



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 01 (BOB 01/2016)**

Time of issue: 1200 hours IST

Dated: 17.05.2016

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.23793144)

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

SECRETARY, MoES, (Fax No. 24629777)

SECRETARY, DST (Fax No. 26863847/-2418)

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

DIRECTOR GENERAL, DOORDARSHAN (23385843)

DIRECTOR GENERAL, AIR (25843825)

PIB MoES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)

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

CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)

CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)

CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)

CHIEF SECRETARY, GOVT. OF KARNATAKA (FAX No. 080-22258913, 080-22251080)

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

**Sub: Depression over Southwest Bay of Bengal**

Yesterday's well marked low pressure area over north Sri Lanka and adjoining areas of Gulf of Mannar and southwest Bay of Bengal moved north-northwestwards, concentrated into a **Depression** and lay centered at 11.0°N and 81.0°E, about 240 kms south-southeast of Chennai at 0830 hours IST of today, the 17<sup>th</sup> May, 2016. It is likely to move north-northwestwards during next 12 hours and northwards thereafter along north Tamil Nadu & south Andhra Pradesh coasts. It is likely to intensify into a deep depression during next 48 hours.

**Warning:**

(i) **Heavy Rainfall Warning:** Rainfall at many places with heavy to very heavy falls at a few places likely over north coastal Tamil Nadu & Puducherry during next 24 hours. Isolated heavy to very heavy falls are likely over north interior Tamil Nadu and isolated heavy falls over south Tamil Nadu during the same period. Rainfall at many places with isolated heavy to very heavy falls over north Tamil Nadu & Puducherry during subsequent 24 hours.

Rainfall at many places with isolated heavy falls over south Andhra Pradesh coast on 17<sup>th</sup> May 2016. Rainfall at a few places with heavy to very heavy falls on 18<sup>th</sup> May and isolated heavy falls on 19<sup>th</sup> over coastal Andhra Pradesh.

Rainfall at most places with isolated heavy to very heavy falls likely over Kerala and Lakshadweep during next 48 hours.

Rainfall at many places with isolated heavy falls likely over Rayalaseema and coastal Karnataka during the next 48 hours.

Isolated heavy rainfall is likely on 17<sup>th</sup> May, isolated heavy to very heavy falls on 18<sup>th</sup> and isolated heavy falls on 19<sup>th</sup> May over south interior Karnataka.

(ii) **Wind warning:** Squally wind speed reaching 50-60 kmph gusting to 70 kmph would prevail along and off north Tamil Nadu & Puducherry and south Andhra Pradesh coasts during next 48 hours.

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

**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

Squally wind speed reaching 50-60 kmph gusting to 70 kmph would prevail along and off Kerala and Lakshadweep during next 48 hours.

- (iii) **Sea condition along and off north Tamil Nadu, Puducherry and south Andhra Pradesh coasts:** Sea condition would be rough to very rough along and off north Tamil Nadu & Puducherry and south Andhra Pradesh coasts during next 48 hours.
- (iv) **Action suggested:** Fishermen are advised not to venture into sea along & off Tamil Nadu & Puducherry and south Andhra Pradesh, Kerala coasts and Lakshadweep area during next 48 hrs.

**The next bulletin will be issued at 2030 hrs IST of 17<sup>th</sup> May 2016.**

(B.P. Yadav)  
Sc. F & DDGM (S)

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad/ MC Bengaluru.



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 02 (BOB 01/2016)**

**Time of issue: 1500 hours IST**

**Dated: 17.05.2016**

**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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)  
CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, GOVT. OF KARNATAKA (FAX No. 080-22258913, 080-22251080)  
CHIEF SECRETARY, KERALA (FAX No.0471-2327176)**

**Sub: Depression over Southwest Bay of Bengal**

The depression over southwest Bay of Bengal has moved north-northwestwards, and lay centred at Latitude 12.0° N and Longitude 80.7 °E, about 120 Kms south-southeast of Chennai at 1730 hrs IST of today, the 17<sup>th</sup> May, 2016. The system is likely to move north-northwestwards towards north Tamilnadu-south Andhra Pradesh coasts and intensify into a deep depression during next 24 hours. The system is likely to be closed to Chennai during morning hours of 18<sup>th</sup> may. Thereafter, it is likely to move northwards and then recurve north-northeastwards and further intensify into a cyclonic storm during subsequent 24 hours.

**Warning:**

- (i) **Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places with isolated extremely heavy falls over north coastal Tamil Nadu & Puducherry during next 48 hours. Rainfall at many places with Isolated heavy to very heavy falls likely over south coastal and interior Tamil Nadu during the same period.
- Rainfall at many places with heavy to very heavy rainfalls with isolated extremely heavy falls over south Andhra Pradesh coast during next 48 hours.
- Rainfall at most places with isolated heavy falls likely over Kerala and Lakshadweep during next 48 hours.
- Rainfall at many places with isolated heavy to very heavy falls likely over Rayalaseema and isolated heavy over coastal and south interior Karnataka during the next 48 hours.
- (ii) **Wind warning:** Squally wind speed reaching 55-65 kmph gusting to 75 kmph would prevail along and off north Tamil Nadu & Puducherry and south Andhra Pradesh coasts during next 48 hours.
- Squally wind speed reaching 40-50 kmph gusting to 60 kmph would prevail along and off Kerala and Lakshadweep during next 48 hours.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

- (iii) **Sea condition along and off north Tamil Nadu, Puducherry and south Andhra Pradesh coasts:** Sea condition would be rough to very rough along and off north Tamil Nadu & Puducherry and south Andhra Pradesh coasts during next 48 hours.
- (iv) **Action suggested:** Fishermen are advised not to venture into sea along & off Tamil Nadu & Puducherry and south Andhra Pradesh, Kerala coasts and Lakshadweep area during next 48 hrs.

**The next bulletin will be issued at 0230 hrs IST of 18<sup>th</sup> May 2016.**

(NARESH KUMAR)  
SCIENTIST-D

*Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad/ MC Bengaluru.*



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 03 (BOB 01/2016)**

Time of issue: 0230 hours IST

Dated: 18.05.2016

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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)  
CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, GOVT. OF KARNATAKA (FAX No. 080-22258913, 080-22251080)  
CHIEF SECRETARY, KERALA (FAX No.0471-2327176)

**Sub: Depression over Southwest Bay of Bengal**

The depression over southwest Bay of Bengal moved slightly northwards, and lay centred at 2330 hrs IST of today, the 17<sup>th</sup> May, 2016 near Latitude 12.5° N and Longitude 80.7 °E, about 100 Kms east-southeast of Chennai. The system is likely to move northwards towards north Tamilnadu-south Andhra Pradesh coasts and intensify into a deep depression during next 24 hours. The system is likely to be closed to Chennai during morning hours of 18th May. Thereafter, it is likely to move north-northeastwards and further intensify into a cyclonic storm during subsequent 24 hours.

**Warning:**

- (v) **Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places with isolated extremely heavy falls over north coastal Tamil Nadu & Puducherry during next 48 hours. Rainfall at many places with Isolated heavy to very heavy falls likely over south coastal and interior Tamil Nadu during the same period.
- Rainfall at many places with heavy to very heavy rainfalls with isolated extremely heavy falls over south Andhra Pradesh coast during next 48 hours.
- Rainfall at most places with isolated heavy falls likely over Kerala and Lakshadweep during next 48 hours.
- Rainfall at many places with isolated heavy to very heavy falls likely over Rayalaseema and isolated heavy over coastal and south interior Karnataka during the next 48 hours.
- (vi) **Wind warning:** Squally wind speed reaching 55-65 kmph gusting to 75 kmph would prevail along and off north Tamil Nadu & Puducherry and south Andhra Pradesh coasts during next 48 hours.
- Squally wind speed reaching 40-50 kmph gusting to 60 kmph would prevail along and off Kerala and Lakshadweep during next 48 hours.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.

- (vii) **Sea condition along and off north Tamil Nadu, Puducherry and south Andhra Pradesh coasts:** Sea condition would be rough to very rough along and off north Tamil Nadu & Puducherry and south Andhra Pradesh coasts during next 48 hours.
- (viii) **Action suggested:** Fishermen are advised not to venture into sea along & off Tamil Nadu & Puducherry and south Andhra Pradesh, Kerala coasts and Lakshadweep area during next 48 hrs.

**The next bulletin will be issued at 0830 hrs IST of 18<sup>th</sup> May 2016.**

**(RANJEET SINGH)  
SCIENTIST-F**

*Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad/ MC Bengaluru.*



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 04 (BOB 01/2016)**

Time of issue: 0730 hours IST

Dated: 18.05.2016

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.23793144)

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

SECRETARY, MoES, (Fax No. 24629777)

SECRETARY, DST (Fax No. 26863847/-2418)

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

DIRECTOR GENERAL, DOORDARSHAN (23385843)

DIRECTOR GENERAL, AIR (25843825)

PIB MoES (FAX NO. 23389042)

UNI (FAX NO. 23355841)

D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)

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

CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)

CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)

CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)

CHIEF SECRETARY, GOVT. OF KARNATAKA (FAX No. 080-22258913, 080-22251080)

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

**Sub: Depression over Southwest Bay of Bengal**

The depression over southwest Bay of Bengal moved nearly northwards in past six hours and lay centred at 0530 hrs IST of today, the 18<sup>th</sup> May, 2016 near Latitude 13.0° N and Longitude 80.8 °E, about 90 Km east of Chennai and about 70 km from the coast. The system is likely to move north-northeastwards and intensify into a deep depression and further into a cyclonic storm in during next 48 hours.

**Warning:**

(ix) **Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places with isolated extremely heavy falls over north coastal Tamil Nadu & Puducherry during next 24 hours. Rainfall at many places with Isolated heavy falls likely over south coastal and interior Tamil Nadu during the same period.

Rainfall at many places with heavy to very heavy rainfalls with isolated extremely heavy falls over south Andhra Pradesh coast during next 48 hours.

Rainfall at many places with isolated heavy to very heavy falls likely over Rayalaseema and isolated heavy over coastal and south interior Karnataka during the next 48 hours.

(x) **Wind warning:** Squally wind speed reaching 55-65 kmph gusting to 75 kmph would prevail along and off north Tamil Nadu & Puducherry during next 24 hours and south Andhra Pradesh coasts during next 48 hours.

Squally wind speed reaching 40-50 kmph gusting to 60 kmph would prevail along and off Kerala and Lakshadweep during next 48 hours.

(xi) **Sea condition along and off north Tamil Nadu, Puducherry and south Andhra Pradesh coasts:** Sea condition would be rough to very rough along and off north Tamil Nadu & Puducherry and south Andhra Pradesh coasts during next 48 hours.

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

**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

- (xii) **Action suggested:** Fishermen are advised not to venture into sea along & off Tamil Nadu & Puducherry and south Andhra Pradesh, Kerala coasts and Lakshadweep area during next 48 hrs.

**The next bulletin will be issued at 1130 hrs IST of 18<sup>th</sup> May 2016.**

(RANJEET SINGH)  
SCIENTIST-F

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad/ MC Bengaluru.





India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 05 (BOB 01/2016)**

Time of issue: 1230 hours IST

Dated: 18.05.2016

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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)  
CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, GOVT. OF KARNATAKA (FAX No. 080-22258913, 080-22251080)  
CHIEF SECRETARY, KERALA (FAX No.0471-2327176)  
CHIEF SECRETARY, ODISHA (0674-2536660)

**Sub: Deep Depression over westcentral & adjoining southwest Bay of Bengal  
(Cyclone Alert for Andhra Pradesh and Odisha coasts) (Yellow message)**

The depression over southwest Bay of Bengal moved north-northeastwards at a speed of 10 kmph during past six hours, intensified into a deep depression and lay centred over westcentral and adjoining southwest Bay of Bengal at 0830 hrs IST of today, the 18<sup>th</sup> May, 2016 near latitude 13.3° N and longitude 81.0 °E, about 170 km south-southeast of Nellore. The system is likely to move north-northeastwards along and off Andhra Pradesh coast and intensify further into a cyclonic storm during next 24 hours. Thereafter it is likely to move northeastwards along and off north Andhra Pradesh & Odisha coasts during subsequent 48 hours.

Forecast track and intensity of the system are given in the table below:

Date/time(IST)	Position (lat. °N/ long. °E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
18-05-2016/0830	13.3/81.0	50-60 gusting to 70	<b>Deep Depression</b>
18-05-2016/1130	13.8/81.2	50-60 gusting to 70	Deep Depression
18-05-2016/1730	14.4/81.5	50-60 gusting to 70	Deep Depression
18-05-2016/2330	14.6/81.7	65-75 gusting to 85	<b>Cyclonic Storm</b>
19-05-2016/0530	14.9/81.9	65-75 gusting to 85	Cyclonic Storm
19-05-2016/1730	16.0/82.8	70-80 gusting to 90	Cyclonic Storm
20-05-2016/0530	17.2/83.7	75-85 gusting to 95	Cyclonic Storm
20-05-2016/1730	18.6/85.3	75-85 gusting to 95	Cyclonic Storm
21-05-2016/0530	19.7/87.7	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1730	21.1/90.6	65-75 gusting to 85	Cyclonic Storm
22-05-2016/0000	22.5/93.0	50-60 gusting to 70	<b>Deep Depression</b>

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.

**Warning:**

- (xiii) **Heavy Rainfall Warning:** Rainfall at many places with isolated heavy to very heavy falls over north Tamil Nadu & Puducherry during next 24 hours.  
Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls likely over coastal Andhra Pradesh during next 48 hours.  
Rainfall at many places with heavy to very heavy falls at a few places over coastal Odisha on 19<sup>th</sup> & 20<sup>th</sup> May.  
Rainfall at many places with isolated heavy to very heavy falls likely over Rayalaseema during the next 24 hours.
- (xiv) **Wind warning:** Squally wind speed reaching 55-65 kmph gusting to 75 kmph is very likely to prevail along and off north Tamil Nadu & Puducherry during next 24 hours.  
Wind speed reaching 55-65 kmph gusting to 75 kmph is very likely to prevail along and off Andhra Pradesh coasts during next 12 hours and speed reaching 65-75 kmph gusting to 85 kmph is very likely to prevail over the same region during subsequent 24 hours.
- (xv) **Sea condition along and off north Tamil Nadu, Puducherry, south Andhra Pradesh and Odisha coasts:** Sea condition is very likely to be rough to very rough along and off north Tamil Nadu & Puducherry coasts during next 24 hours. It is very likely to be high to very high along and off Andhra Pradesh coast during next 48 hours. It is very likely to be high to very high along and off Odisha coast on 19<sup>th</sup> and 20<sup>th</sup> May.
- (xvi) **Action suggested:** Fishermen are advised not to venture into sea along & off Tamil Nadu & Puducherry during next 24 hours, along & off Andhra Pradesh coast during next 48 hours and along & off Odisha coast on 19<sup>th</sup> and 20<sup>th</sup> May.

**The next bulletin will be issued at 1430 hrs IST of 18<sup>th</sup> May 2016.**

(B.P. Yadav)  
SCIENTIST-F & DDGM (S)

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 06 (BOB 01/2016)**

Time of issue: 1730 hours IST

Dated: 18.05.2016

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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)  
CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, ODISHA (0674-2536660)

**Sub: Deep Depression over westcentral & adjoining southwest Bay of Bengal  
(Cyclone Alert for Andhra Pradesh and Odisha coasts) (Yellow message)**

The deep depression over westcentral and adjoining southwest Bay of Bengal moved nearly northwards at a speed of 10 kmph during past six hours and lay centred over at 1130 hrs IST of today, the 18<sup>th</sup> May, 2016 near latitude 13.8° N and longitude 81.0 °E, about 130 km south-southeast of Nellore. The system is likely to move north-northeastwards along and off Andhra Pradesh coast and intensify into a cyclonic storm during next 24 hours. Thereafter it is likely to move northeastwards along and off north Andhra Pradesh & Odisha coasts during subsequent 48 hours.

Forecast track and intensity of the system are given in the table below:

Date/time(IST)	Position (lat. 0N/ long. 0E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
18-05-2016/1130	13.8/81.0	50-60 gusting to 70	Deep Depression
18-05-2016/1730	14.4/81.5	50-60 gusting to 70	Deep Depression
18-05-2016/2330	14.6/81.7	65-75 gusting to 85	Cyclonic Storm
19-05-2016/0530	14.9/81.9	65-75 gusting to 85	Cyclonic Storm
19-05-2016/1130	15.4/82.4	65-75 gusting to 85	Cyclonic Storm
19-05-2016/2330	16.6/83.4	70-80 gusting to 90	Cyclonic Storm
20-05-2016/1130	17.9/84.5	75-85 gusting to 95	Cyclonic Storm
20-05-2016/2330	19.1/86.5	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1130	20.4/89.2	70-80 gusting to 90	Cyclonic Storm
21-05-2016/2330	21.8/91.8	50-60 gusting to 70	Deep Depression
22-05-2016/1130	23.5/94.0	30-40 gusting to 50	Depression

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.

**Warning:**

- (xvii) **Heavy Rainfall Warning:** Rainfall at many places with isolated heavy to very heavy falls over north Tamil Nadu & Puducherry during next 24 hours.  
Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls likely over coastal Andhra Pradesh during next 48 hours.  
Rainfall at many places with heavy to very heavy falls at a few places over coastal Odisha on 19<sup>th</sup> & 20<sup>th</sup> May.  
Rainfall at many places with isolated heavy to very heavy falls likely over Rayalaseema during the next 24 hours.
- (xviii) **Wind warning:** Squally wind speed reaching 55-65 kmph gusting to 75 kmph is very likely to prevail along and off north Tamil Nadu & Puducherry during next 24 hours.  
Wind speed reaching 55-65 kmph gusting to 75 kmph is very likely to prevail along and off Andhra Pradesh coasts during next 12 hours and speed reaching 65-75 kmph gusting to 85 kmph is very likely to prevail over the same region during subsequent 24 hours.
- (xix) **Sea condition along and off north Tamil Nadu, Puducherry, south Andhra Pradesh and Odisha coasts:** Sea condition is very likely to be rough to very rough along and off north Tamil Nadu & Puducherry coasts during next 24 hours. It is very likely to be high to very high along and off Andhra Pradesh coast during next 48 hours. It is very likely to be high to very high along and off Odisha coast on 19<sup>th</sup> and 20<sup>th</sup> May.
- (xx) **Action suggested:** Fishermen are advised not to venture into sea along & off Tamil Nadu & Puducherry during next 24 hours, along & off Andhra Pradesh coast during next 48 hours and along & off Odisha coast on 19<sup>th</sup> and 20<sup>th</sup> May.

**The next bulletin will be issued at 2030 hrs IST of 18<sup>th</sup> May 2016.**

(B.P. Yadav)  
SCIENTIST-F & DDGM (S)

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 07 (BOB 01/2016)**

Time of issue: 2030 hours IST

Dated: 18.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Deep Depression over westcentral & adjoining southwest Bay of Bengal (Cyclone Alert for Andhra Pradesh and Odisha coasts) (Yellow message)**

The deep depression over westcentral & adjoining southwest Bay of Bengal further moved northwards at a speed of 10 kmph during past six hours and lay centred at 1730 hrs IST of today, the 18<sup>th</sup> May, 2016 near latitude 14.4° N and longitude 81.0 °E, about 200 km south of Machilipatnam and 110 km east of Nellore. The system is likely to move nearly northwards along and off Andhra Pradesh coast during next 12 hrs and north-northeastwards during subsequent 48 hours. The system is likely to intensify into a cyclonic storm and is likely to be close to Machilipatnam by tomorrow morning and further intensify into a severe cyclonic storm during subsequent 24 hours.

Forecast track and intensity of the system are given in the table 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>
18-05-2016/1730	14.4/81.0	50-60 gusting to 70	Deep Depression
18-05-2016/2330	15.2/81.1	50-60 gusting to 70	Deep Depression
19-05-2016/0530	15.8/81.6	70-80 gusting to 90	Cyclonic Storm
19-05-2016/1130	16.0/82.3	90-100 gusting to 110	Severe Cyclonic Storm
19-05-2016/1730	16.5/83.0	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/0530	17.0/83.8	90-100 gusting to 110	Severe Cyclonic Storm
20-05-2016/1730	17.9/85.5	70-80 gusting to 90	Cyclonic Storm
21-05-2016/0530	19.0/87.2	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1730	20.6/90.2	50-60 gusting to 70	Deep Depression

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

22-05-2016/0530	22.4/92.8	45-55 gusting to 65	Depression
22-05-2016/1730	23.0/93.9	35-45 gusting to 55	Depression

**Warning:**

**(xxi) Heavy Rainfall Warning:** Rainfall at most places with isolated heavy to very heavy falls very likely over north Tamil Nadu & Puducherry during next 24 hours.

Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over coastal Andhra Pradesh during next 48 hours.

Rainfall at many places with heavy to very heavy falls at a few places very likely over coastal Odisha on 19<sup>th</sup> & 20<sup>th</sup> May.

Rainfall at many places with isolated heavy to very heavy falls very likely over Rayalaseema during the next 24 hours.

**(xxii) Wind warning:** Squally wind speed reaching 55-65 kmph gusting to 75 kmph is very likely to prevail along and off north Tamil Nadu & Puducherry during next 24 hours.

Wind speed reaching 70-80 gusting to 90 kmph is very likely to prevail along and off Andhra Pradesh coasts during next 12 hours and speed reaching 80-90 gusting to 100 kmph is very likely to prevail over the same region during subsequent 24 hours.

**(xxiii) Sea condition along and off north Tamil Nadu, Puducherry, south Andhra Pradesh and Odisha coasts:** Sea condition is very likely to be rough to very rough along and off north Tamil Nadu & Puducherry coasts during next 24 hours. It is very likely to be high to very high along & off Andhra Pradesh coast during next 48 hours. It is very likely to be high to very high along & off Odisha coast on 19<sup>th</sup> and 20<sup>th</sup> May.

**(xxiv) Damage expected**

Damage to thatched huts, Minor damage to power and communication lines due to breaking of branches and Major damage to kutcha and minor damage to pucca roads over coastal Andhra Pradesh during next 36 hours and over south coastal Odisha from tomorrow night onwards.

**(xxv) Action suggested:**

Fishermen are advised not to venture into sea along & off Tamil Nadu & Puducherry during next 24 hours, along & off Andhra Pradesh coast during next 48 hours and along & off Odisha coast on 19<sup>th</sup> and 20<sup>th</sup> May.

**The next bulletin will be issued at 0230 hrs IST of 19<sup>th</sup> May 2016.**

(B.P. Yadav)  
SCIENTIST-F & DDGM (S)  
Ph: 011-24631913

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 09 (BOB 01/2016)**

Time of issue: 0830 hours IST

Dated: 19.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Deep Depression over westcentral & adjoining southwest Bay of Bengal (Cyclone Alert for Andhra Pradesh and Odisha coasts) (Yellow message)**

The deep depression over westcentral & adjoining southwest Bay of Bengal further moved nearly north-northwards at a speed of 08 kmph during past six hours and intensified into a cyclonic storm 'Roanu', lay centred at 0530 hrs IST of today, the 19<sup>th</sup> May, 2016 near latitude 15.1° N and longitude 81.4 °E, about 125km south-southeast of Machilipatnam, about 350 southwest of Visakhapatnam & 225 km southwest of Kakinada. The system is likely to move north-northeastwards along and off Andhra Pradesh coast during next 24 hrs and intensify further into a severe cyclonic storm. Subsequently, the system is likely to move northeastwards along & off north Andhra Pradesh and Odisha during next 48 hours.

Forecast track and intensity of the system are given in the table 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>
19-05-2016/0530	15.1/81.4	70-80 gusting to 90	Cyclonic Storm
19-05-2016/1130	15.6/81.8	70-80 gusting to 110	Cyclonic Storm
19-05-2016/1730	16.1/82.3	90-100 gusting to 110	Severe Cyclonic Storm
19-05-2016/2330	16.6/83.1	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/0530	17.2/84.1	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/1730	18.1/85.6	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/0530	19.3/87.7	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1730	20.9/90.5	70-80 gusting to 90	Cyclonic Storm
22-05-2016/0530	22.7/93.5	50-60 gusting to 70	Deep Depression
22-05-2016/1730	24.0/96.1	30-40 gusting to 50	Depression

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

**(xxvi) Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over coastal Andhra Pradesh during next 48 hours.

Rainfall at many places with heavy to very heavy falls at a few places very likely over coastal Odisha during next 48 hours

Rainfall at most places with isolated heavy falls very likely over north Tamil Nadu & Puducherry and Rayalaseema during next 24 hours.

**Wind warning:** Squally wind speed reaching 45-55 kmph gusting to 65 kmph is very likely to prevail along and off north Tamil Nadu & Puducherry during next 24 hours.

Wind speed reaching 90-100 gusting to 110 kmph is very likely to prevail along and off North Andhra Pradesh coasts during next 12 hours and speed reaching 100-110 gusting to 120 kmph during 36 hours.

Squally wind speed reaching 60-70 kmph gusting to 80 kmph is very likely to commence over south Odisha coast from today night.

**(xxvii) Sea condition along and off Andhra Pradesh and South Odisha coasts:** Sea condition is very likely to be high to very high along and off Andhra Pradesh and South Odisha coasts during next 48 hours. It is very likely to be rough to very rough along & off North Tamil Nadu coast during next 24 hours.

**(xxviii) Damage expected**

Damage to thatched huts, Minor damage to power and communication lines and Major damage to kutcha and minor damage to pucca roads over coastal Andhra Pradesh during next 48 hours and over south coastal Odisha from today night onwards.

**(xxix) Action suggested:**

Fishermen are advised not to venture into sea along & off Andhra Pradesh coast during next 48 hours, along & off North Tamil Nadu coast during next 24hours and along & off Odisha coast from today night.

**The next bulletin will be issued at 1200 hrs IST of 19<sup>th</sup> May 2016.**

**(S.D.KOTAL)  
SCIENTIST-E**

*Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.*

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**





**India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)**

**Bulletin No.: 10 (BOB 01/2016)**

Time of issue: 1300 hours IST

Dated: 19.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over westcentral Bay of Bengal**

**(Cyclone warning for Andhra Pradesh and Odisha coasts) (Orange message)**

The cyclonic storm 'ROANU' over westcentral Bay of Bengal moved north-northeastwards at a speed of 15 kmph during past six hours and lay centred at 0830 hrs IST of today, the 19<sup>th</sup> May, 2016 near latitude 15.6° N and longitude 81.6 °E, about 80 km south-southeast of Machilipatnam, about 290 km south-southwest of Visakhapatnam & 160 km south-southwest of Kakinada. The system is likely to continue to move north-northeastwards along and off Andhra Pradesh coast during next 12 hours, thereafter northeastwards. The system is likely to intensify into a severe cyclonic storm by tonight. Continuing moving northeastwards, the system is likely to cross south Bangladesh coast between Khepupara and Cox's Bazar in the night of 21<sup>st</sup> & early morning of 22<sup>nd</sup> May as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
19-05-2016/0830	15.6/81.6	70-80 gusting to 90	Cyclonic Storm
19-05-2016/1130	15.8/81.9	70-80 gusting to 90	Cyclonic Storm
19-05-2016/1730	16.1/82.3	90-100 gusting to 110	Severe Cyclonic Storm
19-05-2016/2330	16.6/83.1	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/0530	17.2/84.1	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/1730	18.1/85.6	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/0530	19.3/87.7	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1730	20.9/90.5	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 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

22-05-2016/0530	22.7/93.5	60-70 gusting to 80	Cyclonic Storm
22-05-2016/1730	24.0/96.1	30-40 gusting to 50	Depression

**Warning:**

- 1. Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over coastal Andhra Pradesh during next 24 hours and heavy to very heavy at a few places during subsequent 24 hours.

Rainfall at many places with heavy to very heavy falls at isolated places very likely over coastal Odisha during next 24 hours and heavy to very heavy falls at few places on 20 May and isolated heavy on 21<sup>st</sup> May.

Rainfall at most places with isolated heavy falls very likely over Telangana and Rayalaseema during next 24 hours.

- 2. Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along and off North Andhra Pradesh coasts during next 12 hours and speed reaching 100-110 gusting to 120 kmph during next 36 hours.

Squally wind speed reaching 60-70 kmph gusting to 80 kmph is very likely to commence over south Odisha coast tonight and wind speed reaching 90-100 kmph gusting to 110 kmph from tomorrow morning

Squally wind speed reaching 45-55 kmph gusting to 65 kmph is very likely to prevail along and off north Tamil Nadu & Puducherry during next 24 hours.

- 3. Sea condition along and off Andhra Pradesh and South Odisha coasts:** Sea condition is very likely to be high to very high along and off Andhra Pradesh and South Odisha coasts during next 48 hours. It is very likely to be rough to very rough along & off North Tamil Nadu coast during next 24 hours.

Sea condition is very likely to be high to very high along and off West Bengal coast on 20 and 21 May.

- 4. Expected Storm surge:** Storm surge of about 0.5 to 1.0 metre is likely along Andhra Pradesh coast during next 24 hours.

- 5. Damage expected**

Damage to thatched huts, Minor damage to power and communication lines and Major damage to kutcha and minor damage to pucca roads over coastal Andhra Pradesh during next 48 hours and over south coastal Odisha from today night onwards.

- 6. Action suggested:**

Fishermen are advised not to venture into sea along & off Andhra Pradesh coast during next 48 hours, along & off North Tamil Nadu coast during next 24 hours and along & off Odisha coast from today night onwards

**The next bulletin will be issued at 1430 hrs IST of 19<sup>th</sup> May 2016.**

**(B. P. Yadav)**  
**SCIENTIST-F & DDGM(S)**

*Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.*

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 11 (BOB 01/2016)**

Time of issue: 1530 hours IST

Dated: 19.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over westcentral Bay of Bengal**

**(Cyclone warning for Andhra Pradesh and Odisha coasts) (Orange message)**

The cyclonic storm 'ROANU' over westcentral Bay of Bengal remained practically stationary and lay centred at 1130 hrs IST of today, the 19<sup>th</sup> May, 2016 near latitude 15.6° N and longitude 81.6 °E, about 80 km south-southeast of Machilipatnam, about 290 km south-southwest of Visakhapatnam & 160 km south-southwest of Kakinada. The system is likely to move initially north-northeastwards along and off Andhra Pradesh coast during next 12 hours, thereafter northeastwards. The system is likely to intensify into a severe cyclonic storm by tonight. Continuing moving northeastwards, the system is likely to cross south Bangladesh coast between Khepupara and Cox's Bazar in the night of 21<sup>st</sup> & early morning of 22<sup>nd</sup> May as a cyclonic storm.

Forecast track and intensity of the system are given in the table below:

Date/time(IST)	Position (lat. °N/ long. °E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
19-05-2016/1130	15.6/81.6	70-80 gusting to 90	Cyclonic Storm
19-05-2016/1730	16.1/82.2	90-100 gusting to 110	Severe Cyclonic Storm
19-05-2016/2330	16.5/82.8	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/0530	16.9/83.2	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/1130	17.5/84.0	90-100 gusting to 110	Severe Cyclonic Storm
20-05-2016/2330	18.7/85.9	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1130	20.1/88.5	70-80 gusting to 90	Cyclonic Storm
21-05-2016/2330	21.6/91.4	70-80 gusting to 90	Cyclonic Storm
22-05-2016/1130	23.4/94.8	50-60 gusting to 70	Deep Depression

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

**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

- 1. Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over coastal Andhra Pradesh during next 24 hours and heavy to very heavy at a few places during subsequent 24 hours.

Rainfall at many places with heavy to very heavy falls at isolated places very likely over coastal Odisha during next 24 hours and heavy to very heavy falls at few places on 20 May and isolated heavy on 21<sup>st</sup> May.

Rainfall at most places with isolated heavy falls very likely over Telangana and Rayalaseema during next 24 hours.

- 2. Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along and off North Andhra Pradesh coasts during next 12 hours and speed reaching 100-110 gusting to 120 kmph during next 36 hours.

Squally wind speed reaching 60-70 kmph gusting to 80 kmph is very likely to commence over south Odisha coast tonight and wind speed reaching 90-100 kmph gusting to 110 kmph from tomorrow morning

Squally wind speed reaching 45-55 kmph gusting to 65 kmph is very likely to prevail along and off north Tamil Nadu & Puducherry during next 24 hours.

- 3. Sea condition along and off Andhra Pradesh and South Odisha coasts:** Sea condition is very likely to be high to very high along and off Andhra Pradesh and South Odisha coasts during next 48 hours. It is very likely to be rough to very rough along & off North Tamil Nadu coast during next 24 hours.

Sea condition is very likely to be high to very high along and off West Bengal coast on 20 and 21 May.

- 4. Expected Storm surge:**

Storm surge of about 0.5 to 1.0 metre is likely along Andhra Pradesh coast during next 24 hours.

- 5. Damage expected**

Damage to thatched huts, Minor damage to power and communication lines and Major damage to kutcha and minor damage to pucca roads over coastal Andhra Pradesh during next 48 hours and over south coastal Odisha from today night onwards.

- 6. Action suggested:**

Fishermen are advised not to venture into sea along & off Andhra Pradesh coast during next 48 hours, along & off North Tamil Nadu coast during next 24hours and along & off Odisha coast from today night onwards

**The next bulletin will be issued at 1730 hrs IST of 19<sup>th</sup> May 2016.**

**(B. P. Yadav)  
SCIENTIST-F & DDGM(S)**

*Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.*

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 12 (BOB 01/2016)**

Time of issue: 1730 hours IST

Dated: 19.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over westcentral Bay of Bengal**

**(Cyclone Warning for Andhra Pradesh and Odisha coasts) (Orange message) and**

**(Cyclone Alert for West Bengal coast) (Yellow message)**

The cyclonic storm 'ROANU' over westcentral Bay of Bengal remained practically stationary and lay centred at 1430 hrs IST of today, the 19<sup>th</sup> May, 2016 near latitude 15.6° N and longitude 81.6 °E, about 80 km south-southeast of Machilipatnam, about 290 km south-southwest of Visakhapatnam & 160 km south-southwest of Kakinada. The system is likely to move initially north-northeastwards along and off Andhra Pradesh coast during next 12 hours, thereafter northeastwards. The system is likely to intensify into a severe cyclonic storm by tonight. Continuing moving northeastwards, the system is likely to cross south Bangladesh coast between Khepupara and Cox's Bazar in the night of 21<sup>st</sup> & early morning of 22<sup>nd</sup> May as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
19-05-2016/1430	15.6/81.6	70-80 gusting to 90	Cyclonic Storm
19-05-2016/1730	16.1/82.2	70-80 gusting to 90	Cyclonic Storm
19-05-2016/2330	16.5/82.8	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/0530	16.9/83.2	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/1130	17.5/84.0	90-100 gusting to 110	Severe Cyclonic Storm
20-05-2016/2330	18.7/85.9	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1130	20.1/88.5	70-80 gusting to 90	Cyclonic Storm
21-05-2016/2330	21.6/91.4	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 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

22-05-2016/1130	23.4/94.8	50-60 gusting to 70	Deep Depression
-----------------	-----------	---------------------	-----------------

**Warning:**

- 1. Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over coastal Andhra Pradesh during next 24 hours and heavy to very heavy at a few places during subsequent 24 hours.

Rainfall at many places with heavy to very heavy falls at isolated places very likely over coastal Odisha during next 24 hours and heavy to very heavy falls at few places on 20 May and isolated heavy on 21<sup>st</sup> May.

Rainfall at many places with isolated heavy falls likely over coastal Gangetic West Bengal on 20<sup>th</sup> May and heavy to very heavy rainfall at isolated places on 21<sup>st</sup> May

Rainfall at most places with isolated heavy falls very likely over Telangana and Rayalaseema during next 24 hours.

- 2. Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along and off North Andhra Pradesh coasts during next 12 hours and speed reaching 100-110 gusting to 120 kmph during next 36 hours.

Squally wind speed reaching 60-70 kmph gusting to 80 kmph is very likely to commence over south Odisha coast tonight and wind speed reaching 90-100 kmph gusting to 110 kmph from tomorrow morning

Squally wind speed reaching 45-55 kmph gusting to 65 kmph is very likely to prevail along and off north Tamil Nadu & Puducherry during next 24 hours.

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail along and off West Bengal coast from 20<sup>th</sup> May morning.

- 3. Sea condition along and off Andhra Pradesh, South Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along and off Andhra Pradesh and South Odisha coasts during next 48 hours. It is very likely to be rough to very rough along & off North Tamil Nadu coast during next 24 hours.

Sea condition is very likely to be high to very high along and off West Bengal coast on 20 and 21 May.

- 4. Expected Storm surge:** Storm surge of about 0.5 to 1.0 metre is likely to inundate coastal Andhra Pradesh during next 24 hours.

- 5. Damage expected**  
Damage to thatched huts, Minor damage to power and communication lines and Major damage to kutcha and minor damage to pucca roads over coastal Andhra Pradesh during next 48 hours; over south coastal Odisha from today night onwards and over coastal West Bengal on 20<sup>th</sup> and 21<sup>st</sup> May. .

- 6. Action suggested:**

Fishermen are advised not to venture into sea along & off Andhra Pradesh coast during next 48 hours, along & off North Tamil Nadu coast during next 24hours and along & off Odisha coast from today night onwards and along & off West Bengal coast on 20<sup>th</sup> & 21<sup>st</sup> May.

**The next bulletin will be issued at 2030 hrs IST of 19<sup>th</sup> May 2016.**

(Charan Singh)  
SCIENTIST-E

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.



**India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)**

**Bulletin No.: 13 (BOB 01/2016)**

Time of issue: 2030 hours IST

Dated: 19.05.2016

**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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)  
CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, ODISHA (0674-2536660)  
CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over westcentral Bay of Bengal**

**(Cyclone Warning for Andhra Pradesh and Odisha coasts) (Orange message) and**

**(Cyclone Alert for West Bengal coast) (Yellow message)**

The cyclonic storm 'ROANU' over westcentral Bay of Bengal moved north-northeastwards at a speed of 10 kmph during past six hours and lay centred at 1730 hrs IST of today, the 19<sup>th</sup> May, 2016 near latitude 16.0° N and longitude 81.9 °E, about 240 km southwest of Visakhapatnam and 110 km south-southwest of Kakinada. The system is likely to move northeastwards along & off Andhra Pradesh and Odisha coast and intensify into a severe cyclonic storm by tonight. Continuing moving northeastwards, the system is likely to cross south Bangladesh coast between Khepupara and Cox's Bazar in the night of 21<sup>st</sup>/ early morning of 22<sup>nd</sup> May as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
19-05-2016/1730	16.0/81.9	70-80 gusting to 90	Cyclonic Storm
19-05-2016/2330	16.5/82.7	70-80 gusting to 90	Cyclonic Storm
20-05-2016/0530	16.9/83.2	90-100 gusting to 110	Severe Cyclonic Storm
20-05-2016/1130	17.5/84.0	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/1730	18.1/85.0	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/0000	19.4/87.2	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1730	20.9/90.0	70-80 gusting to 90	Cyclonic Storm
22-05-2016/0000	22.5/93.1	50-60 gusting to 70	Deep Depression

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

**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



22-05-2016/1730	24.0/95.0	35-45 gusting to 55	Depression
-----------------	-----------	---------------------	------------

**Warning:**

- 1. Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over coastal Andhra Pradesh during next 24 hours and heavy to very heavy at a few places during subsequent 24 hours.

Rainfall at many places with heavy to very heavy falls at isolated places very likely over coastal Odisha during next 24 hours and heavy to very heavy falls at few places on 20 May and isolated heavy on 21<sup>st</sup> May.

Rainfall at many places with isolated heavy falls likely over coastal Gangetic West Bengal on 20<sup>th</sup> May and heavy to very heavy rainfall at isolated places on 21<sup>st</sup> May

- 2. Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off North Andhra Pradesh coasts during next 12 hours and speed reaching 100-110 gusting to 120 kmph during next 36 hours.

Squally wind speed reaching 60-70 kmph gusting to 80 kmph is very likely to commence over south Odisha coast from tonight and wind speed reaching 90-100 kmph gusting to 110 kmph from tomorrow morning

Squally wind speed reaching 45-55 kmph gusting to 65 kmph is very likely to prevail along & off south Andhra Pradesh and north Tamil Nadu & Puducherry coasts during next 24 hours.

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail along & off West Bengal coast from 20<sup>th</sup> May morning.

- 3. Sea condition along and off Andhra Pradesh, South Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off Andhra Pradesh and Odisha coasts during next 48 hours. It is very likely to be rough to very rough along & off north Tamil Nadu coast during next 24 hours.

Sea condition is very likely to be high to very high along and off West Bengal coast on 20 and 21 May.

- 4. Expected Storm surge:** Storm surge of about 0.5 to 1.0 metre is likely over north coastal Andhra Pradesh during next 24 hours.

- 5. Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over coastal Andhra Pradesh during next 48 hours; over south coastal Odisha from today night onwards and over coastal West Bengal on 20<sup>th</sup> & 21<sup>st</sup> May. .

- 6. Action suggested:**

Fishermen are advised not to venture into sea along & off Andhra Pradesh coast during next 48 hours, along & off North Tamil Nadu coast during next 24hours and along & off Odisha coast from today night onwards and along & off West Bengal coast on 20<sup>th</sup> & 21<sup>st</sup> May.

**The next bulletin will be issued at 2330 hrs IST of 19<sup>th</sup> May 2016.**

(B. P. Yadav)  
SCIENTIST 'F' and DDGM(S)

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.





India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 14 (BOB 01/2016)**

Time of issue: 2330 hours IST

Dated: 19.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over westcentral Bay of Bengal**

**(Cyclone Warning for Andhra Pradesh and Odisha coasts) (Orange message) and**

**(Cyclone Alert for West Bengal coast) (Yellow message)**

The cyclonic storm 'ROANU' over westcentral Bay of Bengal moved northeastwards at a speed of 12 kmph during past six hours and lay centred at 2030 hrs IST of today, the 19<sup>th</sup> May, 2016 near latitude 16.2° N and longitude 82.2 °E, about 200 km southwest of Visakhapatnam and 80 km south of Kakinada. The system is likely to move northeastwards along & off Andhra Pradesh and Odisha coast and intensify into a severe cyclonic storm by tonight/ early morning. Continuing moving northeastwards, the system is likely to cross south Bangladesh coast between Khepupara and Cox's Bazar in the night of 21<sup>st</sup>/ early morning of 22<sup>nd</sup> May as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
19-05-2016/2030	16.2/82.2	70-80 gusting to 90	Cyclonic Storm
19-05-2016/2330	16.5/82.7	70-80 gusting to 90	Cyclonic Storm
20-05-2016/0530	16.9/83.2	90-100 gusting to 110	Severe Cyclonic Storm
20-05-2016/1130	17.5/84.0	95-105 gusting to 120	Severe Cyclonic Storm
20-05-2016/1730	18.1/85.0	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/0000	19.4/87.2	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1730	20.9/90.0	70-80 gusting to 90	Cyclonic Storm
22-05-2016/0000	22.5/93.1	50-60 gusting to 70	Deep Depression

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

**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

22-05-2016/1730	24.0/95.0	35-45 gusting to 55	Depression
-----------------	-----------	---------------------	------------

**Warning:**

- 1. Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over coastal Andhra Pradesh during next 24 hours and heavy to very heavy at a few places during subsequent 24 hours.

Rainfall at many places with heavy to very heavy falls at isolated places very likely over coastal Odisha during next 24 hours and heavy to very heavy falls at few places on 20 May and isolated heavy on 21<sup>st</sup> May.

Rainfall at many places with isolated heavy falls likely over coastal Gangetic West Bengal on 20<sup>th</sup> May and heavy to very heavy rainfall at isolated places on 21<sup>st</sup> May

- 2. Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off North Andhra Pradesh coasts during next 12 hours and speed reaching 100-110 gusting to 120 kmph during next 36 hours.

Squally wind speed reaching 60-70 kmph gusting to 80 kmph is very likely to commence over south Odisha coast from tonight and wind speed reaching 90-100 kmph gusting to 110 kmph from tomorrow morning

Squally wind speed reaching 45-55 kmph gusting to 65 kmph is very likely to prevail along & off south Andhra Pradesh and north Tamil Nadu & Puducherry coasts during next 24 hours.

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail along & off West Bengal coast from 20<sup>th</sup> May morning.

- 3. Sea condition along and off Andhra Pradesh, South Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off Andhra Pradesh and Odisha coasts during next 48 hours. It is very likely to be rough to very rough along & off north Tamil Nadu coast during next 24 hours.

Sea condition is very likely to be high to very high along and off West Bengal coast on 20 and 21 May.

- 4. Expected Storm surge:** Storm surge of about 0.5 to 1.0 metre is likely over north coastal Andhra Pradesh during next 24 hours.

- 5. Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over coastal Andhra Pradesh during next 48 hours; over south coastal Odisha from today night onwards and over coastal West Bengal on 20<sup>th</sup> & 21<sup>st</sup> May. .

- 6. Action suggested:**

Fishermen are advised not to venture into sea along & off Andhra Pradesh coast during next 48 hours, along & off North Tamil Nadu coast during next 24hours and along & off Odisha coast from today night onwards and along & off West Bengal coast on 20<sup>th</sup> & 21<sup>st</sup> May.

**The next bulletin will be issued at 0230 hrs IST of 20<sup>th</sup> May 2016.**

**(D. R. Pattanaik)  
SCIENTIST 'E'**

*Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.*

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 15 (BOB 01/2016)**

Time of issue: 0230 hours IST

Dated: 20.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over westcentral Bay of Bengal**

**(Cyclone Warning for Andhra Pradesh and Odisha coasts) (Orange message) and**

**(Cyclone Alert for West Bengal coast) (Yellow message)**

The cyclonic storm 'ROANU' over westcentral Bay of Bengal moved northeastwards at a speed of 14 kmph during past six hours and lay centred at 2330 hrs IST of 19<sup>th</sup> May, 2016 near latitude 16.4° N and longitude 82.6°E, about 160 km south-southwest of Visakhapatnam and 70 km east-southeast of Kakinada. The system is likely to move northeastwards along & off Andhra Pradesh and Odisha coast and intensify into a severe cyclonic storm by morning. Continuing moving northeastwards, the system is likely to cross south Bangladesh coast between Khepupara and Cox's Bazar in the night of 21<sup>st</sup>/ early morning of 22<sup>nd</sup> May as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
19-05-2016/2330	16.4/82.6	70-80 gusting to 90	Cyclonic Storm
20-05-2016/0530	16.9/83.2	70-80 gusting to 90	Cyclonic Storm
20-05-2016/1130	17.5/84.0	90-100 gusting to 110	Severe Cyclonic Storm
20-05-2016/1730	18.1/85.0	90-100 gusting to 110	Severe Cyclonic Storm
20-05-2016/2330	18.7/85.9	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1130	20.1/88.5	70-80 gusting to 90	Cyclonic Storm
21-05-2016/2330	21.6/91.4	50-60 gusting to 70	Deep Depression
22-05-2016/1130	23.4/94.8	35-45 gusting to 55	Depression

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

**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over coastal Andhra Pradesh during next 24 hours and heavy to very heavy at a few places during subsequent 24 hours.

Rainfall at many places with heavy to very heavy falls at isolated places very likely over coastal Odisha during next 24 hours and heavy to very heavy falls at few places on 20 May and isolated heavy on 21<sup>st</sup> May.

Rainfall at many places with isolated heavy falls likely over coastal Gangetic West Bengal on 20<sup>th</sup> May and heavy to very heavy rainfall at isolated places on 21<sup>st</sup> May

2. **Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off North Andhra Pradesh coasts during next 12 hours and speed reaching 100-110 gusting to 120 kmph during next 36 hours.

Squally wind speed reaching 60-70 kmph gusting to 80 kmph is very likely to commence over south Odisha coast from tonight and wind speed reaching 90-100 kmph gusting to 110 kmph from tomorrow morning

Squally wind speed reaching 45-55 kmph gusting to 65 kmph is very likely to prevail along & off south Andhra Pradesh and north Tamil Nadu & Puducherry coasts during next 24 hours.

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail along & off West Bengal coast from 20<sup>th</sup> May morning.

3. **Sea condition along and off Andhra Pradesh, South Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off Andhra Pradesh and Odisha coasts during next 48 hours. It is very likely to be rough to very rough along & off north Tamil Nadu coast during next 24 hours.

Sea condition is very likely to be high to very high along and off West Bengal coast on 20 and 21 May.

4. **Expected Storm surge:** Storm surge of about 0.5 to 1.0 metre is likely over north coastal Andhra Pradesh during next 24 hours.

5. **Damage expected** Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over coastal Andhra Pradesh during next 48 hours; over south coastal Odisha from today night onwards and over coastal West Bengal on 20<sup>th</sup> & 21<sup>st</sup> May. .

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off Andhra Pradesh coast during next 48 hours, along & off North Tamil Nadu coast during next 24hours and along & off Odisha coast from today night onwards and along & off West Bengal coast on 20<sup>th</sup> & 21<sup>st</sup> May.

**The next bulletin will be issued at 0530 hrs IST of 20<sup>th</sup> May 2016.**

**(D. R. Pattanaik)  
SCIENTIST 'E'**

*Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.*

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 16 (BOB 01/2016)**

Time of issue: 0530 hours IST

Dated: 20.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over westcentral Bay of Bengal**

**(Cyclone Warning for Andhra Pradesh and Odisha coasts) (Orange message) and**

**(Cyclone Alert for West Bengal coast) (Yellow message)**

The cyclonic storm 'ROANU' over westcentral Bay of Bengal moved northeastwards at a speed of 15 kmph during past six hours and lay centred at 0230 hrs IST of 20<sup>th</sup> May, 2016 near latitude 16.8° N and longitude 82.8°E, about 110 km south-southwest of Visakhapatnam and 60 km east-northeast of Kakinada. The system is likely to move northeastwards along & off Andhra Pradesh and Odisha coast and intensify into a severe cyclonic storm. Continuing moving northeastwards, the system is likely to cross south Bangladesh coast between Khepupara and Cox's Bazar in the night of 21<sup>st</sup>/ early morning of 22<sup>nd</sup> May as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
20-05-2016/0230	16.8/82.8	70-80 gusting to 90	Cyclonic Storm
20-05-2016/0530	16.9/83.2	70-80 gusting to 90	Cyclonic Storm
20-05-2016/1130	17.5/84.0	90-100 gusting to 110	Severe Cyclonic Storm
20-05-2016/1730	18.1/85.0	90-100 gusting to 110	Severe Cyclonic Storm
20-05-2016/2330	18.7/85.9	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1130	20.1/88.5	70-80 gusting to 90	Cyclonic Storm
21-05-2016/2330	21.6/91.4	50-60 gusting to 70	Deep Depression
22-05-2016/1130	23.4/94.8	35-45 gusting to 55	Depression

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

**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over coastal Andhra Pradesh during next 24 hours and heavy to very heavy at a few places during subsequent 24 hours.

Rainfall at many places with heavy to very heavy falls at isolated places very likely over coastal Odisha during next 24 hours and heavy to very heavy falls at few places on 20 May and isolated heavy on 21<sup>st</sup> May.

Rainfall at many places with isolated heavy falls likely over coastal Gangetic West Bengal on 20<sup>th</sup> May and heavy to very heavy rainfall at isolated places on 21<sup>st</sup> May

2. **Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off North Andhra Pradesh coasts during next 12 hours and speed reaching 100-110 gusting to 120 kmph during next 24 hours.

Squally wind speed reaching 60-70 kmph gusting to 80 kmph is very likely to commence over south Odisha coast and wind speed reaching 90-100 kmph gusting to 110 kmph during next 12 hours

Squally wind speed reaching 45-55 kmph gusting to 65 kmph is very likely to prevail along & off south Andhra Pradesh and north Tamil Nadu & Puducherry coasts during next 24 hours.

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail along & off West Bengal coast from 20<sup>th</sup> May morning.

3. **Sea condition along and off Andhra Pradesh, South Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off Andhra Pradesh and Odisha coasts during next 48 hours. It is very likely to be rough to very rough along & off north Tamil Nadu coast during next 12 hours.

Sea condition is very likely to be high to very high along and off West Bengal coast on 20 and 21 May.

4. **Expected Storm surge:** Storm surge of about 0.5 to 1.0 metre is likely over north coastal Andhra Pradesh during next 24 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over coastal Andhra Pradesh during next 48 hours; over south coastal Odisha and coastal West Bengal on 20<sup>th</sup> & 21<sup>st</sup> May. .

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off Andhra Pradesh coast during next 36 hours, along & off North Tamil Nadu coast during next 12 hours, along & off Odisha and West Bengal coast on 20<sup>th</sup> & 21<sup>st</sup> May.

**The next bulletin will be issued at 0830 hrs IST of 20<sup>th</sup> May 2016.**

**(D. R. Pattanaik)**  
**SCIENTIST 'E'**

*Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.*

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 17 (BOB 01/2016)**

Time of issue: 0830 hours IST

Dated: 20.05.2016

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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, ODISHA (0674-2536660)  
CHIEF SECRETARY, WEST BENGAL (033-22144328)

Sub: Cyclonic Storm 'ROANU' over westcentral Bay of Bengal

(Cyclone Warning for Andhra Pradesh and Odisha coasts) (Orange message) and

(Cyclone Alert for West Bengal coast) (Yellow message)

The cyclonic storm 'ROANU' over westcentral Bay of Bengal moved northeastwards at a speed of 16 kmph during past six hours and lay centred at 0530 hrs IST of 20<sup>th</sup> May, 2016 near latitude 17.2° N and longitude 83.3°E, about 60 km south-southeast of Visakhapatnam and 120 km northeast of Kakinada. The system is likely to move northeastwards along & off Andhra Pradesh and Odisha coast and intensify into a severe cyclonic storm by tonight. Continuing moving northeastwards, the system is likely to cross south Bangladesh coast between Khepupara and Cox's Bazar in the night of 21<sup>st</sup>/ early morning of 22<sup>nd</sup> May as a cyclonic storm.

Forecast track and intensity of the system are given in the table below:

Date/time(IST)	Position (lat. °N/ long. °E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
20-05-2016/0530	17.2/83.3	70-80 gusting to 90	Cyclonic Storm
20-05-2016/1130	17.7/84.1	70-80 gusting to 90	Cyclonic Storm
20-05-2016/1730	18.2/85.0	80-90 gusting to 100	Cyclonic Storm
20-05-2016/2330	18.7/85.9	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/0530	19.9/87.9	70-80 gusting to 90	Cyclonic Storm
21-05-2016/1730	21.4/90.8	70-80 gusting to 90	Cyclonic Storm
22-05-2016/0530	22.3/92.5	50-60 gusting to 70	Deep Depression
22-05-2016/1730	23.0/93.7	35-45 gusting to 55	Depression

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

Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over north coastal Andhra Pradesh during next 24 hours and isolated heavy during subsequent 24 hours.

Rainfall at most places with heavy to very heavy falls at a few places very likely over coastal Odisha during next 48 hours.

Rainfall at most places with isolated heavy to very heavy falls likely over coastal Gangetic West Bengal during next 48 hours.

2. **Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off North Andhra Pradesh coasts during next 12 hours and speed reaching 100-110 gusting to 120 kmph during next 24 hours.

Squally wind speed reaching 60-70 kmph gusting to 80 kmph is very likely to commence over south Odisha coast and wind speed reaching 90-100 kmph gusting to 110 kmph during next 12 hours

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is likely to prevail along & off West Bengal coast from 20<sup>th</sup> May morning.

3. **Sea condition along and off Andhra Pradesh, South Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off Andhra Pradesh during next 24 hours and Odisha coasts during next 48 hours.

Sea condition is very likely to be high to very high along and off West Bengal coast during next 48 hours.

4. **Expected Storm surge:**

Storm surge of about 0.5 to 1.0 metre is likely over north coastal Andhra Pradesh during next 24 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over north coastal Andhra Pradesh during next 24 hours; over coastal Odisha and coastal West Bengal during next 48 hours

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off Andhra Pradesh coast during next 24 hours, along & off Odisha and West Bengal coast during next 48 hours.

**The next bulletin will be issued at 1130 hrs IST of 20<sup>th</sup> May 2016.**

**(D. R. Pattanaik)  
SCIENTIST 'E'**

*Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.*

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**





**India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)**

**Bulletin No.: 18 (BOB 01/2016)**

Time of issue: 1210 hours IST

Dated: 20.05.2016

**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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)  
CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, ODISHA (0674-2536660)  
CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over westcentral & adjoining northwest Bay of Bengal**

**(Cyclone Warning for north Andhra Pradesh coast for next 12 hrs and Odisha and West Bengal coasts for next 48 hours) (Orange message)**

The cyclonic storm 'ROANU' over westcentral Bay of Bengal moved northeastwards at a speed of 25 kmph during past six hours and lay centred at 0830 hrs IST of 20<sup>th</sup> May, 2016 over westcentral & adjoining northwest Bay of Bengal, near latitude 18.0° N and longitude 84.2°E, about 40 km south-southeast of Kalingapatnam (Andhra Pradesh), 360 km south-southwest of Paradip (Odisha) and 920 km southwest of Chittagong (Bangladesh). The system is likely to move northeastwards along & off north Andhra Pradesh and Odisha coast and intensify into a severe cyclonic storm during next 24 hours. Thereafter, the system is likely to move east-northeastwards and cross south Bangladesh coast between Khepupara and Cox's Bazar, close to Chittagong in the night of 21<sup>st</sup> May, as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
20-05-2016/0830	18.0/84.2	70-80 gusting to 90	Cyclonic Storm
20-05-2016/1130	17.7/84.1	70-80 gusting to 90	Cyclonic Storm
20-05-2016/1730	18.2/85.0	80-90 gusting to 100	Cyclonic Storm
20-05-2016/2330	18.7/85.9	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/0530	19.9/87.9	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/1730	21.4/90.8	70-80 gusting to 90	Cyclonic Storm
22-05-2016/0530	22.3/92.5	50-60 gusting to 70	Deep Depression
22-05-2016/1730	23.0/93.7	35-45 gusting to 55	Depression

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

**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over north coastal Andhra Pradesh during next 24 hours.

Rainfall at most places with heavy to very heavy falls at a few places with extremely heavy falls at isolated places very likely over coastal Odisha during next 24 hours and isolated heavy rainfall during subsequent 24 hrs.

Rainfall at most places with heavy to very heavy at a few places likely over Gangetic West Bengal during next 24 hours and isolated heavy rainfall during subsequent 24 hrs.

2. **Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off North coastal Andhra Pradesh during next 12 hours.

Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off Odisha coast and 60-70 gusting to 80 kmph along & off West Bengal coast during next 48 hours.

3. **Sea condition along and off north Andhra Pradesh, Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off north Andhra Pradesh coast during next 24 hours and along & off Odisha and West Bengal coasts during next 48 hours.

4. **Expected Storm surge:**

Storm surge of about 0.5 to 1.0 metre is likely over north coastal Andhra Pradesh during next 12 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over north coastal Andhra Pradesh during next 12 hours and over coastal Odisha and coastal West Bengal during next 36 hours.

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off north Andhra Pradesh coast during next 24 hours and along & off Odisha and West Bengal coast during next 48 hours.

**The next bulletin will be issued at 1430 hrs IST of 20<sup>th</sup> May 2016.**

(B. P. Yadav)  
SCIENTIST 'F' & DDGM (S)

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 19 (BOB 01/2016)**

Time of issue: 1430 hours IST

Dated: 20.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over westcentral & adjoining northwest Bay of Bengal**

**(Cyclone Warning for north Andhra Pradesh coast for next 12 hrs and Odisha and West Bengal coasts for next 48 hours) (Orange message)**

The cyclonic storm 'ROANU' over westcentral & adjoining northwest Bay of Bengal moved northeastwards at a speed of 30 kmph during past six hours and lay centred at 1130 hrs IST of 20<sup>th</sup> May, 2016 over same area near latitude 18.4° N and longitude 84.6°E, about 50 km east-northeast of Kalingapatnam (Andhra Pradesh), 300 km south-southwest of Paradip (Odisha) and 870 km west-southwest of Chittagong (Bangladesh). The system is likely to move northeastwards along & off north Andhra Pradesh and Odisha coast and intensify into a severe cyclonic storm during next 24 hours. Thereafter, the system is likely to move east-northeastwards and cross south Bangladesh coast between Khepupara and Cox's Bazar, close to Chittagong in the night of 21<sup>st</sup> May, as a cyclonic storm.

Forecast track and intensity of the system are given in the table below:

Date/time(IST)	Position (lat. °N/ long. °E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
20-05-2016/1130	18.4/84.6	70-80 gusting to 90	Cyclonic Storm
20-05-2016/1730	19.3/85.9	80-90 gusting to 100	Cyclonic Storm
20-05-2016/2330	20.0/87.2	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/0530	20.7/88.6	85-95 gusting to 105	Cyclonic Storm
21-05-2016/1130	21.3/90.0	70-80 gusting to 90	Cyclonic Storm
21-05-2016/2330	22.5/92.6	50-60 gusting to 70	Deep Depression
22-05-2016/1130	23.5/95.0	35-45 gusting to 55	Depression

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over north coastal Andhra Pradesh during next 24 hours.

Rainfall at most places with heavy to very heavy falls at a few places with extremely heavy falls at isolated places very likely over coastal Odisha during next 24 hours and isolated heavy rainfall during subsequent 24 hrs.

Rainfall at most places with heavy to very heavy at a few places likely over Gangetic West Bengal during next 24 hours and isolated heavy rainfall during subsequent 24 hrs.

2. **Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off North coastal Andhra Pradesh during next 12 hours.

Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off Odisha coast and 60-70 gusting to 80 kmph along & off West Bengal coast during next 48 hours.

3. **Sea condition along and off north Andhra Pradesh, Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off north Andhra Pradesh coast during next 24 hours and along & off Odisha and West Bengal coasts during next 48 hours.

4. **Expected Storm surge:**

Storm surge of about 0.5 to 1.0 metre is likely over north coastal Andhra Pradesh during next 12 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over north coastal Andhra Pradesh during next 12 hours and over coastal Odisha and coastal West Bengal during next 36 hours.

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off north Andhra Pradesh coast during next 24 hours and along & off Odisha and West Bengal coast during next 48 hours.

**The next bulletin will be issued at 1730 hrs IST of 20<sup>th</sup> May 2016.**

(B. P. Yadav)  
SCIENTIST 'F' & DDGM (S)

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 20 (BOB 01/2016)**

Time of issue: 1730 hours IST

Dated: 20.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF TAMILNADU (FAX No. 044-25672304)**  
**CHIEF SECRETARY, GOVT.OF PUDUCHERRY (FAX No. 0413-2337575)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**

**Sub: Cyclonic Storm 'ROANU' over northwest & adjoining westcentral Bay of Bengal**

**(Cyclone Warning for north Andhra Pradesh coast for next 12 hrs and Odisha and West Bengal coasts for next 48 hours) (Orange message)**

The cyclonic storm 'ROANU' over westcentral & adjoining northwest Bay of Bengal moved northeastwards at a speed of 20 kmph during past six hours and lay centred at 1430 hrs IST of 20<sup>th</sup> May, 2016 over northwest & adjoining westcentral Bay of Bengal near latitude 18.8° N and longitude 85.0°E, about 105 km east-northeast of Kalingapatnam (Andhra Pradesh), 50 km south-southeast of Gopalpur, 240 km west-southwest of Paradip (Odisha) and 800 km west-southwest of Chittagong (Bangladesh). The system is likely to move northeastwards along & off north Andhra Pradesh and Odisha coast and intensify into a severe cyclonic storm during next 24 hours. Thereafter, the system is likely to move east-northeastwards and cross south Bangladesh coast between Khepupara and Cox's Bazar, close to Chittagong in the evening of 21<sup>st</sup> May, as a cyclonic storm.

Forecast track and intensity of the system are given in the table below:

Date/time(IST)	Position (lat. °N/ long. °E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
20-05-2016/1430	18.8/85.0	70-80 gusting to 90	Cyclonic Storm
20-05-2016/1730	19.3/85.9	80-90 gusting to 100	Cyclonic Storm
20-05-2016/2330	20.0/87.2	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/0530	20.7/88.6	90-100 gusting to 110	Severe Cyclonic Storm
21-05-2016/1130	21.3/90.0	80-90 gusting to 100	Cyclonic Storm
21-05-2016/2330	22.5/92.6	50-60 gusting to 70	Deep Depression
22-05-2016/1130	23.5/95.0	35-45 gusting to 55	Depression

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall at most places with heavy to very heavy falls at a few places and isolated extremely heavy falls very likely over north coastal Andhra Pradesh during next 24 hours.

Rainfall at most places with heavy to very heavy falls at a few places with extremely heavy falls at isolated places very likely over coastal Odisha during next 24 hours and isolated heavy rainfall during subsequent 24 hrs.

Rainfall at most places with heavy to very heavy at a few places likely over Gangetic West Bengal during next 24 hours and isolated heavy rainfall during subsequent 24 hrs.

2. **Wind warning:** Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off North coastal Andhra Pradesh during next 12 hours.

Wind speed reaching 90-100 kmph gusting to 110 kmph is very likely to prevail along & off Odisha coast and 60-70 gusting to 80 kmph along & off West Bengal coast during next 36 hours.

3. **Sea condition along and off north Andhra Pradesh, Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off north Andhra Pradesh coast during next 12 hours and along & off Odisha and West Bengal coasts during next 36 hours.

4. **Storm surge warning**

Storm surge of about 0.5 to 1.0 metre would inundate low lying areas of districts of south coastal Odisha during next 12 hours and of about 1-1.5 metre would inundate low lying areas of districts of north coastal Odisha and West Bengal during next 24 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over north coastal Andhra Pradesh during next 12 hours and over coastal Odisha and coastal West Bengal during next 36 hours.

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off north Andhra Pradesh coast during next 24 hours and along & off Odisha and West Bengal coast during next 48 hours.

**The next bulletin will be issued at 2030 hrs IST of 20<sup>th</sup> May 2016.**

(B. P. Yadav)  
SCIENTIST 'F' & DDGM (S)

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



**India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)**

**Bulletin No.: 21 (BOB 01/2016)**

Time of issue: 2100hours IST

Dated: 20.05.2016

**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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, ODISHA (0674-2536660)  
CHIEF SECRETARY, WEST BENGAL (033-22144328)  
CHIEF SECRETARY, ASSAM (0361-2260900)  
CHIEF SECRETARY, MANIPUR (0385-2452629)  
CHIEF SECRETARY, MIZORAM (0389-2322745)  
CHIEF SECRETARY, TRIPURA (0381-2324185)**

**Sub: Cyclonic Storm 'ROANU' over northwest Bay of Bengal**

**Cyclone Warning for Odisha & West Bengal coasts for next 36 hours (Orange message) and de-warning for Andhra Pradesh coast**

The cyclonic storm 'ROANU' over westcentral & adjoining northwest Bay of Bengal moved east-northeastwards at a speed of 40kmph during past three hours and lay centred at 1730 hrs IST of 20<sup>th</sup> May, 2016 over northwest Bay of Bengal near latitude 19.7° N and longitude 86.5°E, 70 km south-southwest of Paradip (Odisha), 70 km southeast of Puri and 630 km west-southwest of Chittagong (Bangladesh). The system is likely to move east-northeastwards skirting Odisha- West Bengal coast and cross south Bangladesh coast between Khepupara and Cox's Bazar, close to Chittagong in the evening of 21<sup>st</sup> May, as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
20-05-2016/1730	20.0/87.0	70-80 gusting to 90	Cyclonic Storm
20-05-2016/2330	20.5/88.1	80-90 gusting to 100	Cyclonic Storm
21-05-2016/0530	21.3/89.6	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1130	22.1/91.0	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1730	22.9/92.6	60-70 gusting to 80	Cyclonic Storm
22-05-2016/0530	24.2/94.7	40-50 gusting to 60	Depression

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls coastal Odisha during next 24 hours and over Gangetic West Bengal during next 36 hours.

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura during next 36 hours

2. **Wind warning:** Wind speed reaching 80-90 kmph gusting to 100 kmph is very likely to prevail along & off Odisha-West Bengal coast during next 24 hours.

Squally wind speed reaching 40-50 kmph gusting to 60 kmph is very likely to prevail over south Assam, Manipur, Mizoram & Tripura commencing from 21<sup>st</sup> afternoon for subsequent 24 hours.

3. **Sea condition along & off Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off Odisha and West Bengal coasts during next 24 hours and become rough to very rough in subsequent 12 hours.

4. **Storm surge warning**

Storm surge of about 0.5 to 1.0 metre would inundate low lying areas of districts of south coastal Odisha during next 12 hours and of about 1-1.5 metre would inundate low lying areas of districts of north coastal Odisha and West Bengal during next 24 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over coastal Odisha and coastal West Bengal during next 24 hours.

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off Odisha and West Bengal coast during next 36 hours.

**The next bulletin will be issued at 0230 hrs IST of 21<sup>st</sup> May 2016.**

(Ranjeet Singh)  
SCIENTIST 'F'

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**





**India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)**

**Bulletin No.: 22 (BOB 01/2016)**

Time of issue: 2300hours IST

Dated: 20.05.2016

**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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, ODISHA (0674-2536660)  
CHIEF SECRETARY, WEST BENGAL (033-22144328)  
CHIEF SECRETARY, ASSAM (0361-2260900)  
CHIEF SECRETARY, MANIPUR (0385-2452629)  
CHIEF SECRETARY, MIZORAM (0389-2322745)  
CHIEF SECRETARY, TRIPURA (0381-2324185)**

**Sub: Cyclonic Storm 'ROANU' over northwest Bay of Bengal**

**Cyclone Warning for Odisha & West Bengal coasts for next 36 hours (Orange message) and de-warning for Andhra Pradesh coast**

The cyclonic storm 'ROANU' over westcentral & adjoining northwest Bay of Bengal moved east-northeastwards at a speed of 25 kmph during past three hours and lay centred at 2030 hrs IST of 20<sup>th</sup> May, 2016 over northwest Bay of Bengal near latitude 20.0° N and longitude 87.0°E, 65 km east of Paradip (Odisha) and 560 km west-southwest of Chittagong (Bangladesh). The system is likely to move east-northeastwards skirting Odisha- West Bengal coast and cross south Bangladesh coast between Khepupara and Cox's Bazar, close to Chittagong in the evening of 21<sup>st</sup> May, as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
20-05-2016/2030	20.0/87.0	70-80 gusting to 90	Cyclonic Storm
20-05-2016/2330	20.5/88.1	80-90 gusting to 100	Cyclonic Storm
21-05-2016/0530	21.3/89.6	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1130	22.1/91.0	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1730	22.9/92.6	60-70 gusting to 80	Cyclonic Storm
22-05-2016/0530	24.2/94.7	40-50 gusting to 60	Depression

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls coastal Odisha during next 24 hours and over Gangetic West Bengal during next 36 hours.

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura during next 36 hours

2. **Wind warning:** Wind speed reaching 80-90 kmph gusting to 100 kmph is very likely to prevail along & off Odisha-West Bengal coast during next 24 hours.

Squally wind speed reaching 40-50 kmph gusting to 60 kmph is very likely to prevail over south Assam, Manipur, Mizoram & Tripura commencing from 21<sup>st</sup> afternoon for subsequent 24 hours.

3. **Sea condition along & off Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off Odisha and West Bengal coasts during next 24 hours and become rough to very rough in subsequent 12 hours.

4. **Storm surge warning**

Storm surge of about 0.5 to 1.0 metre would inundate low lying areas of districts of south coastal Odisha during next 12 hours and of about 1-1.5 metre would inundate low lying areas of districts of north coastal Odisha and West Bengal during next 24 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over coastal Odisha and coastal West Bengal during next 24 hours.

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off Odisha and West Bengal coast during next 36 hours.

**The next bulletin will be issued at 0230 hrs IST of 21<sup>st</sup> May 2016.**

(Ranjeet Singh)  
SCIENTIST 'F'

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



**India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)**

**Bulletin No.: 23 (BOB 01/2016)**

Time of issue: 0230hours IST

Dated: 21.05.2016

**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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)  
CHIEF SECRETARY, ODISHA (0674-2536660)  
CHIEF SECRETARY, WEST BENGAL (033-22144328)  
CHIEF SECRETARY, ASSAM (0361-2260900)  
CHIEF SECRETARY, MANIPUR (0385-2452629)  
CHIEF SECRETARY, MIZORAM (0389-2322745)  
CHIEF SECRETARY, TRIPURA (0381-2324185)**

**Sub: Cyclonic Storm 'ROANU' over northwest Bay of Bengal**

**Cyclone Warning for Odisha & West Bengal coasts for next 30 hours (Orange message) and de-warning for Andhra Pradesh coast**

The cyclonic storm 'ROANU' over northwest & adjoining westcentral Bay of Bengal moved east-northeastwards at a speed of 18 kmph during past six hours and lay centred at 2330 hrs IST of 20<sup>th</sup> May, 2016 over northwest Bay of Bengal near latitude 20.1° N and longitude 87.5°E, 90km east of Paradip (Odisha) and 510 km west-southwest of Chittagong (Bangladesh). The system is likely to move east-northeastwards skirting Odisha- West Bengal coast and cross south Bangladesh coast between Khepupara and Cox's Bazar, close to Chittagong in the evening of 21<sup>st</sup> May, as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
20-05-2016/2330	20.1/87.5	80-90 gusting to 100	Cyclonic Storm
21-05-2016/0530	20.4/88.2	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1130	21.0/89.6	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1730	21.8/91.5	60-70 gusting to 80	Cyclonic Storm
21-05-2016/2330	22.6/93.3	50-60 gusting to 70	Deep Depression
22-05-2016/0530	23.5/95.2	25-35 gusting to 45	Well-marked low

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

**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls coastal Odisha during next 24 hours and over Gangetic West Bengal during next 36 hours.

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura during next 36 hours

2. **Wind warning:** Wind speed reaching 80-90 kmph gusting to 100 kmph is very likely to prevail along & off Odisha-West Bengal coast during next 24 hours.

Squally wind speed reaching 40-50 kmph gusting to 60 kmph is very likely to prevail over south Assam, Manipur, Mizoram & Tripura commencing from 21<sup>st</sup> afternoon for subsequent 24 hours.

3. **Sea condition along & off Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off Odisha and West Bengal coasts during next 24 hours and become rough to very rough in subsequent 12 hours.

4. **Storm surge warning**

Storm surge of about 0.5 to 1.0 metre would inundate low lying areas of districts of south coastal Odisha during next 12 hours and of about 1-1.5 metre would inundate low lying areas of districts of north coastal Odisha and West Bengal during next 24 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over coastal Odisha and coastal West Bengal during next 24 hours.

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off Odisha and West Bengal coast during next 36 hours.

**The next bulletin will be issued at 0530 hrs IST of 21<sup>st</sup> May 2016.**

(Ranjeet Singh)  
SCIENTIST 'F'

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 24 (BOB 01/2016)**

Time of issue: 0430hours IST

Dated: 21.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**  
**CHIEF SECRETARY, ASSAM (0361-2260900)**  
**CHIEF SECRETARY, MANIPUR (0385-2452629)**  
**CHIEF SECRETARY, MIZORAM (0389-2322745)**  
**CHIEF SECRETARY, TRIPURA (0381-2324185)**

**Sub: Cyclonic Storm 'ROANU' over northwest Bay of Bengal**

**Cyclone Warning for Odisha & West Bengal coasts (Orange message) and de-warning for Andhra Pradesh coast**

The cyclonic storm 'ROANU' over northwest & adjoining westcentral Bay of Bengal moved east-northeastwards at a speed of 25 kmph during past three hours and lay centred at 0230 hrs IST of 21<sup>th</sup> May, 2016 over northwest Bay of Bengal near latitude 20.3° N and longitude 88.2°E, 160km east of Paradip (Odisha) 230 km south of Kolkata and 435 km southwest of Chittagong (Bangladesh). The system is likely to move east-northeastwards skirting Odisha- West Bengal coast and cross south Bangladesh coast between Khepupara and Cox's Bazar, close to Chittagong in the evening of 21<sup>st</sup> May, as a cyclonic storm.

Forecast track and intensity of the system are given in the table below:

Date/time(IST)	Position (lat. °N/ long. °E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
20-05-2016/0230	20.3/88.2	80-90 gusting to 100	Cyclonic Storm
21-05-2016/0530	20.4/88.2	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1130	21.0/89.6	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1730	21.8/91.5	60-70 gusting to 80	Cyclonic Storm
21-05-2016/2330	22.6/93.3	50-60 gusting to 70	Deep Depression
22-05-2016/0530	23.5/95.2	25-35 gusting to 45	Well-marked low

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls coastal Odisha during next 24 hours and over Gangetic West Bengal during next 36 hours.

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura during next 36 hours

2. **Wind warning:** Wind speed reaching 80-90 kmph gusting to 100 kmph is very likely to prevail along & off Odisha-West Bengal coast during next 24 hours.

Squally wind speed reaching 40-50 kmph gusting to 60 kmph is very likely to prevail over south Assam, Manipur, Mizoram & Tripura commencing from 21<sup>st</sup> afternoon for subsequent 24 hours.

3. **Sea condition along & off Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off Odisha and West Bengal coasts during next 24 hours and become rough to very rough in subsequent 12 hours.

4. **Storm surge warning**

Storm surge of about 0.5 to 1.0 metre would inundate low lying areas of districts of south coastal Odisha during next 12 hours and of about 1-1.5 metre would inundate low lying areas of districts of north coastal Odisha and West Bengal during next 24 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over coastal Odisha and coastal West Bengal during next 24 hours.

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off Odisha and West Bengal coast during next 36 hours.

**The next bulletin will be issued at 0830 hrs IST of 21<sup>st</sup> May 2016.**

(Ranjeet Singh)  
SCIENTIST 'F'

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 25 (BOB 01/2016)**

Time of issue: 0800hours IST

Dated: 21.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**  
**CHIEF SECRETARY, ASSAM (0361-2260900)**  
**CHIEF SECRETARY, MANIPUR (0385-2452629)**  
**CHIEF SECRETARY, MIZORAM (0389-2322745)**  
**CHIEF SECRETARY, TRIPURA (0381-2324185)**

**Sub: Cyclonic Storm 'ROANU' over northwest Bay of Bengal**

**Cyclone Warning for north Odisha & West Bengal coasts (Orange message) and de-warning for south Odisha coast.**

The cyclonic storm '**ROANU**' over northwest Bay of Bengal moved east-northeastwards at a speed of 25 kmph during past six hours and lay centred at 0530 hrs IST of 21<sup>th</sup> May, 2016 over northwest Bay of Bengal near latitude 21.0° N and longitude 89.0°E, about 130 km southeast of Sagar Island (West Bengal), 160km south-southwest of Khepupara (Bangladesh) and 320 km west-southwest of Chittagong (Bangladesh). The system is likely to move east-northeastwards skirting West Bengal coast and cross Bangladesh coast close to Chittagong by evening of today, the 21<sup>st</sup> May 2016 as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
21-05-2016/0530	21.0/89.0	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1130	21.8/90.5	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1730	22.7/92.1	70-80 gusting to 90	Cyclonic Storm
21-05-2016/2330	23.6/93.6	50-60 gusting to 70	Deep Depression
22-05-2016/0530	24.4/95.1	35-45 gusting to 55	Depression
22-05-2016/1130	25.2/96.6	25-35 gusting to 45	Well-marked low

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over coastal districts of north Odisha and Gangetic West Bengal during next 12 hours.

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura during next 24 hours

2. **Wind warning:** Wind speed reaching 80-90 kmph gusting to 100 kmph is very likely to prevail along & off West Bengal coast and 50-60 kmph along and off adjoining districts of north coastal Odisha during next 12 hours.

Squally wind speed reaching 40-50 kmph gusting to 60 kmph is very likely to prevail over south Assam, Manipur, Mizoram & Tripura commencing from 21<sup>st</sup> afternoon for subsequent 24 hours.

3. **Sea condition along & off Odisha and West Bengal coasts:** Sea condition is very likely to be high to very high along & off north Odisha and West Bengal coasts during next 12 hours and become rough to very rough in subsequent 12 hours.

4. **Storm surge warning**

Storm surge of about 1-1.5 metre would inundate low lying areas of coastal districts of West Bengal during next 06 hours.

5. **Damage expected**

Damage to thatched huts, minor damage to power and communication lines and major damage to kutcha and minor damage to pucca roads over coastal districts of West Bengal during next 12 hours.

6. **Action suggested:**

Fishermen are advised not to venture into sea along & off Odisha and West Bengal coast during next 24 hours.

**The next bulletin will be issued at 1130 hrs IST of 21<sup>st</sup> May 2016.**

(M Mohapatra)  
SCIENTIST 'G' and Head, RSMC, New Delhi

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**





India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 26 (BOB 01/2016)**

Time of issue: 1130hours IST

Dated: 21.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**  
**CHIEF SECRETARY, ASSAM (0361-2260900)**  
**CHIEF SECRETARY, MANIPUR (0385-2452629)**  
**CHIEF SECRETARY, MIZORAM (0389-2322745)**  
**CHIEF SECRETARY, TRIPURA (0381-2324185)**

**Sub: Cyclonic Storm 'ROANU' over North Bay of Bengal**

**Cyclone Warning for West Bengal coast (Orange message) and de-warning for Odisha coast.**

The cyclonic storm 'ROANU' over northwest Bay of Bengal moved east-northeastwards at a speed of 40 kmph during past six hours and lay centred at 0830 hrs IST of 21<sup>th</sup> May, 2016 over north Bay of Bengal near latitude 21.5° N and longitude 90.3°E, about 270 km east-southeast of Sagar Island (West Bengal), 55 km south of Khepupara (Bangladesh) and 180 km west-southwest of Chittagong (Bangladesh). The system is likely to move east-northeastwards and cross Bangladesh coast close to Chittagong by evening of today, the 21<sup>st</sup> May 2016 as a cyclonic storm.

Forecast track and intensity of the system are given in the table 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>
21-05-2016/0830	21.5/90.3	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1130	21.9/91.0	80-90 gusting to 100	Cyclonic Storm
21-05-2016/1730	22.5/92.1	70-80 gusting to 90	Cyclonic Storm
21-05-2016/2330	23.2/93.6	50-60 gusting to 70	Deep Depression
22-05-2016/0530	23.9/95.1	35-45 gusting to 55	Depression
22-05-2016/1730	25.2/90.8	20-30 gusting to 40	Low pressure area

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

**Warning:**

1. **Heavy Rainfall Warning:** Rainfall is very likely at most places with heavy to very heavy falls at isolated places over coastal districts of West Bengal during next 12 hours.

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura during next 24 hours

2. **Wind warning:** Wind speed reaching 50-60 kmph gusting to 70 kmph is very likely to prevail along & off West Bengal coast during next 12 hours and decrease thereafter.

Squally wind speed reaching 40-50 kmph gusting to 60 kmph is very likely to prevail over south Assam, Manipur, Mizoram & Tripura during next 24 hours.

3. **Sea condition along & off West Bengal coast:** Sea condition is very likely to be very rough to high during next 6 hours and rough to very rough in subsequent 12 hours.

4. **Action suggested:**

Fishermen are advised not to venture into sea along & off West Bengal coast during next 12 hours.

**The next bulletin will be issued at 1430 hrs IST of 21<sup>st</sup> May 2016.**

(M Mohapatra)  
SCIENTIST 'G' and Head, RSMC, New Delhi

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 27 (BOB 01/2016)**

Time of issue: 1430hours IST

Dated: 21.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**  
**CHIEF SECRETARY, ASSAM (0361-2260900)**  
**CHIEF SECRETARY, MANIPUR (0385-2452629)**  
**CHIEF SECRETARY, MIZORAM (0389-2322745)**  
**CHIEF SECRETARY, TRIPURA (0381-2324185)**

**Sub: Cyclonic Storm 'ROANU' over Northeast Bay of Bengal**

The cyclonic storm 'ROANU' over north Bay of Bengal moved east-northeastwards at a speed of 38 kmph during past six hours and lay centred at 1130 hrs IST of 21<sup>th</sup> May, 2016 over northeast Bay of Bengal near latitude 21.9° N and longitude 91.0°E, about 60 km south of Hatia and 100 km west-southwest of Chittagong (Bangladesh). The system will continue to move east-northeastwards and cross Bangladesh coast close to Chittagong by evening of today, the 21<sup>st</sup> May 2016 as a cyclonic storm.

Forecast track and intensity of the system are given in the table below:

Date/time(IST)	Position (lat. °N/ long. °E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
21-05-2016/1130	21.9/91.0	80-90 gusting to 110	Cyclonic Storm
21-05-2016/1730	22.7/92.4	70-80 gusting to 95	Cyclonic Storm
21-05-2016/2330	23.4/93.9	50-60 gusting to 70	Deep Depression
22-05-2016/0530	24.1/95.4	35-45 gusting to 55	Depression
22-05-2016/1130	24.8/96.9	20-30 gusting to 40	Low pressure area

**Warning:**

- 1. Heavy Rainfall Warning:** Rainfall is very likely at most places with heavy falls at isolated places over coastal districts of West Bengal during next 6 hours.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura during next 24 hours

- 2. Wind warning:** Wind speed reaching 50-60 kmph gusting to 70 kmph is very likely to prevail along & off West Bengal coast during next 6 hours and decrease thereafter.

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is very likely to prevail over Mizoram & Tripura and 40-50 kmph gusting to 60 kmph over south Assam & Tripura during next 12 hours.

- 3. Sea condition along & off West Bengal coast:** Sea condition is very likely to be rough to very rough during next 12 hours.

- 4. Action suggested:**

Fishermen are advised not to venture into sea along & off West Bengal coast during next 12 hours.

**The next bulletin will be issued at 1730 hrs IST of 21<sup>st</sup> May 2016.**

(M Mohapatra)  
SCIENTIST 'G' and Head, RSMC, New Delhi

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 28 (BOB 01/2016)**

Time of issue: 1700hours IST

Dated: 21.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**  
**CHIEF SECRETARY, ASSAM (0361-2260900)**  
**CHIEF SECRETARY, MANIPUR (0385-2452629)**  
**CHIEF SECRETARY, MIZORAM (0389-2322745)**  
**CHIEF SECRETARY, TRIPURA (0381-2324185)**  
**CHIEF SECRETARY, ARUNACHAL PRADESH (0360-2212446)**

**Sub: Cyclonic Storm 'ROANU' crossing Bangladesh coast**

The cyclonic storm 'ROANU' over northeast Bay of Bengal moved east-northeastwards at a speed of 30 kmph during past six hours and lay centred at 1430 hrs IST of 21<sup>th</sup> May, 2016 over northeast Bay of Bengal near latitude 22.5° N and longitude 91.5°E, close to southeast coast of Bangladesh. Latest observations indicate that the cyclonic storm Roanu is in the process of crossing Bangladesh coast close to north of Chittagong. After the completion of landfall, it would continue to move east-northeastwards and weaken gradually into a deep depression by midnight of today and into a depression by early morning of tomorrow, the 22<sup>nd</sup> May 2016.

Forecast track and intensity of the system are given in the table 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>
21-05-2016/1430	22.5/91.5	80-90 gusting to 110	Cyclonic Storm
21-05-2016/1730	23.0/92.2	65-75 gusting to 85	Cyclonic Storm
21-05-2016/2330	24.0/93.5	55-65 gusting to 75	Deep Depression
22-05-2016/0530	25.0/95.0	40-50 gusting to 60	Depression

**Warning:**

**1. Heavy Rainfall Warning:**

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura and Arunachal Pradesh during next 24 hours

- 2. Wind warning:** Wind speed reaching 40-50 kmph gusting to 60 kmph is very likely to prevail along & off West Bengal coast during next 6 hours and decrease thereafter.

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is very likely to prevail over Mizoram & Tripura and 40-50 kmph gusting to 60 kmph over south Assam & Tripura during next 12 hours.

- 3. Sea condition along & off West Bengal coast:** Sea condition is very likely to be rough to very rough during next 12 hours.

- 4. Action suggested:**

Fishermen are advised not to venture into sea along & off West Bengal coast during next 12 hours.

**The next bulletin will be issued at 2030 hrs IST of 21<sup>st</sup> May 2016.**

(M Mohapatra)  
SCIENTIST 'G' and Head, RSMC, New Delhi

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai /ACWC Mumbai/CWC Vishakhapatnam/CWC Bhubaneswar/ CWC Ahmedabad/MC Thiruvananthapuram/ MC Hyderabad.

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 29 (BOB 01/2016)**

Time of issue: 1930 hours IST

Dated: 21.05.2016

**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.23793144)**  
**PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)**  
**SECRETARY, MoES, (Fax No. 24629777)**  
**SECRETARY, DST (Fax No. 26863847/-2418)**  
**H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)**  
**DIRECTOR GENERAL, DOORDARSHAN (23385843)**  
**DIRECTOR GENERAL, AIR (25843825)**  
**PIB MoES (FAX NO. 23389042)**  
**UNI (FAX NO. 23355841)**  
**D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)**  
**DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)**  
**CHIEF SECRETARY, GOVT. OF ANDHRA PRADESH (FAX NO. 040-23453700)**  
**CHIEF SECRETARY, ODISHA (0674-2536660)**  
**CHIEF SECRETARY, WEST BENGAL (033-22144328)**  
**CHIEF SECRETARY, ASSAM (0361-2260900)**  
**CHIEF SECRETARY, MANIPUR (0385-2452629)**  
**CHIEF SECRETARY, MIZORAM (0389-2322745)**  
**CHIEF SECRETARY, TRIPURA (0381-2324185)**  
**CHIEF SECRETARY, ARUNACHAL PRADESH (0360-2212446)**

**Sub: Cyclonic Storm 'ROANU' crossed Bangladesh coast**

The cyclonic storm 'ROANU' over northeast Bay of Bengal moved east-northeastwards, crossed southeast coast of Bangladesh near latitude 22.6° N and longitude 91.6°E around 1530 hrs IST, close to north of Chittagong. The system continued to move east-northeastwards and lay centred at 1730 hrs IST of 21<sup>th</sup> May, 2016 over Bangladesh near latitude 22.8° N and longitude 92.0°E, about 130 km south-southwest of Aizwal and 65 km north-northeast of Chittagong. It would continue to move east-northeastwards and weaken gradually into a deep depression by midnight of today and into a depression by early morning of tomorrow, the 22<sup>nd</sup> May 2016.

Forecast track and intensity of the system are given in the table 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>
21-05-2016/1730	22.8/92.0	65-75 gusting to 85	Cyclonic Storm
21-05-2016/2330	23.7/93.6	55-65 gusting to 75	Deep Depression
22-05-2016/0530	24.4/95.2	40-50 gusting to 60	Depression
22-05-2016/1130	25.1/96.8	20-30 gusting to 40	Low pressure area

**Warning:**

**1. Heavy Rainfall Warning:**

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura and Arunachal Pradesh during next 12 hours

**2. Wind warning:**

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is very likely to prevail over Mizoram & Tripura and 40-50 kmph gusting to 60 kmph over south Assam & Tripura during next 12 hours.

**3. Sea condition along & off West Bengal and Bangladesh coasts:** Sea condition is very likely to be rough to very rough during next 12 hours.

**4. Action suggested:**

Fishermen are advised to be cautious while venturing into sea along & off West Bengal coast during next 12 hours.

**The next bulletin will be issued at 2330 hrs IST of 21<sup>st</sup> May 2016.**

(M Mohapatra)  
SCIENTIST 'G' and Head, RSMC, New Delhi

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai/CWC Vishakhapatnam/CWC Bhubaneswar/RMC Guwahati/Mc Agartala/MC Itanagar

**Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%**  
**Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.**





India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 30 (BOB 01/2016)**

Time of issue: 2330 hours IST

Dated: 21.05.2016

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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, ASSAM (0361-2260900)  
CHIEF SECRETARY, MANIPUR (0385-2452629)  
CHIEF SECRETARY, MIZORAM (0389-2322745)  
CHIEF SECRETARY, TRIPURA (0381-2324185)  
CHIEF SECRETARY, ARUNACHAL PRADESH (0360-2212446)

Sub: Cyclonic Storm 'ROANU' has weakened into Deep Depression over Mizoram

The cyclonic storm 'ROANU' moved east-northeastwards, weakened into a deep depression and lay centered at 2030 hours IST of 21<sup>st</sup> May 2016 over Mizoram near latitude 23.5° N and longitude 93.0° E, about 35 km north-northeast of Aizwal (42727) and 180 km north-northeast of Chittagong (41978). It would move east-northeastwards and weaken further into a depression during next 6 hours. Forecast track and intensity of the system are given in the table below:

Date/time(UTC)	Position (lat. °N/ long. °E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
21-05-2016/2030	23.5/93.0	55-65 gusting to 75	Deep Depression
21-05-2016/2330	24.0/93.7	55-65 gusting to 75	Deep Depression
22-05-2016/0530	25.0/95.2	40-50 gusting to 60	Depression
22-05-2016/1130	26.0/96.7	20-30 gusting to 40	Low pressure area

**Warning:**

**1. Heavy Rainfall Warning:**

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura and Arunachal Pradesh during next 12 hours

**2. Wind warning:**

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is very likely to prevail over Mizoram & Tripura and 40-50 kmph gusting to 60 kmph over south Assam & Tripura during next 12 hours.

**The next bulletin will be issued at 0230 hrs IST of 22<sup>nd</sup> May 2016.**

(SHAMBU RAVINDREN)  
SCIENTIST 'B'

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai/CWC Vishakhapatnam/CWC Bhubaneswar/RMC Guwahati/Mc Agartala/MC Itanagar

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 31 (BOB 01/2016)**

Time of issue: 0230 hours IST

Dated: 22.05.2016

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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, ASSAM (0361-2260900)  
CHIEF SECRETARY, MANIPUR (0385-2452629)  
CHIEF SECRETARY, MIZORAM (0389-2322745)  
CHIEF SECRETARY, TRIPURA (0381-2324185)  
CHIEF SECRETARY, ARUNACHAL PRADESH (0360-2212446)

Sub: The Deep Depression over Mizoram moved east-northeastwards and lay over Manipur

The deep depression over Mizoram moved east-northeastwards, and lay centered at 2330 hours IST of 21<sup>st</sup> May 2016 near latitude 24.0° N and longitude 94.0° E, about 130 km northeast of Aizwal and 85 km south-southeast of Imphal. It would move east-northeastwards and weaken further into a depression during next 6 hours

Forecast track and intensity of the system are given in the table below:

Date/time(UTC)	Position (lat. °N/ long. °E)	Maximum sustained surface wind speed (kmph)	Category of cyclonic Disturbance
21-05-2016/2330	24.0/94.0	55-65 gusting to 75	Deep Depression
22-05-2016/0530	25.0/95.5	40-50 gusting to 60	Depression
22-05-2016/1130	26.0/97.0	20-30 gusting to 40	Low pressure area

**Warning:**

**1. Heavy Rainfall Warning:**

Rainfall is very likely at most places with heavy to very heavy falls at a few places & isolated extremely heavy falls over Mizoram and isolated heavy to very heavy falls over south Assam, Manipur & Tripura and Arunachal Pradesh during next 12 hours

**2. Wind warning:**

Squally wind speed reaching 50-60 kmph gusting to 70 kmph is very likely to prevail over Mizoram & Tripura and 40-50 kmph gusting to 60 kmph over south Assam & Tripura during next 12 hours.

**The next bulletin will be issued at 0830 hrs IST of 22<sup>nd</sup> May 2016.**

(SHAMBU RAVINDREN)  
SCIENTIST 'B'

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai/CWC Vishakhapatnam/CWC Bhubaneswar/RMC Guwahati/Mc Agartala/MC Itanagar

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 32 (BOB 01/2016)**

Time of issue: 0800 hours IST

Dated: 22.05.2016

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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, ASSAM (0361-2260900)  
CHIEF SECRETARY, MANIPUR (0385-2452629)  
CHIEF SECRETARY, MIZORAM (0389-2322745)  
CHIEF SECRETARY, TRIPURA (0381-2324185)  
CHIEF SECRETARY, ARUNACHAL PRADESH (0360-2212446)

**Sub: Depression over Myanmar and adjoining Manipur.**

The deep depression over Mizoram moved east-northeastwards, weakened into a depression, and lay centered at 0530 hours IST of today, the 22<sup>nd</sup> May 2016 over Myanmar and adjoining Manipur near latitude 24.5° N and longitude 94.7° E, about 80 km east-southeast of Imphal. It would move east-northeastwards and weaken further into a well marked low pressure area during next 12 hours.

**Warning:**

**1. Heavy Rainfall Warning:**

Rainfall is likely at many places with isolated heavy falls over Mizoram east Assam, Manipur, Tripura and Arunachal Pradesh during next 12 hours.

**2. Wind warning:**

Squally wind speed reaching 30-40 kmph gusting to 50 kmph is likely to prevail over Mizoram & Manipur during next 6 hours.

**The next bulletin will be issued at 1130 hrs IST of 22<sup>nd</sup> May 2016.**

(SHAMBU RAVINDREN)  
SCIENTIST 'B'

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai/CWC Vishakhapatnam/CWC Bhubaneswar/RMC Guwahati/Mc Agartala/MC Itanagar



India Meteorological Department  
Earth System Science Organisation  
(Ministry of Earth Sciences)

**Bulletin No.: 33 (BOB 01/2016)**

Time of issue: 1030 hours IST

Dated: 22.05.2016

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.23793144)  
PS TO HON'BLE MINISTER FOR S & T AND EARTH SCIENCES (FAX NO.23316745)  
SECRETARY, MoES, (Fax No. 24629777)  
SECRETARY, DST (Fax No. 26863847/-2418)  
H.Q. (INTEGRATED DEFENCE STAFF AND CDS) (FAX NO. 23005137/23005147)  
DIRECTOR GENERAL, DOORDARSHAN (23385843)  
DIRECTOR GENERAL, AIR (25843825)  
PIB MoES (FAX NO. 23389042)  
UNI (FAX NO. 23355841)  
D.G. NATIONAL DISASTER RESPONSE FORCE (NDRF) (FAX No. 26105912)  
DIRECTOR, PUNCTUALITY, INDIAN RAILWAYS (FAX No. 23388503)  
CHIEF SECRETARY, ASSAM (0361-2260900)  
CHIEF SECRETARY, MANIPUR (0385-2452629)  
CHIEF SECRETARY, MIZORAM (0389-2322745)  
CHIEF SECRETARY, TRIPURA (0381-2324185)  
CHIEF SECRETARY, ARUNACHAL PRADESH (0360-2212446)

**Sub: Well marked low pressure area over Myanmar and adjoining Nagaland and Manipur**

The depression over Myanmar and adjoining Manipur weakened into a well marked low pressure area over Myanmar and adjoining Nagaland and Manipur at 0830 hours IST of today, the 22nd May 2016.

Under its influence, rainfall is likely at many places with isolated heavy falls over east Arunachal Pradesh and Nagaland during next 24 hours.

**The is the last bulletin for this system. However regular bulletins will continue from Regional Meteorological Centre Guwahati, Meteorological Centre Agartala and National Weather Forecast Centre, New Delhi**

(M. Mohapatra)  
SCIENTIST 'G' & Head, RSMC New Delhi

Copy to: DDGM (WF) Pune /ACWC Kolkata /ACWC Chennai/CWC Vishakhapatnam/CWC Bhubaneswar/RMC Guwahati/Mc Agartala/MC Itanagar

Spatial rainfall distribution: Isolated: <25%, A few: 26-50%, Many: 51-75%, Most: 76-100%  
Rainfall amount (mm): Heavy rain: 64.5 – 124.4, Very heavy rain: 124.5 – 244.4, Extremely heavy rain: 244.5 or more.