



Government of India
Ministry of Earth Sciences
Earth System Science Organisation



Earth System Science Organisation
India Meteorological Department

PRESS RELEASE- 9

Time of issue: 1200 hours IST

Dated: 10-12-2019

Sub: Depression over southwest Arabian Sea

Yesterday's deep depression over southwest Arabian Sea moved westwards and weakened into a depression over the same region in the evening (1730 hrs IST of 9th December). Continuing to move westwards, it lay centered at 0830 hrs IST of today, the 10th December, 2019, over southwest Arabian Sea near latitude 10.6°N and longitude 55.2°E, about 270 km southeast of Socotra Island (Yemen) and 2300 km west-northwest of Kochi (Kerala).

It is very likely to move nearly westwards and weaken gradually into a well marked low pressure area during next 12 hours.

Forecast track and intensity are given in the following table:

Date/Time(IST)	Position (Lat.°N/ Long. °E)	Maximum sustained surface wind speed (Kmph)	Category of cyclonic disturbance
10.12.19/0830	10.6/55.2	40-50 gusting to 60	Depression
10.12.19/1130	10.6/54.7	35-45 gusting to 55	Depression
10.12.19/1730	10.5/54.1	25-35 gusting to 45	Well Marked Low

Warnings:

(i) Wind warning

- Squally weather (wind speed 40-50 kmph gusting to 60 kmph) is very likely to prevail over westcentral & adjoining southwest Arabian Sea during next 12 hours and decrease gradually thereafter.

(ii) Sea condition

- The Sea condition is very likely to be rough to very rough over westcentral and adjoining southwest Arabian Sea during next 12 hours and improve gradually thereafter.

(iii) Fishermen Warning

- The fishermen are advised not to venture into westcentral and adjoining southwest Arabian Sea during next 12 hours.

The system over southwest Arabian Sea is under continuous watch and the concerned disaster management authorities are being informed regularly.

The salient features of the climatology of cyclonic disturbances over the north Indian Ocean vis-a-vis the enhanced cyclonic activity during 2019 and the possible causes of enhanced activity over Arabian Sea are discussed in Annexure-1.

Kindly visit www.imd.gov.in, www.rsmcnewdelhi.imd.gov.in and www.mausam.imd.gov.in for updates on the system.

Contact: Cyclone Warning Division, Office of the Director General of Meteorology,
India Meteorological Department, Ministry of Earth Sciences.

Phone: (91) 11-24652484, FAX: (91) 11-24643128, 24623220, E-mail: cwdhq2008@gmail.com, Website: rsmcnewdelhi.imd.gov.in

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

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

Annexure1

The salient features of the climatology of cyclonic disturbances over the north Indian Ocean vis-a-vis the enhanced cyclonic activity during 2019 and the possible causes of enhanced activity over Arabian Sea

1. So far 12 cyclonic disturbances (CDs) developed over the north Indian Ocean (NIO) including 4 over the Bay of Bengal (BoB) and 8 over the Arabian Sea (AS) during the year 2019 against the normal of 12 CDs per year over the NIO.

2. The maximum of 18 CDs have been observed in a year over the north Indian Ocean during 1925 and 1975. Thus the current frequency of 12 CDs is still less than the maximum.

3. Year 2019 witnessed 8 cyclones (3 over BoB and 5 over AS) and 4 depressions/deep depressions (1 over BoB and 3 over AS). Out of 5 cyclones over the AS, 4 were severe & above intensity cyclones and out of 3 cyclones over BoB, 2 were severe & above intensity cyclones.

4. The maximum number of 10 cyclones developed over the north Indian Ocean during 1893 and 1930. The maximum number of 5 cyclones with 4 severe cyclones developed over Arabian Sea during 1902. Thus, the frequency of cyclones over north Indian Ocean during 2019 is still less than the maximum of 10 cyclones observed in past. The frequency of cyclones and severe cyclones over the Arabian Sea during the year 2019 as a whole matches the frequency during 1902.

5. Details of these CDs over the north Indian Ocean are listed below:

- i. Cyclonic Storm PABUK over Andaman Sea during 04-08 January
- ii. Extremely severe cyclonic storm FANI over the Bengal during 26 April-04 May
- iii. Very severe cyclonic storm VAYU over the Arabian Sea during 10-17 June
- iv. Deep depression over the Bay of Bengal during 06-12 August
- v. Very severe cyclonic storm HIKAA over the Arabian Sea during 22-25 September
- vi. Depression over the Arabian Sea during 29 September-01 October
- vii. Super Cyclonic Storm KYARR over eastcentral Arabian Sea during 24 Oct.-02 Nov.
- viii. Extremely Severe Cyclonic Storm MAHA over the Arabian Sea during 30 Oct.-07 Nov.
- ix. VSCS BULBUL over the Bay of Bengal during 05-11 November
- x. Cyclonic Storm PAWAN over the southwest Arabian Sea during 02-07 December
- xi. Deep depression over eastcentral Arabian Sea during 03-05 December
- xii. Depression over southwest Arabian Sea during 08 December-till date

6. Thus, the Arabian Sea has been more active during 2019 with the formation of 8 CDs against the normal of 1.7 CDs per year. Similarly, 5 cyclones have developed over Arabian

Sea during 2019 against the normal of 1 per year. Considering the past data (1891-2018), the maximum of 6 CDs developed over the Arabian Sea in the year 1998 & 5 cyclones in 1902. Thus, the frequency of CDs over the Arabian Sea during 2019 so far exceeds previous record in 1998 and frequency of cyclones so far equals the previous record of 1902.

7. The year 2019 also witnessed development of more intense cyclones over the Arabian Sea, as out of 5 cyclones, there have been 1 super cyclonic storm (Kyarr), 1 extremely severe cyclonic storm (Maha), 2 very severe cyclonic storms (Vayu, Hikaa), and 1 cyclonic storm (Pawan).

8. The activity over the Bay of Bengal has been subdued this year as compared to Arabian Sea with the formation of only 3 cyclones (Pabuk, Fani, Bulbul) against the normal of 4 per year. Out of these, there were two severe cyclones (Fani & Bulbul) against the normal of 2 per year.

9. Comparing the post and pre-monsoon cyclone seasons, the post-monsoon cyclone season has been more active over the Arabian Sea and subdued over the Bay of Bengal with the formation of 5 CDs over the Arabian Sea against normal of 0.8 per year. The BoB witnessed development of 1 CD against normal of 3.5 per year during post monsoon season. Three cyclones formed over the AS against normal of 0.6 per year and 1 cyclone over the BOB against normal of 2.1 per year.

10. Thus, the frequency of CDs observed over the Arabian Sea during 2019 post monsoon season exceeds the past record of 1982 and 2011 when 4 CDs developed in the post monsoon season. It equals the past record of 1902 post monsoon season with formation of 3 cyclones including 2 severe cyclones.

11. Possible causes of enhanced cyclonic activity over the Arabian Sea during the post monsoon season (October-December), 2019:

Based on preliminary analysis, the enhanced cyclonic activity as mentioned under SN 9 above may be attributed to the following factors:

- (i) The above normal sea surface temperatures (SST) and favourable vertical wind shear between upper and lower tropospheric levels
- (ii) The positive Indian Ocean Dipole (IOD) over Equatorial Indian Ocean (EIO) (i.e. warmer SST over the west EIO near Somalia coast and relatively colder SST over east EIO near Indonesia). The positive IOD is favourable for enhancing the convective activity and the lower level convergence of winds over the Arabian Sea.
- (iii) Favourable Madden Julian Oscillation (MJO) prevailed with the enhanced phase of convection lying over the west EIO and adjoining Arabian Sea. Climatologically, about 60% of the genesis can be attributed to favourable MJO conditions.
- (iv) The active northeast monsoon conditions prevailed during the season leading to seasonally excess rainfall activity over India as on date. The active northeast monsoon conditions help in increasing the moisture upto middle troposphere over the Arabian Sea. Also, the atmosphere becomes more unstable over the Arabian Sea.

Contact: Cyclone Warning Division, Office of the Director General of Meteorology,
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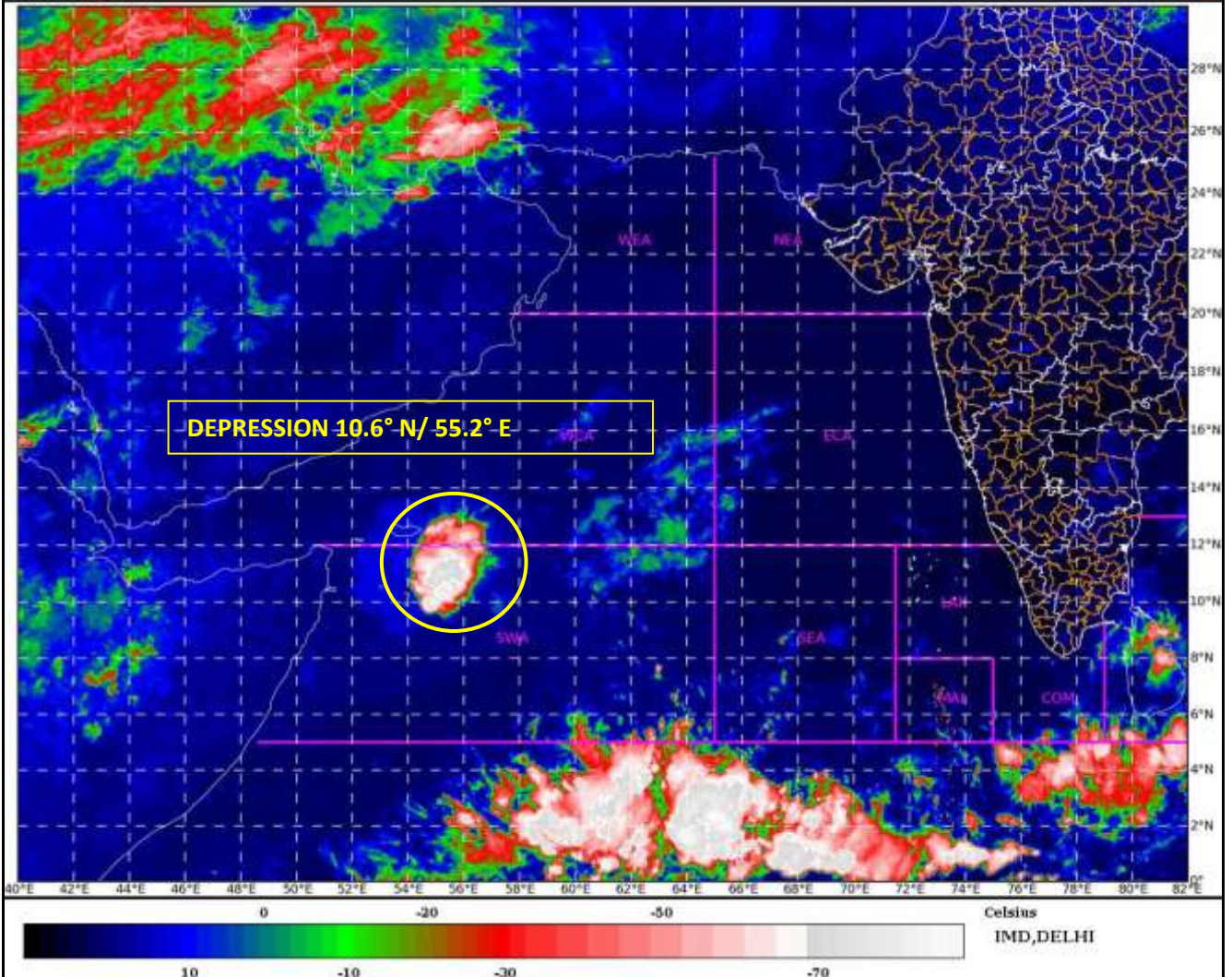
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SAT : INSAT-3D IMG
IMG_TIR1_TEMP 10.8 um
ARABIAN SEA

10-12-2019(0430 to 0457) GMT
10-12-2019(1000 to 1027) IST

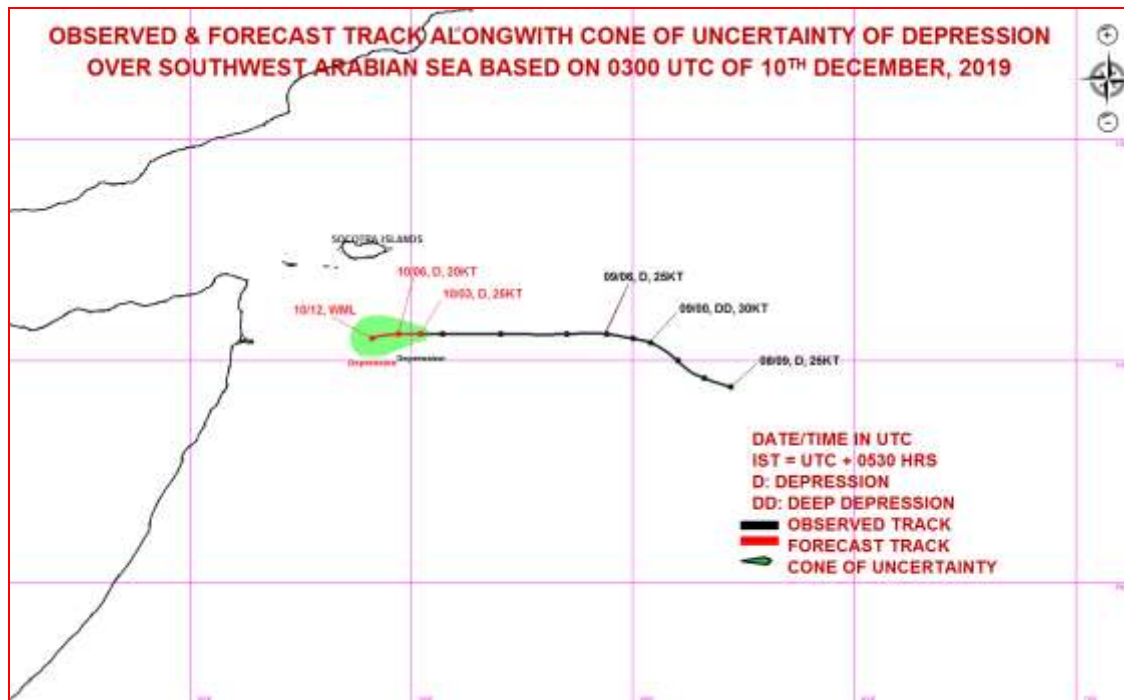


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