Rainfall at many places</u>
Rayalaseema	Rainfall at many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places
Telangana	Rainfall at isolated places	Rainfall at a few places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at many places

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

## **(ii) Wind warning**

- Gale wind speed reaching 65-75 kmph gusting to 85 kmph is prevailing over Southwest Bay of Bengal. It would further increase becoming 100-110 kmph gusting to 120 kmph over the southwest Bay of Bengal from 25<sup>th</sup> November morning for subsequent 18 hours.
- Squally wind speed reaching 30-40 kmph gusting to 50 kmph is prevailing along & off Tamil Nadu, Puducherry and adjoining South Andhra Pradesh coast and over Gulf of Mannar. It will gradually increase and become 100-110 kmph gusting to 120 kmph along & off coastal districts of north Tamil Nadu and Puducherry (**Nagapattinam, Karaikal, Myladuthurai, Cuddalore, Puducherry, Villupuram & Chengalpattu districts**; 80-90 gusting to 100 kmph very likely over Tiruvarur, Kanchipuram, Chennai, Tiruvallur districts) during forenoon to night of 25<sup>th</sup> November, 2020.
- Gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely over adjoining westcentral Bay of Bengal and along & off South Andhra Pradesh (Nellore & Chittoor districts), Gulf of Mannar and along and off districts of south coastal districts of Tamil Nadu during forenoon to night of 25<sup>th</sup> November, 2020.

## **(iii) Sea condition**

- Sea condition is high over Southwest Bay of Bengal and rough to very rough along & off Tamil Nadu, Puducherry, south Andhra Pradesh coasts and over Gulf of Mannar. It would gradually become very high over the southwest Bay of Bengal from 24<sup>th</sup> November night.
- The sea condition would be very high over the southwest and adjoining west-central Bay of Bengal and along & off north Tamil Nadu, Puducherry coasts and high along and off south Tamil Nadu & south Andhra Pradesh coasts and also over Gulf of Mannar on 25<sup>th</sup> November, 2020.

## **(iv) Storm Surge Warning**

- Tidal wave of about 1m height above the astronomical tide is very likely to inundate the low lying areas of north coastal districts of Tamilnadu & Puducherry near the place of landfall.

## **(v) Damage expected over and Action suggested over coastal districts of Tamilnadu & Puducherry and adjoining Andhra Pradesh:**

- Major damage to thatched houses/ huts with possibility of roof tops being blown off and unattached metal sheets may fly.
- Damage to power and communication lines.
- Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- Breaking of tree branches, uprooting of large avenue trees. Severe damage to banana and papaya trees, horticulture and crops & orchards. Large dead limbs blown from trees.
- Major damage to coastal crops.
- Damage to embankments/ salt pans.

## **(vi) Fishermen Warning & Action Suggested:**

- Total suspension of fishing operations.
- Fishermen are advised not to venture into Southwest & adjoining west-central & southeast Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 24-25th November.
- Fishermen out at Sea are advised to return to the coast and avoid the above sea area.
- Coastal hutment dwellers to be moved to safer places. People in affected areas to remain indoors. Movement in motor boats unsafe.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



## **2. Deep Depression weakened into a Depression over Gulf of Aden and adjoining Somalia**

The Deep Depression over Gulf of Aden and adjoining Somalia moved west-southwestwards with a speed of about 09 kmph during past 06 hours, weakened into a Depression and lay centered at 0530 hrs IST of 24<sup>th</sup> November 2020 over the Gulf of Aden and adjoining Somalia near Latitude 11.6°N and Longitude 47.0°E, about 460 km west-northwest of Ras Binnah (Somalia). It is very likely to move nearly west-southwestwards and weaken into a well marked low pressure area during next 12 hours.

### **(i) Wind warning**

Squally wind speed reaching 40-50 kmph gusting to 60 kmph is likely to prevail over Gulf of Eden and along and off north Somalia coast during next 12 hours and decrease thereafter.

### **(ii) Sea condition**

Sea condition will be rough to very rough over Gulf of Eden along and off north Somalia coast during next 12 hours and improve thereafter.

### **(iii) Fishermen Warning**

Fishermen are advised not to venture into Gulf of Eden and along and off north Somalia coast during next 12 hours.

*The next bulletin will be issued at 1130 hrs IST of 24<sup>th</sup> November, 2020.*

**(Shobhit Katiyar)**  
**Scientist-C, RSMC, New Delhi**

*Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC Thiruvananthapuram*



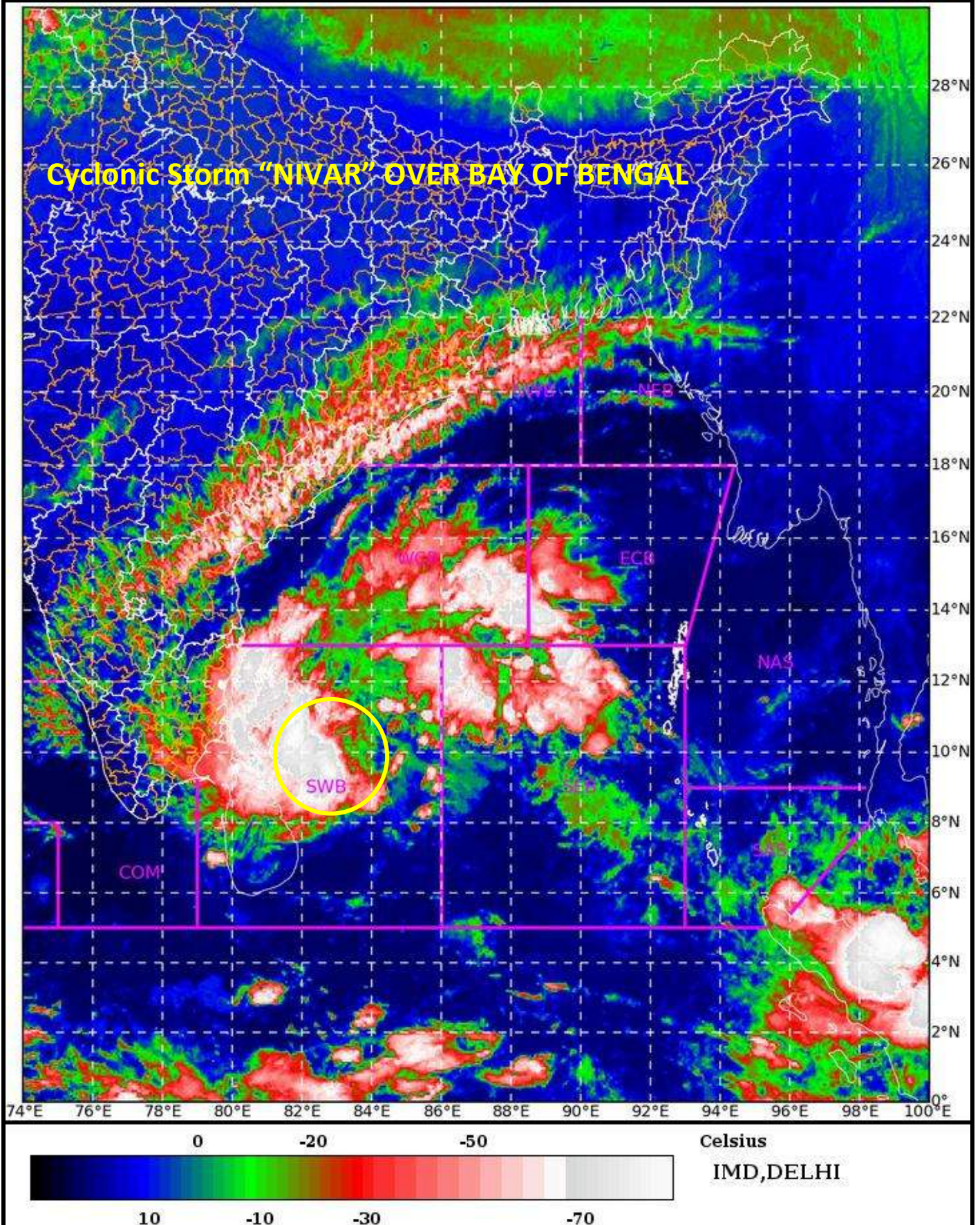
SAT : INSAT-3D IMG

24-11-2020/(0030 to 0057) GMT

IMG\_TIR1\_TEMP 10.8 um

24-11-2020/(0600 to 0627) IST

L1C Mercator



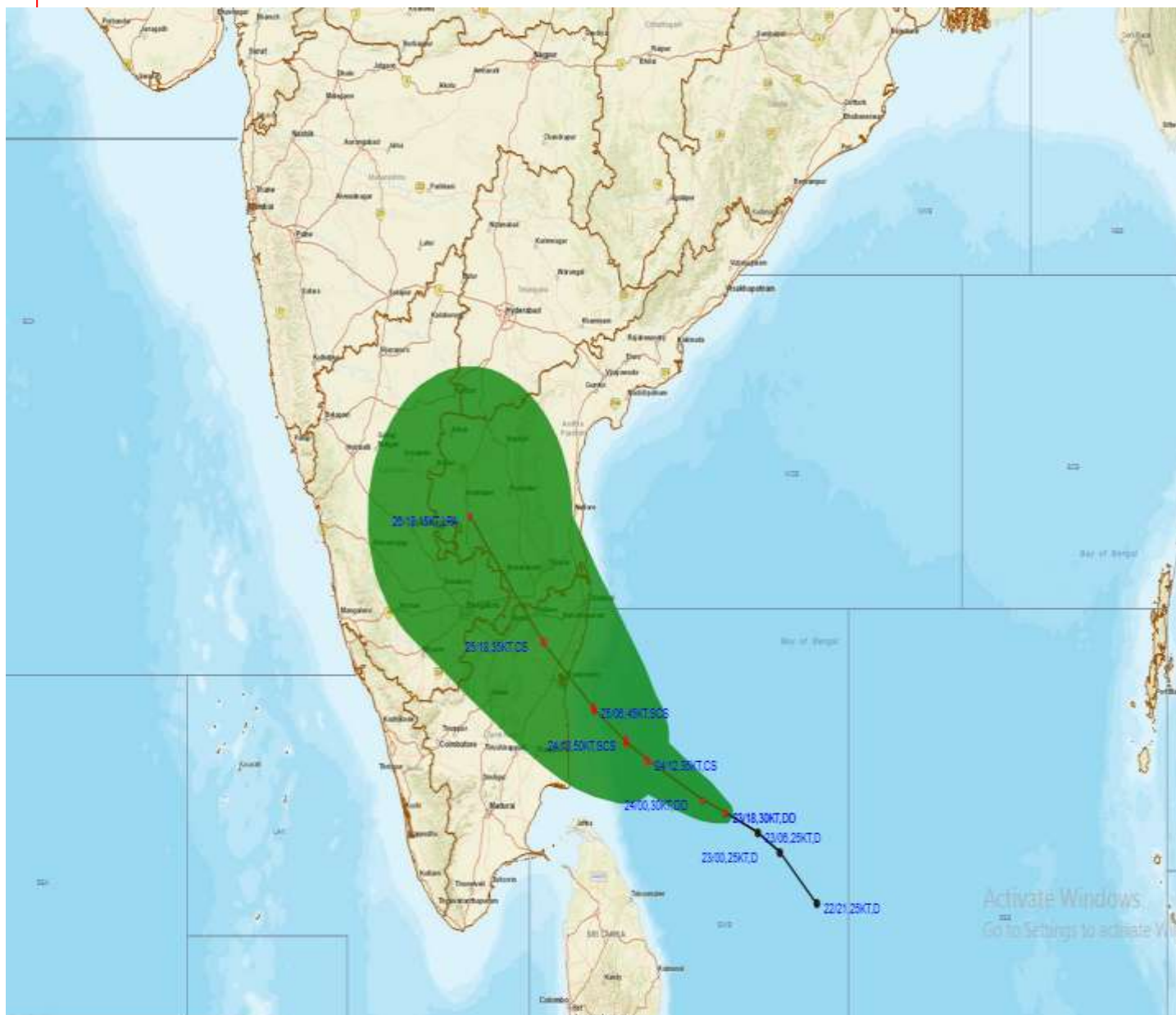
Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF CYCLONIC STORM “NIVAR” OVER SOUTHWEST BAY OF BENGAL BASED ON 0000 UTC OF 24<sup>TH</sup> NOVEMBER, 2020.



DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
 WML: WELL MARKED LOW PRESSURE AREA  
 D: DEPRESSION (17-27 KT)  
 DD: DEEP DEPRESSION (28-33 KT)  
 CS: CYCLONIC STORM (34-47 KT)  
 SCS: SEVERE CYCLONIC STORM (48-63KT)  
 VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
 ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
 SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

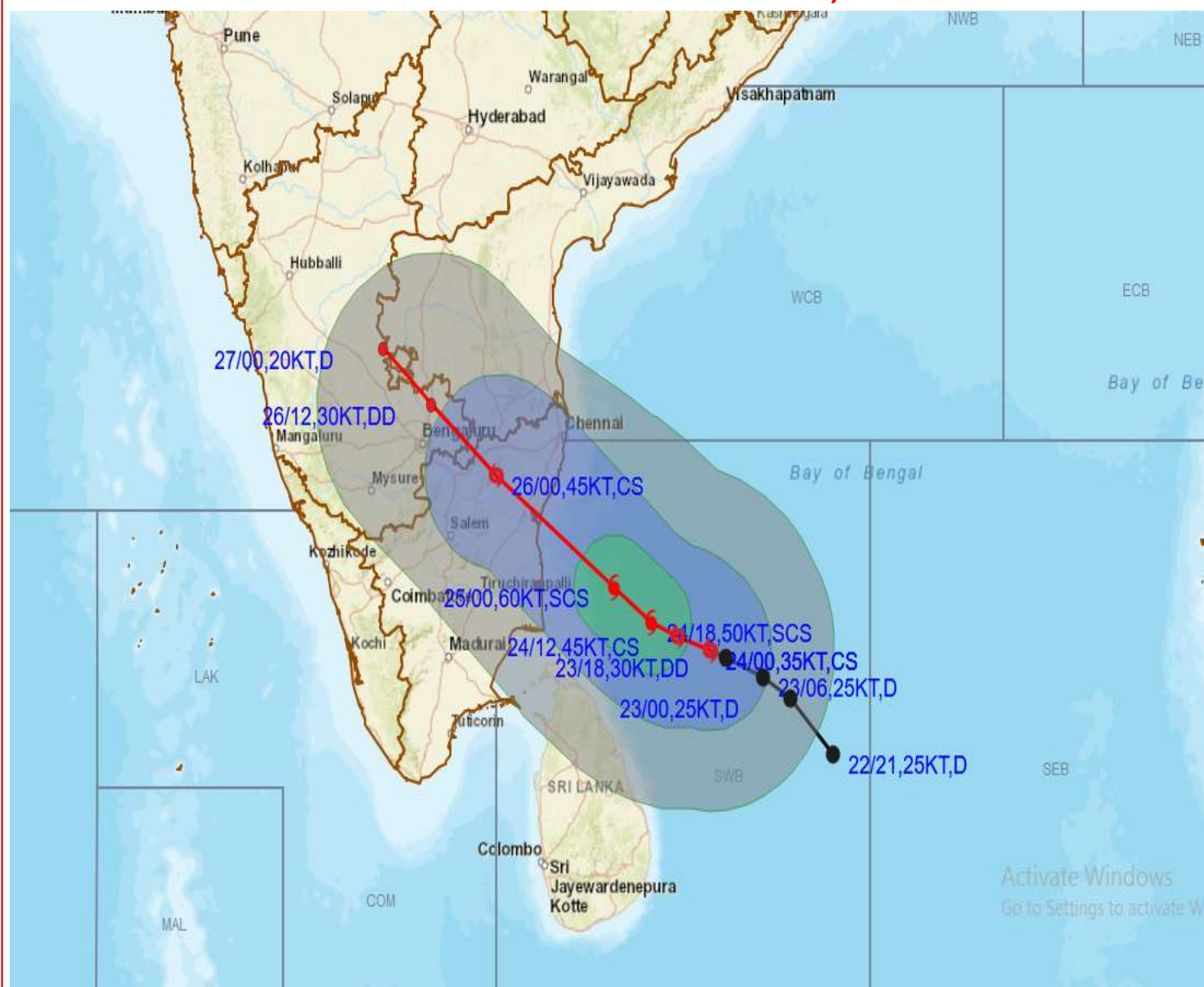
● LESS THAN 34 KT  
 ⚡ 34-47 KT  
 ⚡  $\geq 48$  KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
 Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





# OBSERVED AND FORECAST TRACK OF CYCLONIC STORM “NIVAR” OVER SOUTHWEST BAY OF BENGAL ALONGWITH QUADRANT WIND DISTRIBUTION BASED ON 0000 UTC OF 24<sup>TH</sup> NOV., 2020



DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

SCS: SEVERE CYCLONIC STORM (48-63KT)

VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)

ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT

○ 34-47 KT

●  $\geq 48$  KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

AREA OF MAXIMUM SUSTAINED WIND SPEED:

■ 28-33 KT (52-61 KMPH)

■ 34-49 KT (62-91 KMPH)

■ 50-63 KT (92-117 KMPH)

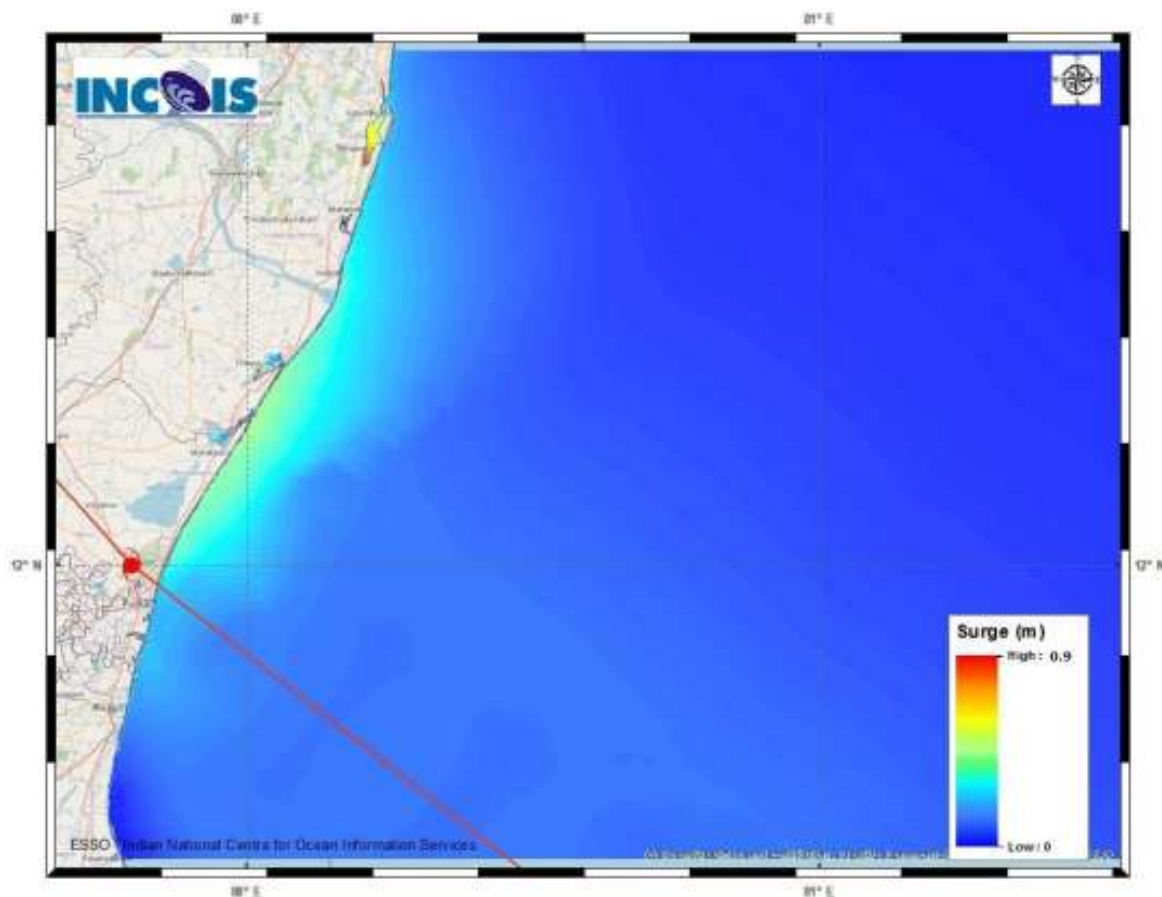
■  $\geq 64$  KT ( $\geq 118$  KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
$\geq 64$ ( $\geq 118$ )	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**Figure: Storm surge map**

**STORM SURGE HEIGHT INFORMATION:**

\* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.9	Upto 0.20
Cheyyur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.6	Upto 0.11
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaimedu west	0.3-0.5	Upto 0.11

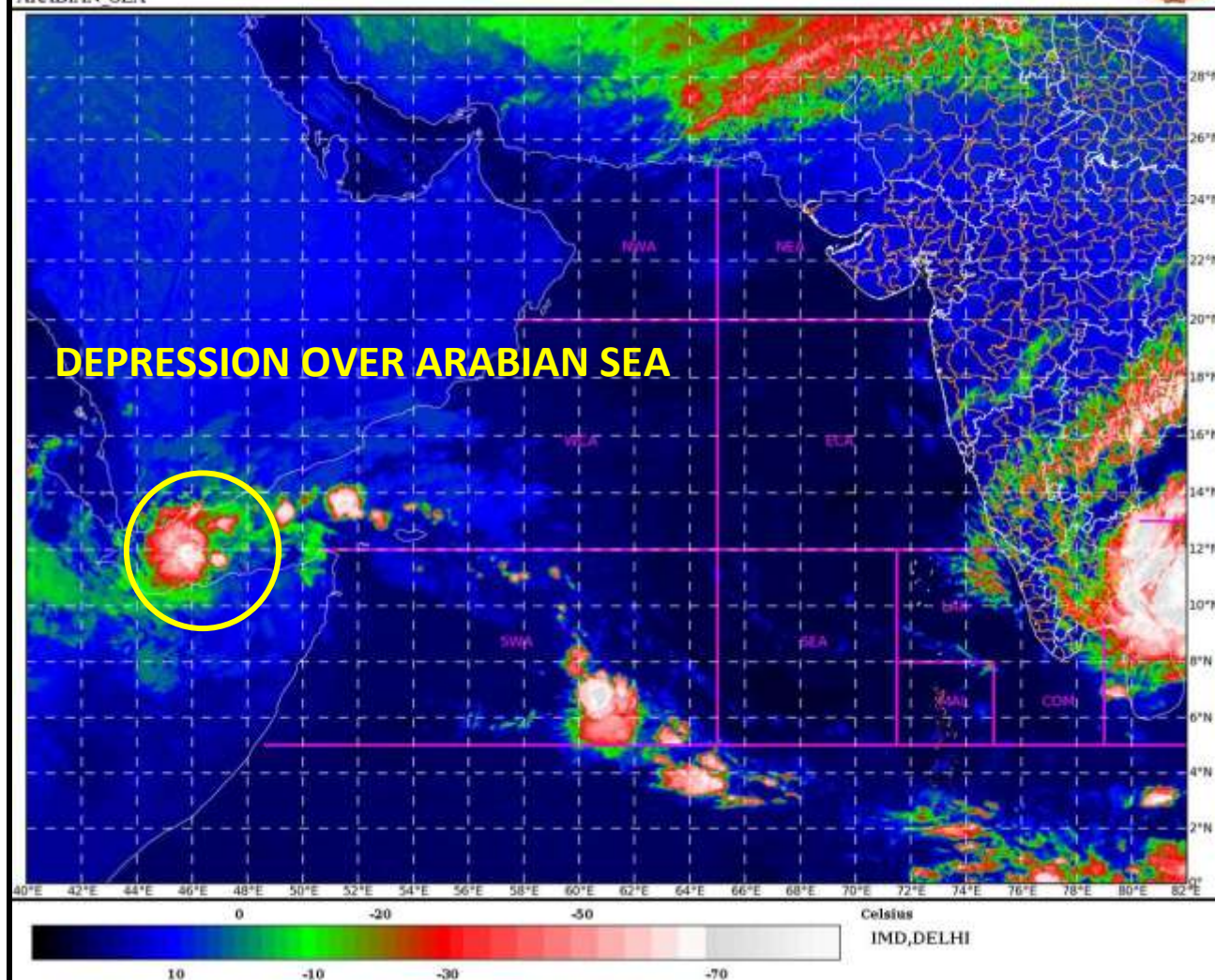
**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



SAT : INSAT-3D IMG  
IMG\_TIR1\_TEMP 10.8 um  
ARABIAN\_SEA

24-11-2020/(0100 to 0126) GMT  
24-11-2020/(0630 to 0656) IST



Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.





## OBSERVED TRACK OF DEPRESSION OVER GULF OF ADEN BASED ON 0000 UTC OF 24<sup>TH</sup> NOV., 2020



### DATE/TIME IN UTC

IST=UTC + 0530

L: LOW PRESSURE AREA

WML: WELL MARKED LOW PRESSURE AREA

D: DEPRESSION (17-27 KT)

DD: DEEP DEPRESSION (28-33 KT)

CS: CYCLONIC STORM (34-47 KT)

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ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

SuCS: SUPER CYCLONIC STORM ( $\geq 120$  KT)

● LESS THAN 34 KT

○ 34-47 KT

○  $\geq 48$  KT

— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**BULLETIN NO. : 16(ARB/04/2020) and 07(BOB/04/2020)**

**TIME OF ISSUE: 1130 HOURS IST**

**DATED: 24.11.2020**

**FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)**

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)  
CONTROL ROOM NDMA (FAX.NO. 26701729)  
CABINET SECRETARIAT (FAX.NO.23012284, 23018638)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MOES, (FAX NO. 24629777)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (23421105, 23421219)  
PIB MOES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)  
CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)  
CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)  
CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)  
CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)  
CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)  
CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)  
CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)  
CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Cyclonic Storm “NIVAR” over southwest Bay of Bengal—(Cyclone Warning for Tamilnadu and Puducherry coasts- Orange Message)**

**(2) Depression over Gulf of Aden and adjoining Somalia**

**(1) Cyclonic Storm “NIVAR” over southwest Bay of Bengal—(Cyclone Warning for Tamilnadu and Puducherry coasts- Orange Message)**

The **cyclonic storm ‘NIVAR’** over southwest Bay of Bengal remained practically stationary during past 03 hours and lay centred at 0830 hrs IST of 24<sup>th</sup> November, 2020 over southwest Bay of Bengal near latitude 10.0°N and longitude 83.0°E, about 410 km east-southeast of Puducherry and 450 km southeast of Chennai. It is very likely to intensify further into a severe cyclonic storm during next 24 hours.

**It is very likely to move west-northwestwards for next 12 hours and then northwestwards. It is very likely to cross Tamil Nadu and Puducherry coasts between Karaikal and Mamallapuram around Puducherry during 25<sup>th</sup> November 2020 evening as a severe cyclonic storm with a wind speed of 100-110 kmph gusting to 120 kmph.**

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
24.11.20/0830	10.0/83.0	70-80 gusting to 90	Cyclonic Storm
24.11.20/1130	10.1/82.7	75-85 gusting to 95	Cyclonic Storm
24.11.20/1730	10.2/82.4	85-95 gusting to 105	Cyclonic Storm
24.11.20/2330	10.4/81.9	90-100 gusting to 110	Severe Cyclonic Storm
25.11.20/0530	10.9/81.2	100-110 gusting to 120	Severe Cyclonic Storm
25.11.20/1730	11.7/80.0	100-110 gusting to 120	Severe Cyclonic Storm
26.11.20/0530	12.5/79.0	80-90 gusting to 100	Cyclonic Storm
26.11.20/1730	13.5/77.8	50-60 gusting to 70	Deep Depression
27.11.20/0530	14.3/76.9	30-40 gusting to 50	Depression

Fairly widespread to widespread rainfall/thunderstorm activity very likely over coastal and north interior Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south coastal Andhra Pradesh, Rayalaseema during 25<sup>th</sup> to 26<sup>th</sup> and southeast Telangana during 26<sup>th</sup> November, 2020. Isolated extremely heavy rainfall activity also very likely over coastal & north interior Tamilnadu & Puducherry (**Pudukottai, Thanjavur, Tiruvarur, Karaikal, Nagapattinam, Cuddalore, Ariyalur & Perabalu** districts during 24<sup>th</sup> and **Kadalur, Kallakurchi, Puducherry, Villupuram, Tiruvannamalai, Chengalpattu to Ariyalur, Perambalur and Karaikal** districts during 25<sup>th</sup>) and over **Nellore and Chittoor** districts of Andhra Pradesh on 25<sup>th</sup> and over Rayalseema & southeast Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*	27 Nov 2020*
<b>South Coastal Andhra Pradesh</b>	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy and extremely heavy falls	Rainfall at most places with isolated heavy to very heavy and extremely heavy falls	Rainfall at many places
<b>Coastal &amp; North Interior Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at most places with heavy to very heavy rainfall and extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places
<b>South Interior Karnataka</b>	Rainfall at a few places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places
<b>Rayalaseema</b>	Rainfall at many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places
<b>Telangana</b>	Rainfall at isolated places	Rainfall at a few places	Rainfall at most places with heavy to very heavy rainfall and extremely heavy falls at isolated places over southeast Telangana	Rainfall at many places

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



## **(ii) Wind warning**

- Gale wind speed reaching 70-80 kmph gusting to 90 kmph is prevailing over Southwest Bay of Bengal. It would further increase becoming 100-110 kmph gusting to 120 kmph over the southwest Bay of Bengal from 25<sup>th</sup> November morning for subsequent 18 hours.
- Squally wind speed reaching 30-40 kmph gusting to 50 kmph is prevailing along & off Tamil Nadu, Puducherry and adjoining South Andhra Pradesh coast and over Gulf of Mannar. It will gradually increase and become 100-110 kmph gusting to 120 kmph along & off coastal districts of north Tamil Nadu and Puducherry (**Nagapattinam, Karaikal, Myladuthurai, Cuddalore, Puducherry, Villupuram & Chengalpattu districts**; 80-90 gusting to 100 kmph very likely over Tiruvarur, Kanchipuram, Chennai, Tiruvallur districts) during forenoon to night of 25<sup>th</sup> November, 2020.
- Gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely over adjoining westcentral Bay of Bengal and along & off South Andhra Pradesh (Nellore & Chittoor districts), Gulf of Mannar and along and off districts of south coastal districts of Tamil Nadu during forenoon to night of 25<sup>th</sup> November, 2020.

## **(iii) Sea condition**

- Sea condition is high over Southwest Bay of Bengal and rough to very rough along & off Tamil Nadu, Puducherry, south Andhra Pradesh coasts and over Gulf of Mannar. It would gradually become very high over the southwest Bay of Bengal from 24<sup>th</sup> November night.
- The sea condition would be very high over the southwest and adjoining west-central Bay of Bengal and along & off north Tamil Nadu, Puducherry coasts and high along and off south Tamil Nadu & south Andhra Pradesh coasts and also over Gulf of Mannar on 25<sup>th</sup> November, 2020.

## **(iv) Storm Surge Warning**

- Tidal wave of about 1m height above the astronomical tide is very likely to inundate the low lying areas of north coastal districts of Tamilnadu & Puducherry near the place of landfall.

## **(v) Damage expected over and Action suggested over coastal districts of Tamilnadu & Puducherry and adjoining Andhra Pradesh:**

- Major damage to thatched houses/ huts with possibility of roof tops being blown off and unattached metal sheets may fly.
- Damage to power and communication lines.
- Major damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- Breaking of tree branches, uprooting of large avenue trees. Severe damage to banana and papaya trees, horticulture and crops & orchards. Large dead limbs blown from trees.
- Major damage to coastal crops.
- Damage to embankments/ salt pans.

## **(vi) Fishermen Warning & Action Suggested:**

- Total suspension of fishing operations.
- Fishermen are advised not to venture into Southwest & adjoining west-central & southeast Bay of Bengal, Gulf of Mannar and along & off Tamil Nadu, Puducherry and south Andhra Pradesh coasts during 24-25th November.
- Fishermen out at Sea are advised to return to the coast and avoid the above sea area.
- Coastal hutment dwellers to be moved to safer places. People in affected areas to remain indoors. Movement in motor boats unsafe.

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

## 2. Depression over Gulf of Aden and adjoining Somalia

The depression over Gulf of Aden and adjoining Somalia moved west-southwestwards with a speed of about 07 kmph during past 06 hours and lay centered at 0830 hrs IST of 24<sup>th</sup> November 2020 over the Gulf of Aden and adjoining Somalia near Latitude 11.6°N and Longitude 46.8°E, about 480 km west-northwest of Ras Binnah (Somalia) and 230 km east-southeast of Aden (Yemen). It is very likely to move nearly west-southwestwards and weaken into a well marked low pressure area during next 12 hours.

### (i) Wind warning

Squally wind speed reaching 40-50 kmph gusting to 60 kmph is likely to prevail over Gulf of Aden and along and off north Somalia coast during next 12 hours and decrease thereafter.

### (ii) Sea condition

Sea condition will be rough to very rough over Gulf of Aden along and off north Somalia coast during next 12 hours and improve thereafter.

### (iii) Fishermen Warning

Fishermen are advised not to venture into Gulf of Aden and along and off north Somalia coast during next 12 hours.

*The next bulletin will be issued at 1430 hrs IST of 24<sup>th</sup> November, 2020.*

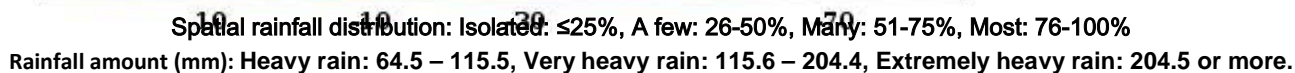
(R.K. Jenamani)  
Scientist-F, RSMC, New Delhi

*Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC Thiruvananthapuram*



24-11-2020/(0400 to 0427) GMT

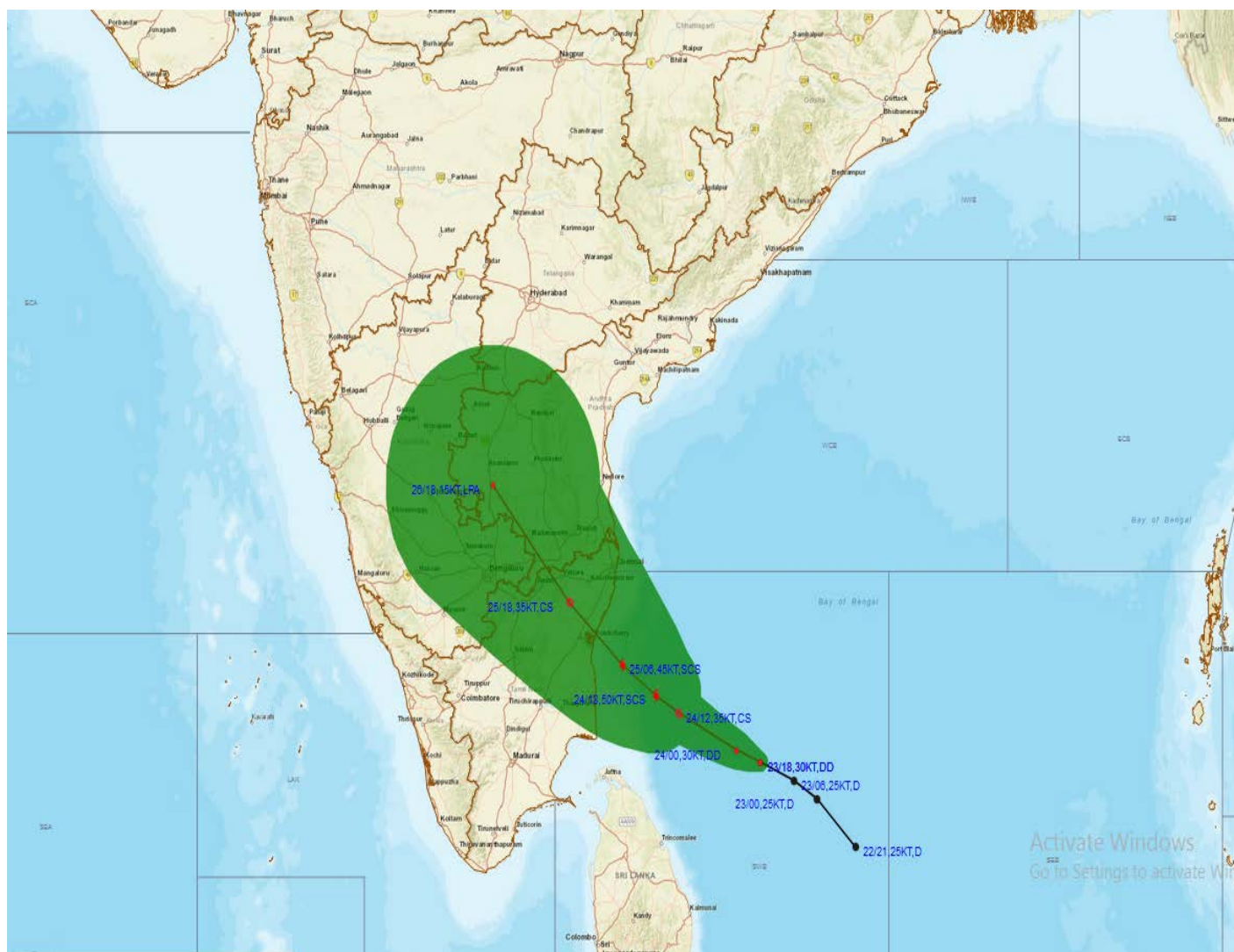
24-11-2020/(0930 to 0957) IST







## OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF CYCLONIC STORM “NIVAR” OVER SOUTHWEST BAY OF BENGAL BASED ON 0300 UTC OF



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM  $\geq 120$  KT

● LESS THAN 34 KT  
⬮ 34-47 KT  
⬮  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



# OBSERVED AND FORECAST TRACK OF CYCLONIC STORM “NIVAR” OVER SOUTHWEST BAY OF BENGAL ALONGWITH QUADRAN | 0300 UTC OF 24<sup>TH</sup>

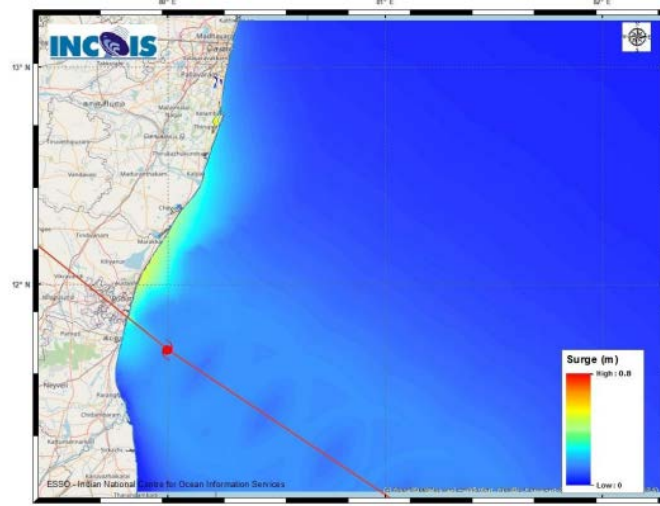
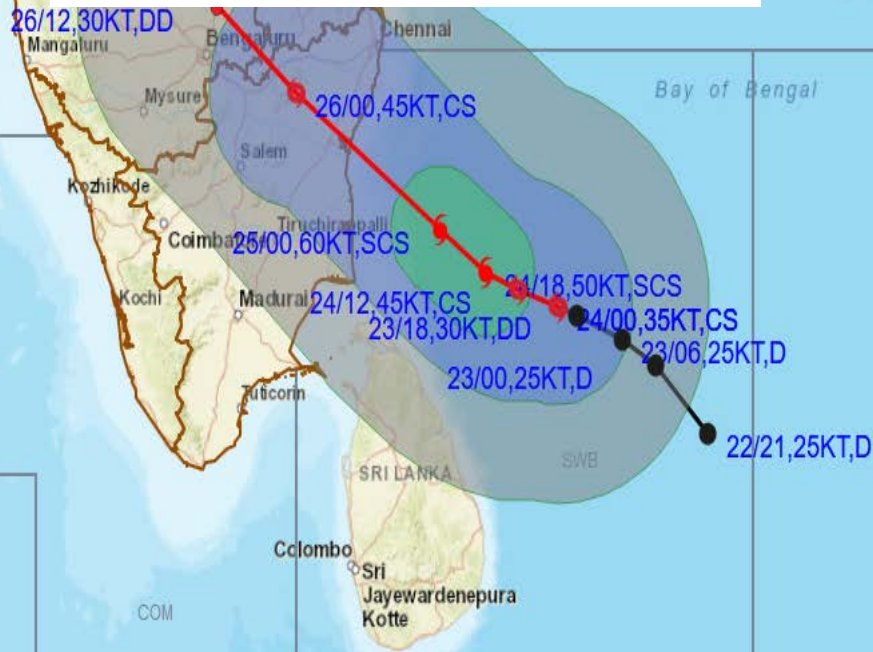


Figure: Storm surge map



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
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DD: DEEP DEPRESSION (28-33 KT)  
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● LESS THAN 34 KT  
● 34-47 KT  
●  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
▲ CONE OF UNCERTAINTY  
AREA OF MAXIMUM SUSTAINED WIND SPEED:  
■ 28-33 KT (52-61 KMPH)  
■ 34-49 KT (62-91 KMPH)  
■ 50-63 KT (92-117 KMPH)  
■  $\geq 64$  KT ( $\geq 118$  KMPH)

## IMPACT OVER THE SEA

MSW (knot/kmph)	Impact	Action
28-33 (52-61)	Very rough seas	Total suspension of fishing operations
34-49 (62-91)	High to very high seas	Total suspension of fishing operations
50-63 (92-117)	Very high seas	Total suspension of fishing operations
$\geq 64$ ( $\geq 118$ )	Phenomenal	Total suspension of fishing operations

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

## Storm Surge Guidance based on 0000 UTC observations of 24<sup>th</sup> November

### **STORM SURGE HEIGHT INFORMATION:**

\* The below listed surge heights are over and above astronomical tide.

MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.8	Upto 0.20
Cheythur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.5	Upto 0.10
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaimedu west	0.3-0.5	Upto 0.10

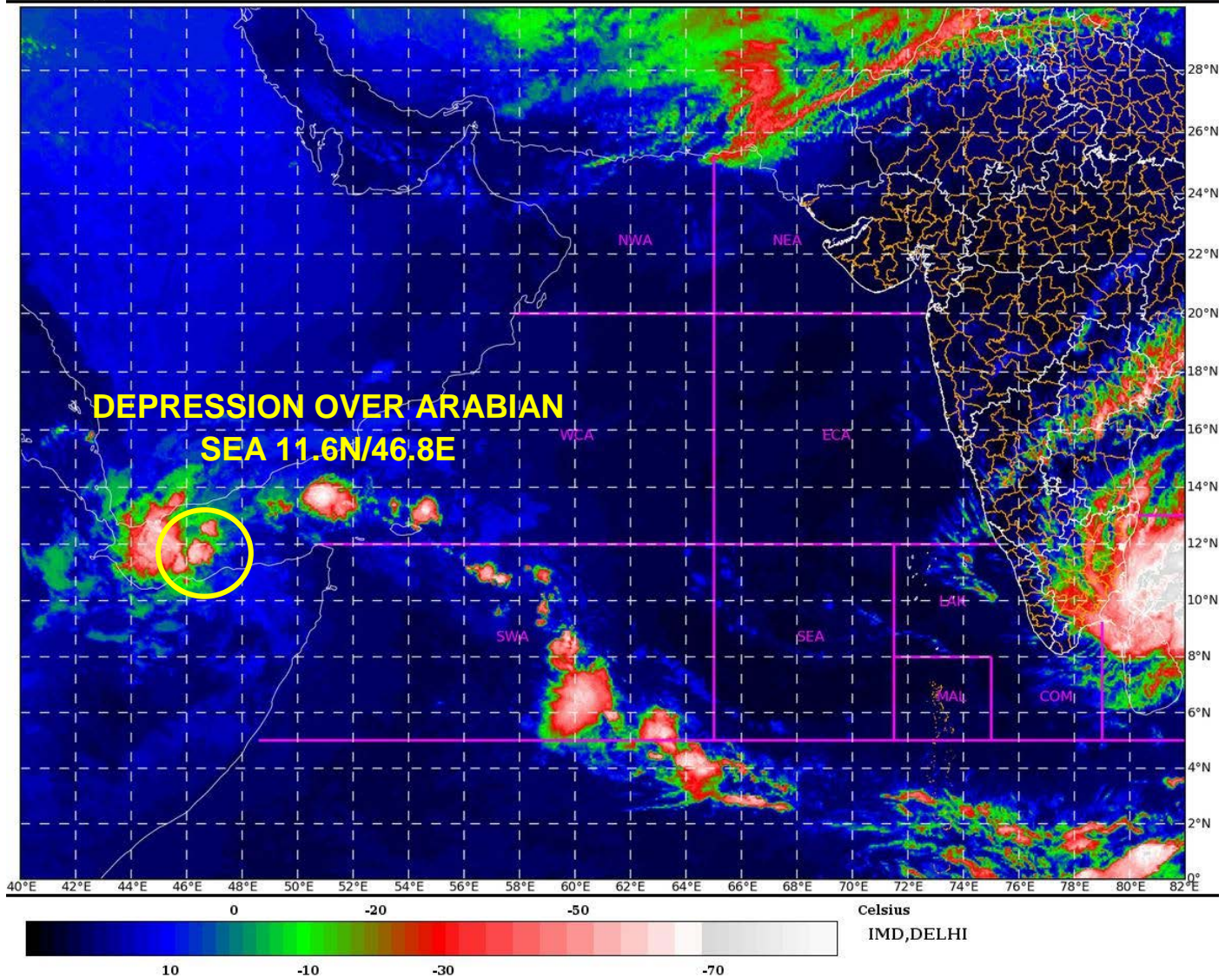
Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



SAT : INSAT-3D IMG  
IMG\_TIR1\_TEMP 10.8 um  
ARABIAN\_SEA

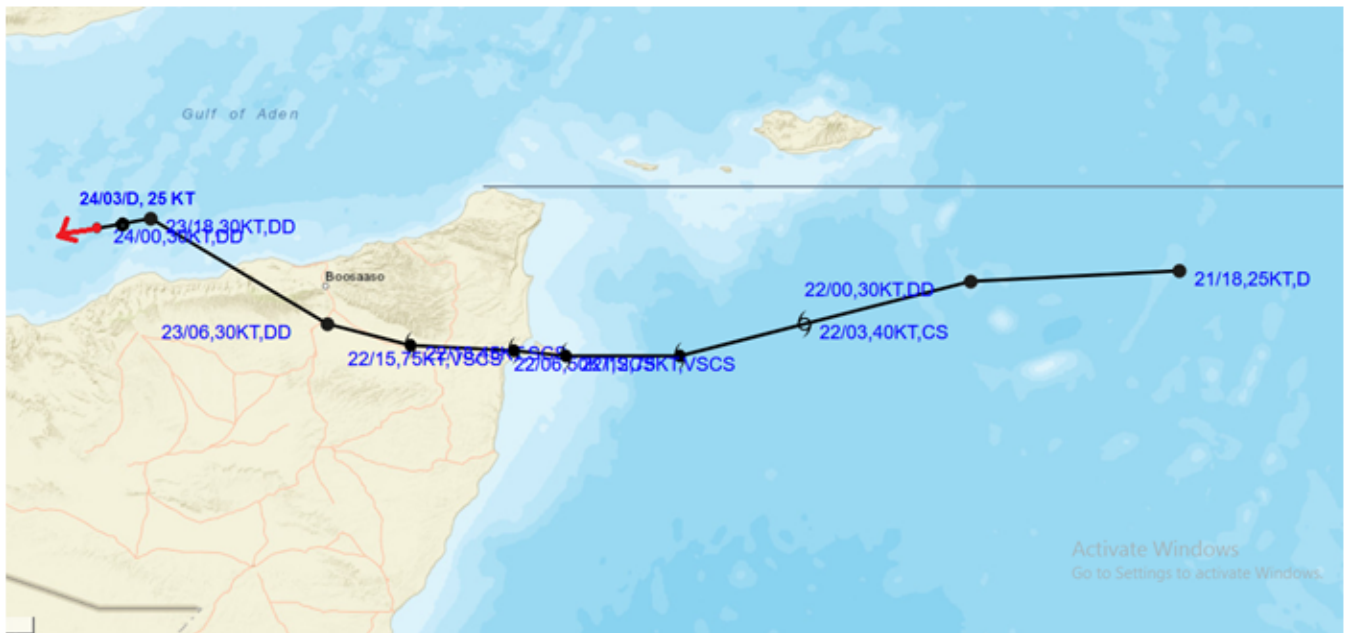
24-11-2020/(0430 to 0457) GMT  
24-11-2020/(1000 to 1027) IST



Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



## OBSERVED AND FORECAST TRACK OF DEPRESSION OVER GULF OF ADEN BASED ON 0300 UTC OF 24<sup>TH</sup> NOV., 2020



DATE/TIME IN UTC  
IST=UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
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SuCS: SUPER CYCLONIC STORM  $\geq 120$  KT

● LESS THAN 34 KT  
○ 34-47 KT  
○  $\geq 48$  KT  
— OBSERVED TRACK  
— FORECAST TRACK  
▲ CONE OF UNCERTAINTY

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



**BULLETIN NO. : 17(ARB/04/2020) and 08(BOB/04/2020)**

**TIME OF ISSUE: 1430 HOURS IST**

**DATED: 24.11.2020**

**FROM: INDIA METEOROLOGICAL DEPARTMENT (FAX NO. 24643965/24699216/24623220)**

TO: CONTROL ROOM, NDM, MINISTRY OF HOME AFFAIRS (FAX.NO. 23093750)  
CONTROL ROOM NDMA (FAX.NO. 26701729)  
CABINET SECRETARIAT (FAX.NO.23012284, 23018638)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MOES, (FAX NO. 24629777)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (23421105, 23421219)  
PIB MOES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX NO. 26105912, 2436 3260)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX NO. 23388503)  
CHIEF SECRETARY, KERALA (FAX NO. 0471-2327176)  
CHIEF SECRETARY, ANDAMAN & NICOBAR ISLANDS (FAX NO. 03192- 232656)  
CHIEF SECRETARY, WEST BENGAL (FAX NO. 033-22144328)  
CHIEF SECRETARY, GOVT. OF ODISHA (FAX NO. 0674 -2536660)  
CHIEF SECRETARY, ANDHRA PRADESH (FAX NO. 0863-2441029, 08645-246600)  
CHIEF SECRETARY, TAMIL NADU (FAX NO. 044-25672304)  
CHIEF SECRETARY, PUDUCHERRY (FAX NO. 0413-2337575, 2334145)  
CHIEF SECRETARY, TELANGANA (FAX NO. 040-23453700)

**Sub: (1) Cyclonic Storm “NIVAR” over southwest Bay of Bengal—(Cyclone Warning for Tamilnadu and Puducherry coasts- Orange Message)**

**(2) Depression over Gulf of Aden and adjoining Somalia**

**(1) Cyclonic Storm “NIVAR” over southwest Bay of Bengal—(Cyclone Warning for Tamilnadu and Puducherry coasts- Orange Message)**

The **cyclonic storm ‘NIVAR’** over southwest Bay of Bengal moved westwards with a speed of 05 kmph during past six hours and lay centred at 1130 hrs IST of 24<sup>th</sup> November, 2020 over southwest Bay of Bengal near latitude 10.0°N and longitude 82.7°E, about 380 km east-southeast of Puducherry and 430 km south-southeast of Chennai. It is very likely to intensify further into a severe cyclonic storm during next 12 hours and into a very severe cyclonic storm during subsequent 12 hours.

**It is very likely to move west-northwestwards for next 12 hours and then northwestwards. It is very likely to cross Tamil Nadu and Puducherry coasts between**

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



**Karaikal and Mamallapuram around Puducherry during 25<sup>th</sup> November 2020 late evening as a very severe cyclonic storm with a wind speed of 120-130 kmph gusting to 145 kmph.**

Forecast track and intensity are given below:

Date/Time(IST)	Position (Lat. °N/ long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
24.11.20/1130	10.0/82.7	75-85 gusting to 95	Cyclonic Storm
24.11.20/1730	10.1/82.3	85-95 gusting to 105	Cyclonic Storm
24.11.20/2330	10.2/81.9	95-105 gusting to 115	Severe Cyclonic Storm
25.11.20/0530	10.6/81.3	110-120 gusting to 135	Severe Cyclonic Storm
25.11.20/1130	11.2/80.6	120-130 gusting to 145	Very Severe Cyclonic Storm
25.11.20/2330	12.1/79.5	120-130 gusting to 145	Very Severe Cyclonic Storm
26.11.20/1130	13.0/78.4	55-65 gusting to 75	Deep Depression
26.11.20/2330	13.8/77.5	35-45 gusting to 55	Depression

Fairly widespread to widespread rainfall/thunderstorm activity very likely over coastal and north interior Tamilnadu, Puducherry & Karaikal during 24<sup>th</sup> to 26<sup>th</sup> November and over south coastal Andhra Pradesh, Rayalaseema during 25<sup>th</sup> to 26<sup>th</sup> and southeast Telangana during 26<sup>th</sup> November, 2020. Isolated extremely heavy rainfall activity also very likely over coastal & north interior Tamilnadu & Puducherry (**Pudukottai, Thanjavur, Tiruvarur, Karaikal, Nagapattinam, Cuddalore, Ariyalur & Perabalu** districts during 24<sup>th</sup> and **Kadalur, Kallakurichi, Puducherry, Villupuram, Tiruvannamalai, Chengalpattu to Ariyalur, Perambalur and Karaikal** districts during 25<sup>th</sup>) and over **Nellore and Chittoor** districts of Andhra Pradesh on 25<sup>th</sup> and over Rayalseema & southeast Telangana on 26<sup>th</sup> November, 2020.

Sub-Divisions	24 Nov 2020*	25 Nov 2020*	26 Nov 2020*	27 Nov 2020*
<b>South Coastal Andhra Pradesh</b>	Rainfall at a few places with heavy rainfall at isolated places	Rainfall at most places with isolated heavy to very heavy and extremely heavy falls	Rainfall at most places with isolated heavy to very heavy and extremely heavy falls	Rainfall at many places
<b>Coastal &amp; North Interior Tamilnadu, Puducherry &amp; Karaikal</b>	Rainfall at most places with heavy to very heavy rainfall and extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places
<b>South Interior Karnataka</b>	Rainfall at a few places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places with heavy rainfall at isolated places	Rainfall at many places
<b>Rayalaseema</b>	Rainfall at many places with isolated heavy falls	Rainfall at most places with heavy to very heavy rainfall with extremely heavy falls at isolated places	Rainfall at most places with heavy to very heavy rainfall at a few places and extremely heavy falls at isolated places	Rainfall at many places
<b>Telangana</b>	Rainfall at isolated places	Rainfall at a few places	Rainfall at most places with heavy to very heavy rainfall and extremely heavy falls at isolated	Rainfall at many places

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**

**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**

			places over southeast Telangana	
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## (ii) Wind warning

- Gale wind speed reaching 75-85 kmph gusting to 95 kmph is prevailing over Southwest Bay of Bengal. It would further increase becoming 110-120 kmph gusting to 135 kmph over the southwest Bay of Bengal from 25<sup>th</sup> November morning increasing to 120-130 kmph gusting to 145 kmph during noon to night of 25<sup>th</sup> November.
- Squally wing speed reaching 30-40 kmph gusting to 50 kmph is prevailing along & off Tamil Nadu, Puducherry and adjoining South Andhra Pradesh coast and over Gulf of Mannar. It will gradually increase and become 65-75 kmph gusting to 85 kmph from morning of 25<sup>th</sup> November and 120-130 kmph gusting to 145 kmph along & off coastal districts of north Tamil Nadu and Puducherry **(Nagapattinam, Karaikal, Myladuthurai, Cuddalore, Puducherry, Villupuram & Chengalpattu districts)**; 80-90 gusting to 100 kmph very likely over Tiruvarur, Kanchipuram, Chennai, Tiruvallaur districts) during noon to night of 25<sup>th</sup> November, 2020.
- Gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely over adjoining westcentral Bay of Bengal and along & off South Andhra Pradesh (Nellore & Chittoor districts), Gulf of Mannar and along and off districts of south coastal districts of Tamil Nadu during forenoon to night of 25<sup>th</sup> November, 2020.

## (iii) Sea condition

- Sea condition is high over Southwest Bay of Bengal and rough to very rough along & off Tamil Nadu, Puducherry, south Andhra Pradesh coasts and over Gulf of Mannar. It would gradually become very high over the southwest Bay of Bengal from 24th November night and phenomenal over the same area from noon to night of 25<sup>th</sup> November.

## (iv) Strom Surge Warning

- Tidal wave of about 1-1.5m height above the astronomical tide is very likely to inundate the low lying areas of north coastal districts of Tamilnadu & Puducherry near the place of landfall.

## (v) (a) Damage expected over Nagapattinam, Myladuthurai, Cuddalore, , Villupuram & Chengalpattu districts of Tamilnadu and Karaikal & Puducherry:

- ☐ Total destruction of thatched houses/ extensive damage to kutcha houses. Some damage to old pucca houses. Potential threat from flying objects.
- ☐ Bending/ uprooting of power and communication poles.
- ☐ Major damage to Kutcha and and Pucca roads. Flooding of escape routes. Disruption of railways, overhead powerlines and signalling systems.
- ☐ Widespread damage to standing crops, plantations, orchards, falling of green coconuts and tearing of palm fronds. Blowing down of bushy trees like mango.
- ☐ Small boats, country crafts may get detached from moorings.
- ☐ Visibility severely affected.

## (v) (b) Damage expected over Tiruvarur, Kanchipuram, Chennai, Tiruvallaur districts of Tamilnadu and adjoining Andhra Pradesh:

- ☐ Damage to thatched houses/ huts with possibility of roof tops being blown off and unattached metal sheets may fly.
- ☐ Damage to power and communication lines.

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

- ☐ Damage to Kutcha and some damage to Pucca roads. Flooding of escape routes.
- ☐ Breaking of tree branches, uprooting of trees. Severe damage to banana and papaya trees, horticulture and crops & orchards. Large dead limbs blown from trees.
- ☐ Major damage to coastal crops. Damage to embankments/ salt pans.

#### **(vi) Fishermen Warning & Action Suggested:**

- ☐ Total suspension of fishing operations.
- ☐ Mobilise evacuation from coastal areas. Coastal hutment dwellers to be moved to safer places.
- ☐ People in affected areas to remain in safe places and indoors.
- ☐ Judicious regulation of rail, road and air traffic.
- ☐ Movement in motor boats and small ships unsafe.

## **2. Depression over Gulf of Aden and adjoining Somalia**

The depression over Gulf of Aden and adjoining Somalia moved west-southwestwards with a speed of about 07 kmph during past 06 hours and lay centered at 0830 hrs IST of 24<sup>th</sup> November 2020 over the Gulf of Aden and adjoining Somalia near Latitude 11.6°N and Longitude 46.8°E, about 480 km west-northwest of Ras Binnah (Somalia) and 230 km east-southeast of Aden (Yemen). It is very likely to move nearly west-southwestwards and weaken into a well marked low pressure area during next 12 hours.

### **(i) Wind warning**

Squally wind speed reaching 40-50 kmph gusting to 60 kmph is likely to prevail over Gulf of Aden and along and off north Somalia coast during next 12 hours and decrease thereafter.

### **(ii) Sea condition**

Sea condition will be rough to very rough over Gulf of Aden along and off north Somalia coast during next 12 hours and improve thereafter.

### **(iii) Fishermen Warning**

Fishermen are advised not to venture into Gulf of Aden and along and off north Somalia coast during next 12 hours.

*The next bulletin will be issued at 1730 hrs IST of 24<sup>th</sup> November, 2020.*

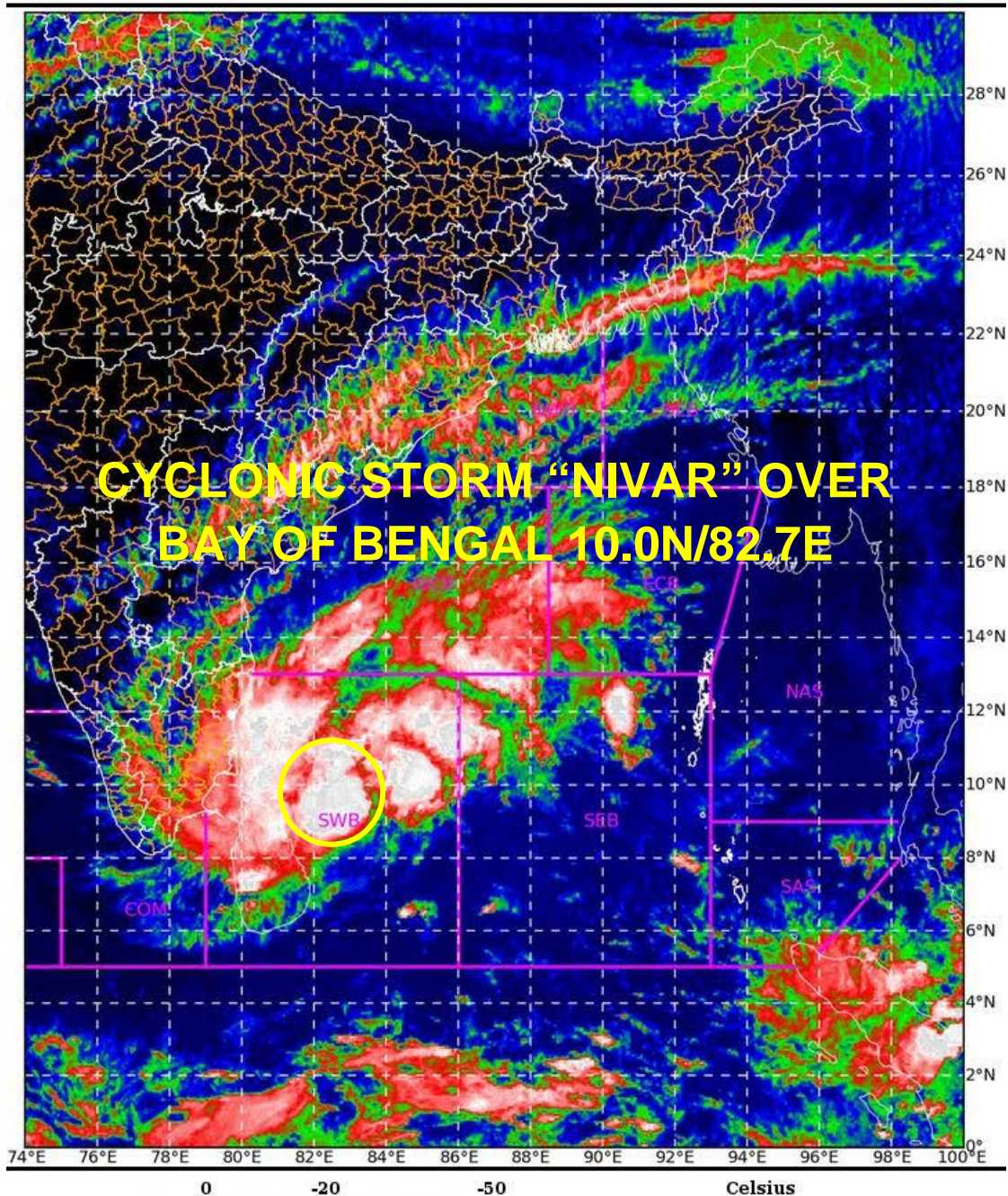
**(R.K. Jenamani)**  
**Scientist-F, RSMC, New Delhi**

*Copy to: ACWC Kolkata/Chennai/CWC Bhubaneswar/CWC Visakhapatnam/CWC Thiruvananthapuram*

**Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.**



SAT : INSAT-3D IMG      24-11-2020/(0700 to 0727) GMT  
 IMG\_TIR1\_TEMP 10.8 um    24-11-2020/(1230 to 1257) IST  
 L1C Mercator



IMD, DELHI  
 Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

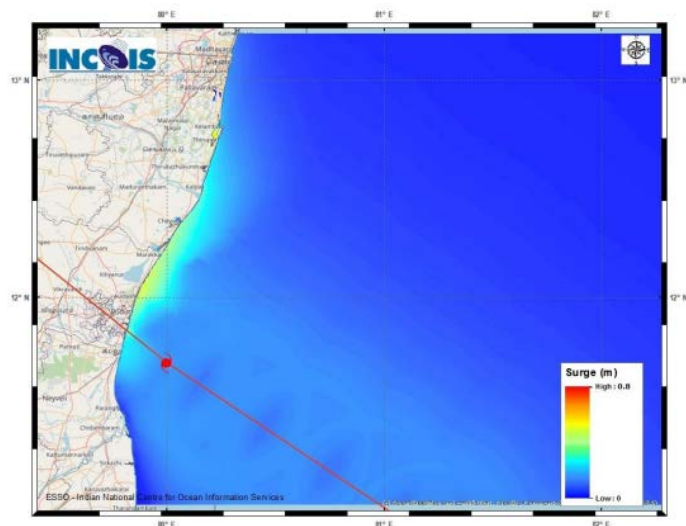


Figure: Storm surge map

Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.



## Storm Surge Guidance based on 0000 UTC observations of 24<sup>th</sup> November

### **STORM SURGE HEIGHT INFORMATION:**

\* The below listed surge heights are over and above astronomical tide.

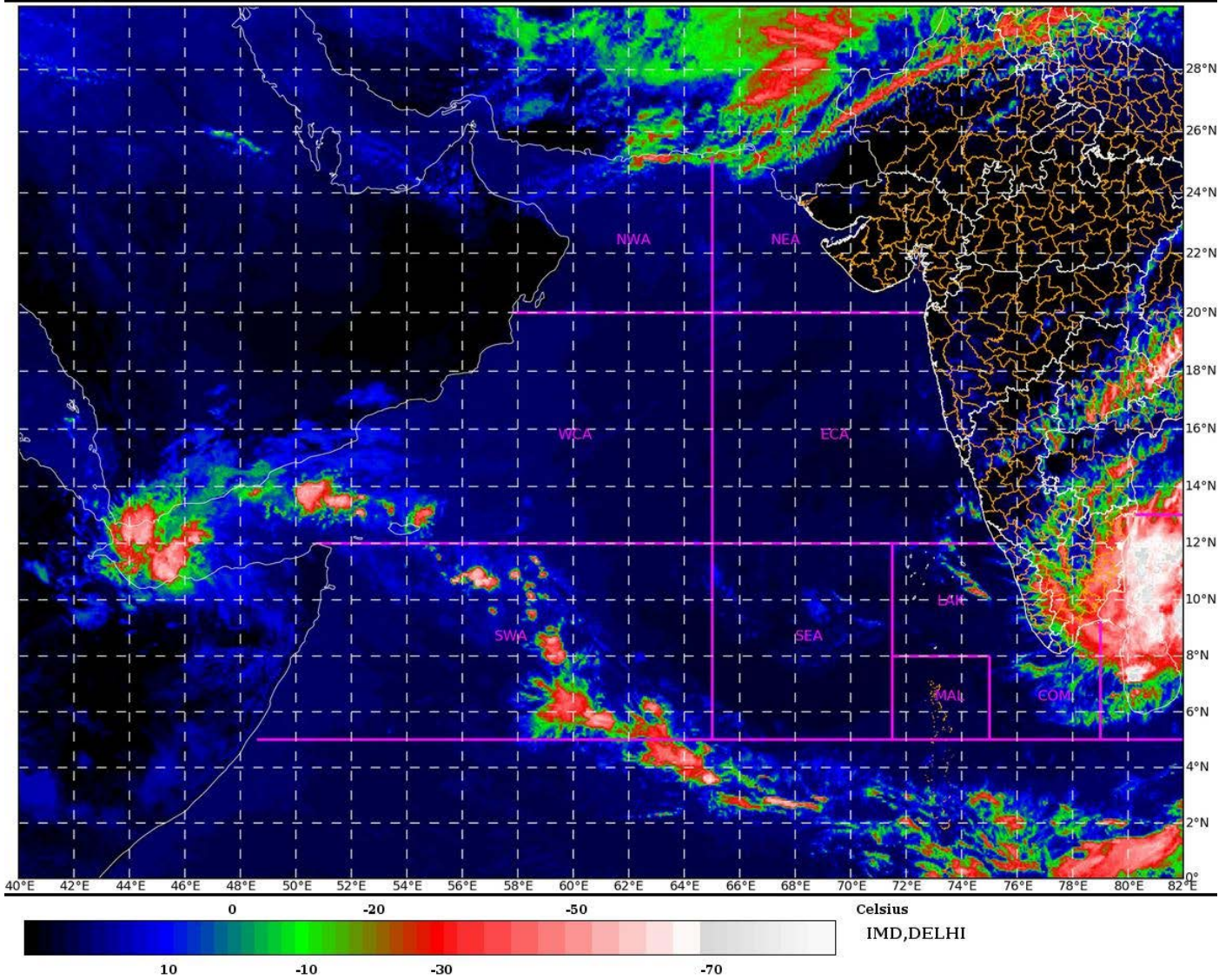
MANDAL/TALUK	DISTRICT	STATE / UNION TERRITORY	NEAREST PLACE OF HABITATION	STORM SURGE (m) *	EXPECTED INUNDATION EXTENT (km)
Chengalpattu	Kancheepuram	Tamil Nadu	Thiruporur	0.5-0.8	Upto 0.20
Cheyur	Kancheepuram	Tamil Nadu	Kadalur	0.3-0.4	Nil
Cuddalore	Cuddalore	Tamil Nadu	Cuddalore	0.3-0.4	Nil
Tindivanam	Viluppuram	Tamil Nadu	OZHUKARAI MUNICIPALITY	0.3-0.5	Upto 0.10
Tirutturaippundi	Nagappattinam	Tamil Nadu	Vaimedu west	0.3-0.5	Upto 0.10

Spatial rainfall distribution: Isolated: ≤25%, A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

SAT : INSAT-3D IMG  
IMG\_TIR1\_TEMP 10.8 um  
ARABIAN\_SEA

24-11-2020/(0700 to 0727) GMT  
24-11-2020/(1230 to 1257) IST



Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%

Rainfall amount (mm): Heavy rain: 64.5 – 115.5, Very heavy rain: 115.6 – 204.4, Extremely heavy rain: 204.5 or more.

**Spatial rainfall distribution: Isolated:  $\leq 25\%$ , A few: 26-50%, Many: 51-75%, Most: 76-100%**  
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