



## REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI SPECIAL TROPICAL WEATHER OUTLOOK

**DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 15.10.2024**

**SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND THE ARABIAN SEA) VALID FOR NEXT 168 HOURS ISSUED AT 0700 UTC OF 15.10.2024 BASED ON 0300 UTC OF 15.10.2024.**

### **BAY OF BENGAL:**

**SUB: WELL MARKED LOW PRESSURE AREA OVER CENTRAL PART OF SOUTH BAY OF BENGAL**

THE WELL MARKED LOW PRESSURE AREA OVER THE CENTRAL PART OF SOUTH BAY OF BENGAL PERSISTED OVER THE SAME REGION AT 0300 UTC OF TODAY, THE 15<sup>TH</sup> OCTOBER 2024.

IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A DEPRESSION OVER SOUTHWEST BAY OF BENGAL DURING NEXT 24 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS NORTH TAMIL NADU, PUDUCHERRY AND ADJOINING SOUTH ANDHRA PRADESH COASTS DURING SUBSEQUENT 24 HOURS.

AT 0300 UTC, INTENSITY OF THE SYSTEM IS CHARACTERISED AS T 1.0. ASSOCIATED SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER WESTCENTRAL AND SOUTH BAY OF BENGAL (MINIMUM CLOUD TOP TEMPERATURE IS MINUS 80-93<sup>0</sup>C).

### **WARNINGS:**

#### **(I) WIND WARNING:**

SQUALLY WEATHER WITH WIND SPEED REACHING 35-45 KMPH GUSTING 55 KMPH IS LIKELY TO PREVAIL OVER SOUTHEAST AND ADJOINING SOUTHWEST & CENTRAL BAY OF BENGAL TILL 1200 UTC OF TODAY, THE 15<sup>TH</sup> OCTOBER. IT IS LIKELY TO INCREASE THEREAFTER BECOMING SQUALLY WIND SPEED REACHING 40-50 KMPH GUSTING TO 60 KMPH OVER SOUTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL AND ALONG & OFF TAMIL NADU, PUDUCHERRY AND SOUTH ANDHRA PRADESH COASTS TILL 17<sup>TH</sup> OCTOBER AND DECREASE GRADUALLY THEREAFTER.

#### **(II) SEA CONDITION:**

MODERATE TO ROUGH SEA CONDITION IS LIKELY TO PREVAIL OVER SOUTHEAST AND ADJOINING SOUTHWEST & CENTRAL BAY OF BENGAL TILL 1200 UTC OF TODAY, THE 15<sup>TH</sup> OCTOBER. IT IS LIKELY TO BECOME ROUGH TO VERY ROUGH SEA CONDITION

THEREAFTER OVER SOUTHWEST & ADJOINING WESTCENTRAL BAY OF BENGAL AND ALONG & OFF TAMIL NADU, PUDUCHERRY AND SOUTH ANDHRA PRADESH COASTS TILL 17<sup>TH</sup> OCTOBER AND IMPROVE GRADUALLY THEREAFTER.

**(III) FISHERMEN WARNING:**

FISHERMEN ARE ADVISED NOT TO VENTURE INTO

- SOUTHEAST AND ADJOINING CENTRAL BAY OF BENGAL ON 15<sup>TH</sup> OCTOBER.
- SOUTHWEST AND ADJOINING WESTCENTRAL BAY OF BENGAL FROM 15<sup>TH</sup> TO 17<sup>TH</sup> OCTOBER.
- FISHERMEN OUT AT SEA ARE ADVISED TO RETURN TO COASTS.

**\*PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION) DURING NEXT 168 HRS**

:

24 HOURS	24-48 HOURS	48-72 HOURS	72-96 HOURS	96-120 HOURS	120-144 HOURS	144-168 HOURS
MOD	HIGH	-	-	NIL	NIL	NIL

**\*NOTE: EVERY 24HR FORECAST IS VALID UPTO 0300 UTC (0830 IST) OF NEXT DAY**

**ARABIAN SEA:**

**SUB: DEPRESSION OVER WESTCENTRAL ARABIAN SEA OFF OMAN COAST**

THE DEPRESSION OVER WESTCENTRAL ARABIAN SEA OFF OMAN COAST MOVED NORTHWESTWARDS WITH A SPEED OF 18 KMPH DURING PAST 6 HOURS, AND LAY CENTRED AT 0300 UTC OF TODAY, THE 15<sup>TH</sup> OCTOBER, 2024 OVER THE SAME REGION NEAR LATITUDE 16.8°N AND LONGITUDE 60.5°E, ABOUT 460 KM SOUTH-SOUTHEAST OF MASIRAH (41288, OMAN), 680 KM EAST OF SALALAH (41316, OMAN) AND 900 KM EAST OF AL GHAI DAH (41398, YEMEN).

IT IS LIKELY TO MOVE NEARLY NORTHWESTWARDS TOWARDS OMAN COAST AND WEAKEN GRADUALLY INTO A WELL-MARKED LOW PRESSURE AREA DURING NEXT 06 HOURS.

LATEST SATELLITE IMAGERY AT 0000 UTC INDICATED THAT THE INTENSITY OF THE SYSTEM IS CHARACTERISED AS T 1.5. ASSOCIATED SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER WESTCENTRAL AND NORTH ARABIAN SEA. MINIMUM CLOUD TOP TEMPERATURE IS MINUS 75-90 DEG CELSIUS.

THE ASSOCIATED ESTIMATED CENTRAL PRESSURE IS 1006 HPA WITH MAXIMUM SUSTAINED WIND SPEED ASSOCIATED WITH THE SYSTEM IS 20 KTS GUSTING TO 30 KTS.

**WARNINGS:**

**(I) WIND WARNING:**

SQUALLY WIND SPEED REACHING 35-45 KMPH GUSTING TO 55 KMPH IS LIKELY TO PREVAIL OVER WESTCENTRAL ARABIAN SEA TILL 1200 UTC 15<sup>TH</sup> AND DECREASE GRADUALLY THEREAFTER.

**(II) SEA CONDITION:**

ROUGH SEA CONDITION IS LIKELY TO PREVAIL ONLY OVER WESTCENTRAL ARABIAN SEA TILL 1200 UTC 15<sup>TH</sup> OCTOBER AND IMPROVE GRADUALLY THEREAFTER.

### **(III) FISHERMEN WARNING:**

FISHERMEN ARE ADVISED NOT VENTURE INTO WESTCENTRAL ARABIAN SEA TILL 0000 UTC OF 16<sup>TH</sup> OCTOBER.

### **REMARKS:**

THE MADDEN-JULIAN OSCILLATION (MJO) IS CURRENTLY IN PHASE 4, WITH AMPLITUDE MORE THAN 1, AND IS EXPECTED TO MOVE ACROSS PHASE 4 DURING NEXT 4 DAYS WITH FURTHER INCREASING AMPLITUDE. THUS, MJO WOULD SUPPORT ENHANCEMENT OF CONVECTIVE ACTIVITY OVER BAY OF BENGAL DURING NEXT 5 DAYS. THE GUIDANCE FROM CICS MODEL INDICATE PRESENCE OF STRONG WESTERLY WINDS (7-9 MPS) OVER SOUTH ARABIAN SEA AND STRONG EASTERLY WINDS (7-9 MPS) OVER CENTRAL ARABIAN SEA ALONGWITH EASTWARD MOVING KELWIN WAVES & MJO AND WESTWARDS MOVING LARGE EQUATORIAL ROSSBY WAVE EXTENDING FROM SOUTH BAY OF BENGAL TO SOUTH ARABIAN SEA DURING NEXT 24 HOURS. THESE FEATURES ARE SUPPORTIVE MAINTAINING CONVECTIVE ACTIVITY OVER THE WESTCENTRAL AS.

SIMILARLY, OVER THE BAY OF BENGAL, CICS BASED FORECAST INDICATES STRONG WESTERLY WINDS (5-7 MPS) OVER SOUTH BOB AND ADJOINING EQUATORIAL INDIAN OCEAN AND STRONG EASTERLY WINDS (5-7 MPS) OVER WESTCENTRAL BAY OF BENGAL. MJO& KELWIN WAVES ALONGWITH ROSSBY WAVES ARE ALSO LIKELY OVER THE BAY OF BENGAL DURING NEXT 8-10 DAYS. THESE FEATURES INDICATE HIGHLY FAVOURABLE ENVIRONMENT FOR CYCLOGENESIS (FORMATION OF DEPRESSION) OVER THE BAY OF BENGAL.

### **BAY OF BENGAL (BOB)**

THE SEA SURFACE TEMPERATURE (SST) IS 29-31°C OVER ENTIRE BOB. THE TROPICAL CYCLONE HEAT POTENTIAL (TCHP) OVER >100 KJ/CM<sup>2</sup> OVER WESTCENTRAL & ADJOINING SOUTHWEST BOB AND SOUTH ANDAMAN SEA, 80-100 KJ/CM<sup>2</sup> OVER SOUTHEAST BOB. A ZONE OF POSITIVE CYCLONIC VORTICITY OF  $100 \times 10^{-5} \text{ S}^{-1}$  IS SEEN OVER SOUTHWEST BOB. POSITIVE LOW-LEVEL CONVERGENCE  $05-10 \times 10^5 \text{ S}^{-1}$  IS SEEN OVER SOUTHWEST BOB AND WESTCENTRAL BOB. POSITIVE UPPER-LEVEL DIVERGENCE IS AROUND  $30 \times 10^{-5} \text{ S}^{-1}$  OVER SOUTHWEST BOB & ADJOINING EQUATORIAL INDIAN OCEAN AND ANOTHER ZONE  $20 \times 10^{-5} \text{ S}^{-1}$  OVER ANDHRA PRADESH. VERTICAL WIND SHEAR (VWS) IS LOW (5-10 KNOTS) OVER CENTRAL AND ADJOINING AREAS OF SOUTH BAY OF BENGAL (OVER THE SYSTEM AREA). UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. THE EAST-SOUTHEASTERLY WINDS PREVAILING OVER SOUTH BAY OF BENGAL ARE INDICATING WEST-NORTHWESTWARDS MOVEMENT OF SYSTEM. MULTI-SATELLITE WINDS INDICATE STRONGER WINDS IN THE SOUTHWEST SECTOR. CURRENT ENVIRONMENTAL FEATURES ARE SUPPORTIVE FOR CYCLOGENESIS (FORMATION OF DEPRESSION) OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL.

IMD GFS INDICATES A LOW PRESSURE OVER SOUTH BOB AT 15/00. TODAY THE FORECAST HAS CHANGED AND IT IS THE SYSTEM TO INTENSIFY INTO A DEPRESSION BY 16/00 AND REACH CHENNAI COAST ON 17/00 UTC. IT IS FURTHER INDICATING EMERGENCE OF SYSTEM INTO EASTCENTRAL AS ON 19TH OCT AND INDICATING THE SYSTEM TO MOVE WEST-NORTHWESTWARDS WITHOUT ANY SIGNIFICANT INTENSIFICATION TILL 22<sup>ND</sup> OCTOBER. NCUM GROUP OF MODELS ARE NOT INDICATING ANY SIGNIFICANT INTENSIFICATION OF SYSTEM. HOWEVER, THIS GROUP IS ALSO

INDICATING MOVEMENT TOWARDS NORTH TAMIL NADU COAST AND EMERGENCE OF THE CYCLONIC CIRCULATION/LOW PRESSURE AREA INTO EASTCENTRAL AS ON 18<sup>TH</sup>. . ECMWF IS INDICATING A LOW PRESSURE AREA ON 15<sup>TH</sup> 0000 UTC AND INDICATING FURTHER INTENSIFICATION INTO A WELL MARKED LOW PRESSURE AREA/DEPRESSION ON 16<sup>TH</sup> OCTOBER. THE MODEL IS INDICATING THE WELL MARKED LOW PRESSURE TO MOVE WEST-NORTHWESTWARDS AND TO CROSS NORTH TAMILNADU-SOUTH ANDHRA PRADESH COAST NEAR 13.1/80.4 ON 17/09 UTC AS A WELL MARKED LOW PRESSURE AREA. IT IS ALSO INDICATING EMERGENCE INTO EASTCENTRAL ARABIAN SEA AROUND 19<sup>TH</sup> OCTOBER AND AND THEN WEST-NORTHWESTWARDS MOVEMENT TOWARDS OMAN COAST WITHOUT SIGNIFICANT INTENSIFICATION. IMD MULTI MODEL ENSEMBLE IS INDICATING NEARLY NORTHWESTWARDS MOVEMENT OF THE SYSTEM TOWARDS CHENNAI AND CROSSING AROUND 17/09 UTC NEAR 13.0/80.3.

### **ARABIAN SEA (AS)**

THE SEA SURFACE TEMPERATURE (SST) IS 28-30°C OVER EASTCENTRAL AS. AROUND 27°C OVER THE WESTCENTRAL AND SOUTHWEST PARTS OF AS. THE TROPICAL CYCLONE HEAT POTENTIAL IS 60-70KJ/CM<sup>2</sup> OVER EASTCENTRAL AS AND IT IS LESS THAN 50 KJ/CM<sup>2</sup> OVER WESTCENTRAL AS & OFF OMAN COAST. TOTAL PRECIPITABLE WATER IMAGERY INDICATES CONTINUOUS WARM MOIST AIR INTRUSION INTO THE CORE. HOWEVER, AS THE SYSTEM ENTERS, WESTCENTRAL AS, COLD DRY AIR INTRUSION WOULD COMMENCE AND TROPICAL CYCLONE HEAT POTENTIAL WOULD ALSO BECOME LESS THAN 50 KJ/CM<sup>2</sup>.

LOW-LEVEL VORTICITY IS AROUND  $50 \times 10^{-5}$  OVER THE SYSTEM AREA WITH VERTICAL EXTENSION UPTO 500 HPA LEVEL. LOW-LEVEL CONVERGENCE IS AROUND  $20 \times 10^{-5} \text{S}^{-1}$  OVER SYSTEM AREA. POSITIVE UPPER-LEVEL DIVERGENCE IS AROUND  $10-20 \times 10^{-5} \text{S}^{-1}$  TO THE NORTHWEST OF SYSTEM AREA. DEEP LAYER WIND SHEAR (VWS) IS MODERATE (15 KNOTS) OVER SYSTEM AREA AND ALONG THE EXPECTED PATH. LOW LEVEL WINDS INDICATE WELL DEFINED CIRCULATION OVER WESTCENTRAL ARABIAN SEA OFF OMAN COAST. MULTI-SATELLITE WINDS INDICATE STRONGER WINDS IN THE NORTHERN SECTOR. THE TOTAL PRECIPITABLE WATER IMAGERY INDICATES DRY COLD AIR INTRUSION INTO THE CORE OF SYSTEM FROM ARABIAN PENINSULAR REGION. UPPER TROPOSPHERIC RIDGE RUNS ALONG 20°N. THE SYSTEM IS LIKELY TO MOVE NEARLY NORTHWESTWARDS UNDER THE INFLUENCE OF SOUTHEASTERLY WINDS PREVAILING OVER THE REGION. VARIOUS ENVIRONMENTAL FEATURES INDICATE MODERATELY FAVOURABLE ENVIRONMENT FOR MAINTENANCE OF INTENSITY OF SYSTEM DURING NEXT 06 HOURS AND WEAKEN GRADUALLY AS IT WILL ENCOUNTER COLDER SEA NEAR OMAN COAST AND DRY AIR INTRUSION INTO THE CORE.

MOST OF THE MODELS ARE INDICATING NEARLY NORTHWESTWARDS MOVEMENT TOWARDS OMAN COAST AS A LOW PRESSURE AREA DURING NEXT 24 HOURS.

CONSIDERING VARIOUS ENVIRONMENTAL FEATURES AND MODEL GUIDANCE, IT IS INFERRED THAT;

THE WELL MARKED LOW PRESSURE AREA OVER THE CENTRAL PART OF SOUTH BAY OF BENGAL PERSISTED OVER THE SAME REGION AT 0300 UTC OF TODAY, THE 15<sup>TH</sup> OCTOBER 2024.

THE WELL MARKED LOW PRESSURE AREA OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND INTENSIFY INTO A

DEPRESSION OVER SOUTHWEST BAY OF BENGAL DURING NEXT 24 HOURS. IT IS LIKELY TO CONTINUE TO MOVE WEST-NORTHWESTWARDS TOWARDS NORTH TAMIL NADU, PUDUCHERRY AND ADJOINING SOUTH ANDHRA PRADESH COASTS DURING SUBSEQUENT 24 HOURS.

THE DEPRESSION OVER WESTCENTRL ARABIAN SEA OFF OMAN COAST IS LIKELY TO MOVE NEARLY NORTHWESTWARDS TOWARDS OMAN COAST AND WEAKEN GRADUALLY INTO A WELL-MARKED LOW PRESSURE AREA DURING NEXT 06 HOURS.

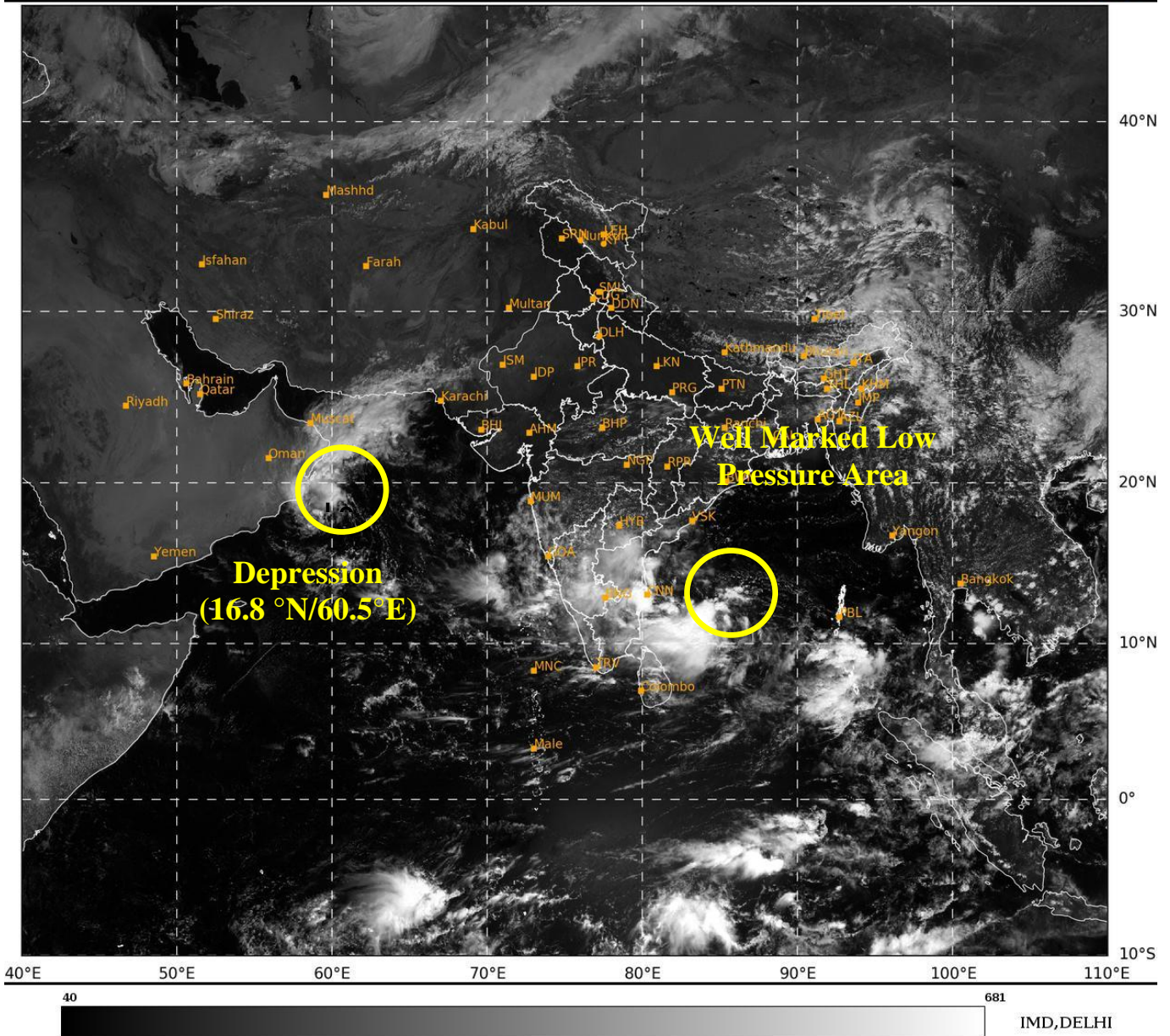
***THE NEXT BULLETIN WILL BE ISSUED AT 0900 UTC BASED ON 0600 UTC OF 15<sup>TH</sup> OCTOBER, 2024.***

(MONICA SHARMA)  
SC. D, RSMC, NEW DELHI

*Copy to: ACWC Kolkata/ACWC Mumbai/ACWC Chennai/CWC Ahmedabad/CWC Bhubaneswar/CWC Vishakhapatnam CWC, Thiruvananthapuram/ MC, Goa*

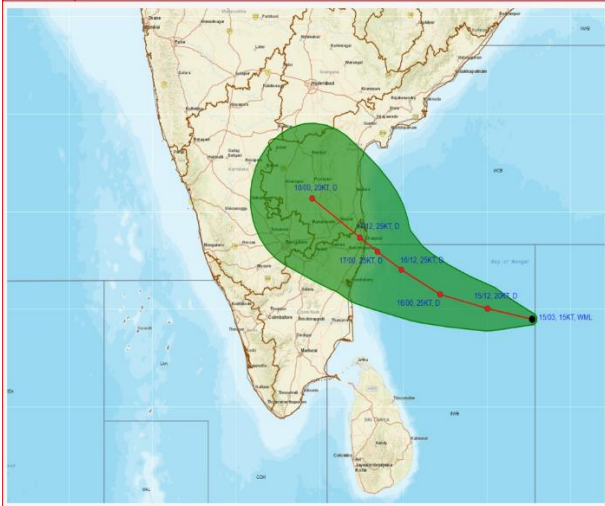
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Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
This is a guidance Bulletin for WMO/ESCAP Panel Member countries. Visit respective National websites for Country specific Bulletins



Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION):NIL: 0%, LOW: 1-33%, , MODERATE: 34-66% AND HIGH: 67-100%  
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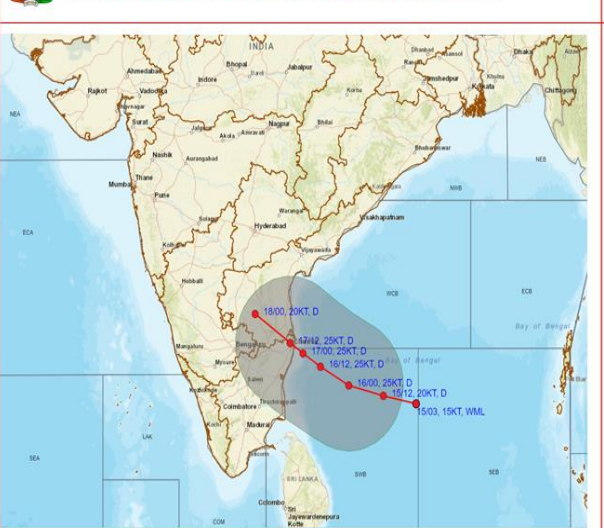
**WELL MARKED LOW PRESSURE AREA OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL BASED ON 0300 UTC (0830 Hrs. IST) OF 15<sup>th</sup> OCTOBER, 2024**



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

● LESS THAN 34 KT  
○ 34-47 KT  
○ ≥ 48 KT  
— OBSERVED TRACK  
— FORECAST TRACK  
■ CONE OF UNCERTAINTY

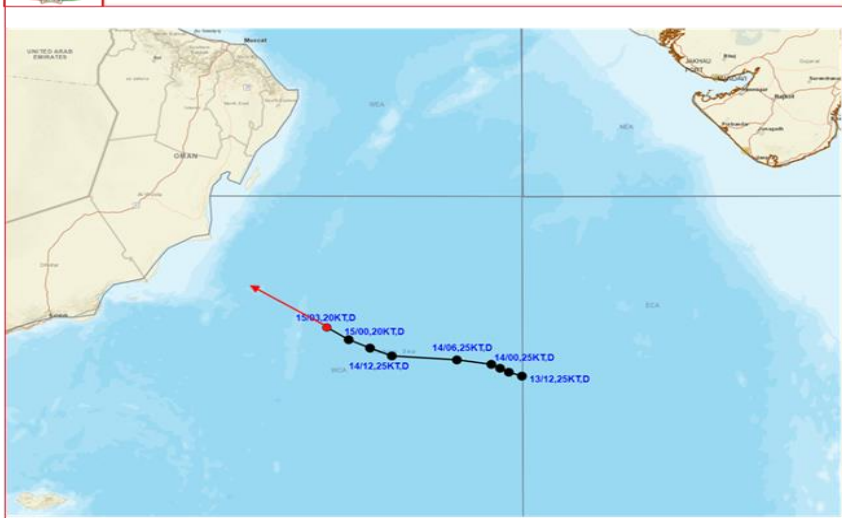
**OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF WELL MARKED LOW PRESSURE AREA OVER CENTRAL PARTS OF SOUTH BAY OF BENGAL BASED ON 0300 UTC (0830 Hrs. IST) OF 15<sup>th</sup> OCTOBER, 2024**



DATE/TIME IN UTC  
IST-UTC + 0530  
L: LOW PRESSURE AREA  
WML: WELL MARKED LOW PRESSURE AREA  
D: DEPRESSION (17-27 KT)  
DD: DEEP DEPRESSION (28-33 KT)  
CS: CYCLONIC STORM (34-47 KT)  
SCS: SEVERE CYCLONIC STORM (48-63KT)

● LESS THAN 34 KT  
○ 34-47 KT  
○ ≥ 48 KT  
— OBSERVED TRACK  
— FORECAST TRACK  
■ CONE OF UNCERTAINTY  
■ AREA OF MAXIMUM SUSTAINED WIND SPEED:  
20-30 KT (35-55 KMPH)

**OBSERVED AND FORECAST TRACK OF DEPRESSION OVER WESTCENTRAL ARABIAN SEA BASED ON 0300 UTC (0830 Hrs. IST) OF 15<sup>th</sup> OCTOBER, 2024**

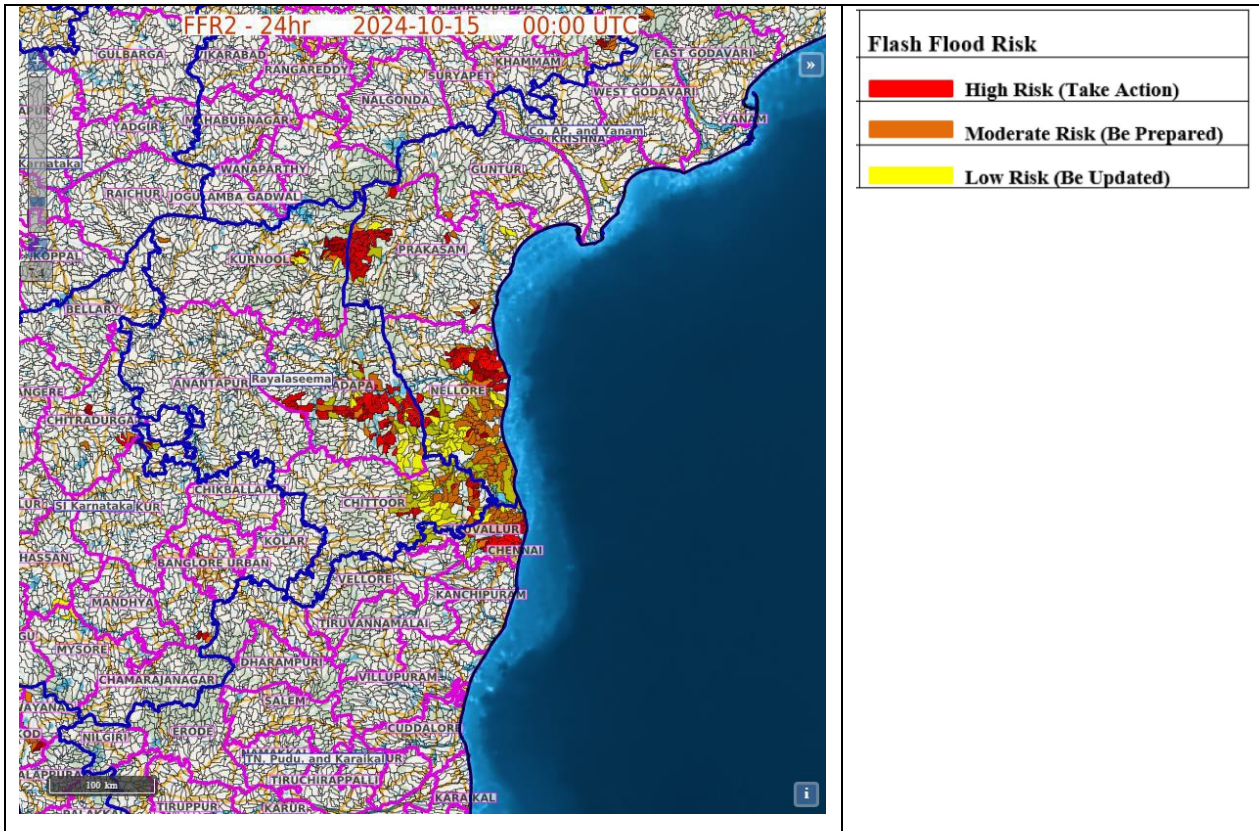


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SCS: SEVERE CYCLONIC STORM (48-63KT)  
VSCS: VERY SEVERE CYCLONIC STORM (64-89 KT)  
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)  
SuCS: SUPER CYCLONIC STORM (≥ 120 KT)

● LESS THAN 34 KT  
○ 34-47 KT  
○ ≥ 48 KT  
— OBSERVED TRACK  
— FORECAST TRACK  
■ CONE OF UNCERTAINTY

Cloud distribution: (a) Isolated: <25%, Scattered:25-50%, Broken: 51-75%, Solid:>75%, Convection Intensity: (a) Weak: Cloud Top Temperature (CTT) >-25°C, (b) Moderate: CTT: - 25°C to -40°C, (c) Intense: CTT: - 41°C to -70°C and (d) Very Intense: : Less than -70°C  
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## FLASH FLOOD GUIDANCE FOR TAMILNADU



**24 hours Outlook for the Flash Flood Risk (FFR) till 0530 IST of 16-10-2024 :**

Low to Moderate flash flood risk likely over few watersheds & neighbourhoods of following Met Sub-divisions during next 24 hours.

**Coastal Andhra Pradesh** – Nellore and Prakasham district

**Rayalaseema** – Kadapa and Chittoor districts

**Tamil Nadu, Puducherry and Karaikal** – Thiruvallur district.

Surface runoff/ Inundation may occur at some fully saturated soils & low-lying areas over area of concern as shown in map due to expected rainfall occurrence in next 24 hours.



## Fishermen Warning Graphics

