





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

**DEMS-RSMC TROPICAL CYCLONES NEW DELHI DATED 29.08.2024** 

SPECIAL TROPICAL WEATHER OUTLOOK FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND THE ARABIAN SEA) VALID FOR NEXT 168 HOURS ISSUED AT 1500 UTC OF 29.08.2024 BASED ON 1200 UTC OF 29.08.2024.

SUB: (A) DEEP DEPRESSION OVER SAURASHTRA & KACHCHH
(B) LOW PRESSURE AREA OVER CENTRAL AND ADJOINING NORTH BAY
OF BENGAL

### (I) ARABIAN SEA:

### (A) DEEP DEPRESSION OVER SAURASHTRA & KACHCHH

THE DEEP DEPRESSION OVER SAURASHTRA & KACHCHH MOVED SLOWLY SOUTHWESTWARDS WITH A SPEED OF 3 KMPH DURING PAST 6 HOURS AND LAY CENTERED AT 1200 UTC OF TODAY, THE 29<sup>TH</sup> AUGUST, 2024 OVER THE SAME REGION NEAR LATITUDE 23.6°N AND LONGITUDE 69.2 °E, 70 KM WEST-NORTHWEST OF BHUJ (GUJARAT), 50 KM NORTHEAST OF NALIYA (GUJARAT) AND 250 KM EAST-SOUTHEAST OF KARACHI (PAKISTAN).

IT IS LIKELY TO MOVE WEST-SOUTHWESTWARDS, EMERGE INTO NORTHEAST ARABIAN SEA OFF KACHCHH AND ADJOINING SAURASHTRA & PAKISTAN COASTS AND INTENSIFY INTO A CYCLONIC STORM ON 30<sup>TH</sup> AUGUST. THEREAFTER, IT WOULD CONTINUE TO MOVE NEARLY WEST-SOUTHWESTWARDS OVER NORTHEAST ARABIAN SEA AWAY FROM INDIAN COAST DURING SUBSEQUENT 2 DAYS.

INSAT 3DR IMAGERY, AT 1200 UTC OF 29<sup>TH</sup> AUGUST SHOWS SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION OVER KATCHCHH, ADJOINING SOUTH PAKISTAN, SAURASHTRA, NORTHEAST ARABIAN SEA, GULF OF KATCHCHH (MINIMUM CTT MINUS 93°C) AND MODERATE TO INTENSE CONVECTION LAY OVER WEST GUJARAT.

ASSOCIATED MAXIMUM SUSTAINED WIND SPEED IS 30 KTS GUSTING TO 40 KTS. ESTIMATED CENTRAL PRESSURE IS 989 HPA. AT 1200 UTC, NALIYA REPORTED MEAN SEA LEVEL PRESSURE OF 991.0 HPA.

Forecast track and intensity are given in the following table:

Date/Time(UTC)	Position (Lat. ⁰N/ long. ºE)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance	
29.08.24/1200	23.6/69.2	50-60 gusting to 70	Deep Depression	
29.08.24/1800	23.5/68.9	50-60 gusting to 70	Deep Depression	
30.08.24/0000	23.5/68.5	55-65 gusting to 75	Deep Depression	

30.08.24/0600	23.6/68.0	60-70 gusting to 80	Cyclonic Storm
30.08.24/1200	23.7/67.5	65-75 gusting to 85	Cyclonic Storm
31.08.24/0000	23.9/66.1	70-80 gusting to 90	Cyclonic Storm
31.08.24/1200	24.0/64.1	65-75 gusting to 85	Cyclonic Storm
01.09.24/0000	23.8/62.3	60-70 gusting to 80	Cyclonic Storm
01.09.24/1200	23.3/61.0	50-60 gusting to 70 Deep Depres	

#### Warnings:

SEA CONDITION AND ADVISORY FOR FISHERMEN IN ASSOCIATION WITH THE MOVEMENT OF THE SYSTEM OVER SAURASHTRA & KUTCH AND ADJOINING PAKISTAN AND NORTHEAST ARABIAN SEA FROM INDIA TILL 01<sup>ST</sup> SEPTEMBER:

### WIND WARNING:

- SQUALLY WIND SPEED REACHING 45-55 KMPH GUSTING TO 65 KMPH IS LIKELY OVER THE DISTRICTS OF SOUTH GUJARAT REGION AND SAURASHTRA & KUTCH ON 29<sup>TH</sup> & 30<sup>TH</sup> AUGUST
- SQUALLY WIND SPEED REACHING 55-65 KMPH GUSTING TO 75 KMPH IS VERY LIKELY TO PREVAIL ALONG & OFF GUJARAT COASTS & ADJOINING PAKISTAN COASTS AND OVER NORTHEAST & ADJOINING EASTCENTRAL ARABIAN SEA DURING 29<sup>TH</sup> TO 31<sup>ST</sup> AUGUST.
- GALE WIND SPEED REACHING 65-75 KMPH GUSTING TO 85 KMPH IS LIKELY TO PREVAIL OVER NORTHEAST ARABIAN SEA OFF GUJARAT AND PAKISTAN COASTS ON 30TH AUGUST, BECOMING 70-80 KMPH GUSTING TO 90 KMPH FROM 31<sup>ST</sup> AUGUST/0000 UTC TILL 1<sup>ST</sup> SEPTEMBER/0000 UTC AND DECREASE GRADUALLY THEREAFTER.
- GALE WIND SPEED REACHING 65-75 KMPH GUSTING TO 85 KMPH IS LIKELY TO PREVAIL OVER NORTHWEST AND ADJOINING WESTCENTRAL ARABIAN SEA OFF PAKISTAN AND SOUTHEAST IRAN COASTS FROM 31<sup>ST</sup> AUGUST TILL 1<sup>ST</sup> SEPTEMBER, MORNING. THEREAFTER, THE WINDS WOULD GRADUALLY DECREASE BECOMING SQUALLY WIND SPEED REACHING 50-60 KMPH GUSTING TO 70 KMPH FROM 1200 UTC OF 1<sup>ST</sup> SEPTEMBER.
- STRONG WIND SPEED REACHING 40-50 KMPH GUSTING TO 60 KMPH IS LIKELY TO PREVAIL ALONG AND OFF NORTH MAHARASHTRA COASTS DURING 29<sup>TH</sup> TO 31<sup>ST</sup> AUGUST.

### **SEA CONDITION:**

- SQUALLY WEATHER WITH ROUGH TO VERY ROUGH SEA CONDITIONS IS VERY LIKELY TO PREVAIL ALONG & OFF GUJARAT & ADJOINING PAKISTAN AND NORTH MAHARASHTRA COASTS TILL 31<sup>ST</sup> AUGUST.
- VERY ROUGH TO HIGH SEA CONDITION IS LIKELY TO PREVAIL OVER NORTHEAST & ADJOINING EASTCENTRAL AND ARABIAN SEA OFF GUJARAT AND PAKISTAN COASTS DURING 30<sup>TH</sup> AUGUST TO 1<sup>ST</sup> SEPTEMBER.
- VERY ROUGH TO HIGH SEA CONDITION IS LIKELY TO PREVAIL OVER NORTHWEST AND ADJOINING WESTCENTRAL ARABIAN SEA OFF PAKISTAN AND SOUTHEAST IRAN COASTS FROM 31<sup>ST</sup> AUGUST TILL 2<sup>ND</sup> SEPTEMBER.

### **FISHERMEN WARNING:**

FISHERMEN ARE ADVISED NOT VENTURE INTO

- ❖ NORTHEAST & ADJOINING EASTCENTRAL ARABIAN SEA AND ALONG & OFF GUJARAT & ADJOINING PAKISTAN AND NORTH MAHARASHTRA COASTS TILL 31<sup>ST</sup> AUGUST.
- ♦ NORTHWEST & ADJOINING WESTCENTRAL ARABIAN SEA AND ALONG & OFF PAKISTAN AND SOUTHEAST IRAN COASTS FROM 31<sup>ST</sup> AUGUST TILL 2<sup>ND</sup> SEPTEMBER.

### **CLOUDS OVER ARABIAN SEA:**

SCATTERED TO BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER NORTHEAST ARABIAN SEA AND GULF OF KATCHCHH. SCATTERED LOW/MEDIUM CLOUDS WITH EMBEDDED MODERATE TO INTENSE CONVECTION OVER CENTRAL AND SOUTHEAST ARABIAN SEA AND WEAK TO MODERATE CONVECTION LAY OVER REST ARABIAN SEA LAKSHADWEEP ISLANDS & COMORIN AREA.

### \*PROBABILITY OF CYCLOGENESIS (FORMATION OF DEPRESSION) DURING NEXT 168 HRS OVER ARABIAN SEA:

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

\*NOTE: EVERY 24HR FORECAST IS VALID UPTO 0300 UTC (0830 IST) OF NEXT DAY (-) INDICATES GENESIS HAS ALREADY OCCURRED.

### (II) BAY OF BENGAL:

(B) LOW PRESSURE AREA OVER CENTRAL AND ADJOINING NORTH BAY OF BENGAL

THE LOW PRESSURE AREA OVER CENTRAL AND ADJOINING NORTH BAY OF BENGAL PERSISTED OVER THE SAME REGION AT 1200 UTC OF TODAY, THE 29TH AUGUST, 2024.

IT IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND BECOME MORE MARKED OVER WESTCENTRAL AND ADJOINING NORTHWEST BAY OF BENGAL BY 30TH AUGUST. THEREAFTER, WHILE MOVING TOWARDS NORTH ANDHRA PRADESH AND ADJOINING SOUTH ODISHA COASTS, IT IS LIKELY TO INTENSIFY INTO A DEPRESSION OVER WESTCENTRAL AND ADJOINING NORTHWEST BAY OF BENGAL DURING SUBSEQUENT 2 DAYS.

### SEA CONDITION AND ADVISORY FOR FISHERMEN IN ASSOCIATION WITH THE MOVEMENT OF THE SYSTEM OVER THE BAY OF BENGAL

#### WIND WARNING:

- SQUALLY WEATHER WITH WIND SPEED REACHING 30-40 KMPH GUSTING TO 50 KMPH IS LIKELY TO PREVAIL OVER WESTCENTRAL AND ADJOINING NORTHWEST BAY OF BENGAL DURING 30<sup>TH</sup> BECOMING 45-55 KMPH GUSTING TO 65 KMPH 31<sup>ST</sup> AUGUST.
- SQUALLY WIND SPEED REACHING 45-55 KMPH GUSTING TO 65 KMPH IS LIKELY TO PREVAIL ALONG & OFF NORTH ANDHRA PRADESH & SOUTH ODISHA COASTS ON 31 AUGUST.

### **SEA CONDITION:**

- ROUGH SEA CONDITION IS VERY LIKELY TO PREVAIL OVER WESTCENTRAL AND ADJOINING NORTHWEST BAY OF BENGAL TILL 31<sup>ST</sup> AUGUST.
- ROUGH SEA CONDITION IS VERY LIKELY TO PREVAIL ALONG & OFF NORTH ANDHRA
  PRADESH & SOUTH ODISHA COASTS ON 31 AUGUST.

#### **FISHERMEN WARNING:**

FISHERMEN ARE ADVISED NOT VENTURE INTO

- NORTHEAST & ADJOINING EASTCENTRAL ARABIAN SEA AND ALONG & OFF GUJARAT
   & ADJOINING PAKISTAN AND NORTH MAHARASHTRA COASTS TILL 31<sup>ST</sup> AUGUST.
- NORTHWEST & ADJOINING WESTCENTRAL ARABIAN SEA AND ALONG & OFF PAKISTAN AND SOUTHEAST IRAN COASTS FROM 31<sup>ST</sup> AUGUST TILL 2<sup>ND</sup> SEPTEMBER.

### ADVISORY FOR OFFSHORE/ONSHORE EXPLORATION AND PRODUCTION (E & P) OPERATORS:

THE SMALL SHIPS AND OFFSHORE -ONSHORE E & P OPERATORS, SHIPPING AND PORT AUTHORITIES ALONG & OFF GUJARAT & NORTH MAHARASHTRA COASTS AND NORTHEAST & ADJOINING EASTCENTRAL ARABIAN SEA ARE ADVISED TO KEEP WATCH ON DEVELOPING WEATHER AND TAKE NECESSARY ACTIONS TILL 30<sup>TH</sup> AUGUST.

SCATTERED LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER CENTRAL & SOUTH BAY OF BENGAL, ANDAMAN SEA. SCATTRED LOW TO MEDIUM CLOUDS WITH ISOLATED MODERATE TO INTENSE CONVECTION LAY OVER NORTH EAST BAY OF BENGAL

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

24	24-48	48-72	72-96	96-120	120-144	144-168
HOURS	HOURS	HOURS	HOURS	HOURS	HOURS	HOURS
-	LOW	MOD	MOD	-	-	-

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

### REMARKS:

THE MADDEN JULIAN OSCILLATION (MJO) INDEX IS CURRENTLY IN PHASE 4 AND WOULD MOVE TO PHASE 5 FROM 30<sup>TH</sup> AUGUST WITH AMPLITUDE GREATER THAN 1. IT WILL MOVE ACROSS THE SAME PHASE DURING NEXT 2 WEEKS WITH AMPLITUDE REMAINING HIGHER THAN 1 THROUGHOUT. MJO PHASE AND AMPLITUDE IS HIGHLY FAVOURABLE FOR ENHANCEMENT OF CONVECTIVE ACTIVITY OVER THE BAY OF BENGAL.

THE NCICS FORECASTS INDICATE MJO WAVE MOVING EASTWARDS AND IS SEEN OVER ENTIRE SOUTH ARABIAN SEA (AS), SOUTHERN PENINSULAR INDIA AND SOUTH BAY OF BENGAL DURING WEEK 1. WESTERLY WINDS (1-3 MPS) OVER SOUTH AS AND HIGHER WINDS (3-5 MPS) OVER SOUTH BOB ALONGWITH STRONG EASTERLY WINDS (3-5 MPS) OVER NORTH BOB AND EASTERN STATES OF INDIA ARE ALSO SEEN DURING WEEK 1. OVER THE EASTERN PARTS OF INDIA ROSSBY ARE ALSO SEEN PROPAGATING WESTWARDS. THESE FEATURES INDICATE A CONDUCIVE ENVIRONMENT FOR CYCLOGENESIS OVER BOB. THE DEEP DEPRESSION OVER THE SAURASHTRA & KACHCHH REGION WILL ALSO GET ENHANCED MOISTURE FEED BACK FROM ARABIAN SEA DURING WEEK 1.

DURING WEEK 2, SIMILAR FEATURES ARE SEEN OVER THE BOB. PRESENCE OF

ROSSBY WAVES, MJO, STRONG WESTERLY WINDS (5-7 MPS) OVER SOUTH BOB AND EASTERLY WINDS (3-5MPS) OVER NORTH BOB AND ADJOINING EASTERN STATES OF INDIA. THESE FEATURES INDICATE FAVOURABLE ENVIRONMENT FOR CYCLOGENESIS OVER THE BOB DURING WEEK 2 AS WELL.

NEUTRAL ENSO CONDITIONS ARE CURRENTLY PREVAILING WITH DECLINING EL NINO OVER CENTRAL PACIFIC. NEUTRAL INDIAN OCEAN DIPOLE CONDITIONS ARE PREVAILING WITH SLIGHT POSITIVE DIPOLE MODE INDEX. THESE FEATURES ARE FAVOURABLE FOR INDIAN SUMMER MONSOON AND MAY SUPPORT DEVELOPMENT OF LOW PRESSURE SYSTEMS OVER BOB DURING BOTH THE WEEKS.

CONSIDERING THE EXISTING ENVIRONMENTAL CONDITIONS, THE SEA SURFACE TEMPERATURE OVER THE BOB IS 28-30°C AND OVER ARABIAN SEA SST IS AROUND 27-28°C. IT IS COLDER (<26°C) OVER WESTCENTRAL AS) AND VERY WARM (>32°C) OVER GULF OF ADEN. TROPICAL CYCLONE HEAT POTENTIAL (TCHP) IS HIGH (>100 KJ/CM²) OVER CENTRAL BOB AND LESS (<50 KJ/CM²) OVER NORTH & ADJOINING CENTRAL AS. SEA CONDITIONS INDICATE THAT THE DEEP DEPRESSION OVER SAURASHTRA & KACHCHH WILL ENCOUNTER COLDER SEA CONDITIONS IN AS AND HENCE WOULD NOT INTENSIFY SIGNIFICANTLY.

THE LOW LEVEL VORTICITY IS 200X10<sup>-5</sup> S<sup>-1</sup> NEAR SYSTEM AREA OVER THE SAURASHTRA & KACHCHH REGION. LOW LEVEL CONVERGENCE IS 20X10<sup>-5</sup> S<sup>-1</sup> OVER SYSTEM CENTRE AND UPPER LEVEL DIVERGENCE IS ALSO 20X10<sup>-5</sup> S<sup>-1</sup> OVER SYSTEM AREA EXTENDING UPTO WESTCENTRAL AS. WIND SHEAR IS MODERATE TO HIGH OVER SAURASHTRA & KACHCHH AND ADJOINING NORTHEAST AS. THESE FEATURES INDICATE THAT THE DEEP DEPRESSION OVER SAURASHTRA & KACHCHH IS IN A MODERATELY FAVOURABLE ENVIRONMENT AND ONLY MARGINAL INTENSIFICATION OF THIS SYSTEM IS LIKELY. THE UPPER TROPOSPHERIC RIDGE IS NEAR 27<sup>0</sup>N IN ASSOCIATION WITH ANTICYCLONIC CIRCULATION OVER COASTAL IRAN. A WESTERLY TROUGH IS APPROACHING THE INDIAN REGION AND IS CURRENTLY EXTENDING UPTO 30<sup>0</sup> N ALONG 60<sup>0</sup> E. THE SYSTEM IS THUS TRACKING SLOWLY NEARLY WEST-SOUTHWESTWARDS.

OVER THE BOB, THE LOW LEVEL VORTICITY IS POSITIVE AND IS AROUND 100X10<sup>-5</sup> S<sup>-1</sup> OVER CENTRAL BOB WITH EXTENSION UPTO MID TROPOSPHERIC LEVELS. LOW LEVEL CONVERGENCE IS 20X10<sup>-5</sup> S<sup>-1</sup> TO THE SOUTH OF LOW PRESSURE AREA AND UPPER LEVEL DIVERGENCE IS ALSO 20X10<sup>-5</sup> S<sup>-1</sup> TO THE SOUTHWEST OF SYSTEM AREA EXTENDING UPTO SOUTHWEST BOB. WIND SHEAR IS LOW TO MODERATE OVER CENTRAL AND NORTH BOB. LOWER LEVEL WINDS INDICATE BROADSCALE CIRCULATION DEVELOPING OVER THE CENTRAL BOB. THESE FEATURES INDICATE A HIGHLY FAVOURABLE ENVIRONMENT FOR DEVELOPMENT OF DEPRESSION OVER THE BOB.

### CONSIDERING ALL THE ABOVE, IT IS INFERRED THAT:

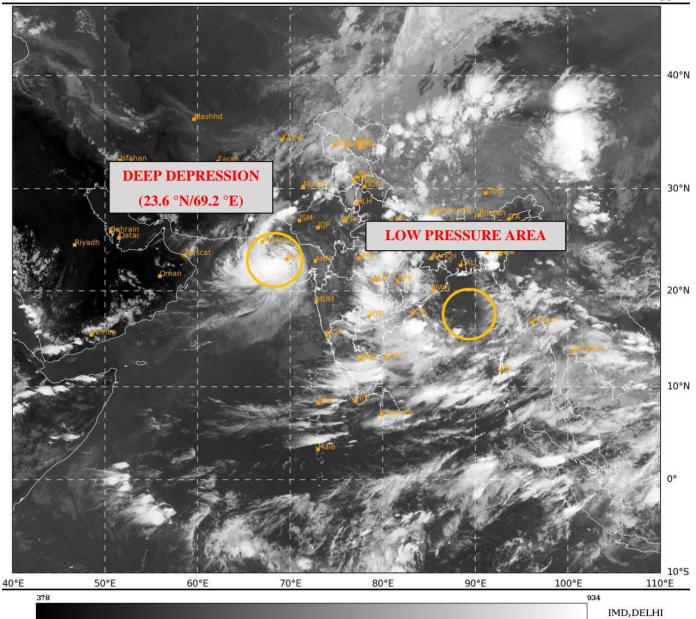
- (i) THE DEEP DEPRESSION OVER SAURASHTRA & KACHCHH IS LIKELY TO MOVE WEST-SOUTHWESTWARDS, EMERGE INTO NORTHEAST ARABIAN SEA OFF KACHCHH AND ADJOINING SAURASHTRA & PAKISTAN COASTS AND INTENSIFY INTO A CYCLONIC STORM ON 30<sup>TH</sup> AUGUST. THEREAFTER, IT WOULD CONTINUE TO MOVE NEARLY WEST-SOUTHWESTWARDS OVER NORTHEAST ARABIAN SEA AWAY FROM INDIAN COAST DURING SUBSEQUENT 2 DAYS.
- (ii) THE LOW PRESSURE AREA OVER CENTRAL AND ADJOINING NORTH BAY OF BENGAL IS LIKELY TO MOVE WEST-NORTHWESTWARDS AND BECOME MORE MARKED OVER

WESTCENTRAL AND ADJOINING NORTHWEST BAY OF BENGAL BY 30<sup>TH</sup> AUGUST. IT IS LIKELY TO MOVE TOWARDS NORTH ANDHRA PRADESH AND ADJOINING SOUTH ODISHA COASTS AND INTENSIFY INTO A DEPRESSION OVER WESTCENTRAL AND ADJOINING NORTHWEST BAY OF BENGAL BY 1<sup>ST</sup> SEPTEMBER.

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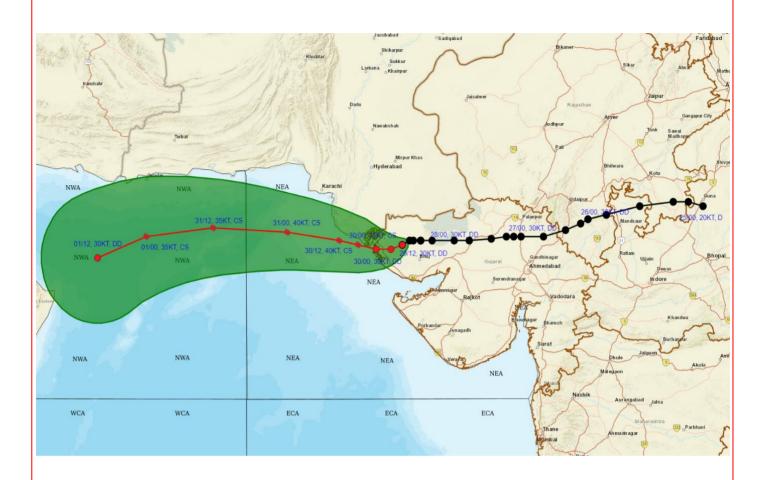
(M SHARMA) SCIENTIST-D RSMC NEW DELHI







# OBSERVED AND FORECAST TRACK OF DEEP DEPRESSION OVER SAURASHTRA & KACHCHH BASED ON 1200 UTC (1730 IST) OF 29<sup>TH</sup> AUGUST, 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)

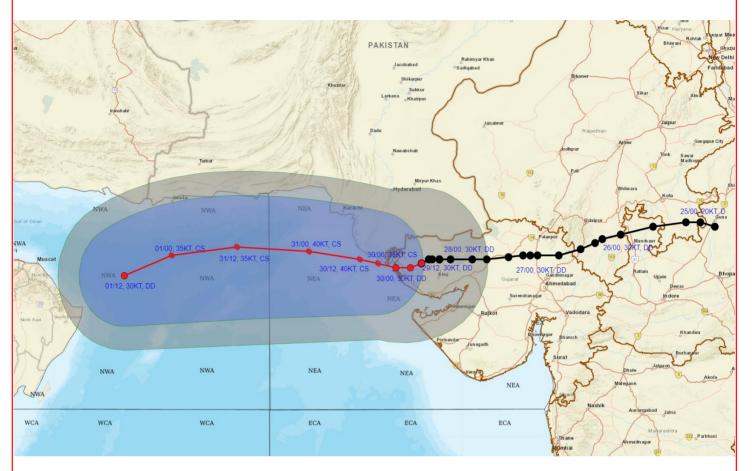
ESCS: EXTREMELY SEVERE CYCLONIC STORM (90-119 KT)

Sucs: SUPER CYCLONIC STORM @ 120 KT)





### OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF DEEP DEPRESSION OVER SAURASHTRA & KACHCHH BASED ON 1200 UTC(1730 IST) OF 29<sup>TH</sup> AUGUST, 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 AREA OF MAXIMUM SUSTAINED WIND SPEED: 28-33 KT (52-61 KMPH) 34-49 KT (62-91 KMPH) 50-63 KT (92-117 KMPH) ≥ 64 KT (≥118 KMPH)

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





