



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI TROPICAL  
TROPICAL CYCLONE ADVISORY BULLETIN NO. 15**

**FROM: RSMC –TROPICAL CYCLONES, NEW DELHI**

**TO: STORM WARNING CENTRE, NAYPYI TAW (MYANMAR)  
STORM WARNING CENTRE, BANGKOK (THAILAND)  
STORM WARNING CENTRE, COLOMBO (SRILANKA)  
STORM WARNING CENTRE, DHAKA (BANGLADESH)  
STORM WARNING CENTRE, KARACHI (PAKISTAN)  
METEOROLOGICAL OFFICE, MALE (MALDIVES)  
OMAN METEOROLOGICAL DEPARTMENT, MUSCAT (THROUGH RTH JEDDAH)  
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH)  
YEMEN METEOROLOGICAL SERVICES, REPUBLIC OF YEMEN (THROUGH RTH JEDDAH) NATIONAL  
CENTRE FOR METEOROLOGY, UAE (THROUGH RTH JEDDAH)  
PRESIDENCY OF METEOROLOGY AND ENVIRONMENT, SAUDI ARABIA (THROUGH RTH JEDDAH)  
IRAN METEOROLOGICAL ORGANISATION, (THROUGH RTH JEDDAH)  
QATAR METEOROLOGICAL DEPARTMENT (THROUGH RTH JEDDAH)**

**TROPICAL CYCLONE ADVISORY NO. 15 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND  
ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 2100 UTC OF 02.10.2021 BASED ON 1800  
UTC OF 02.10.2021.**

**SUB: SEVERE CYCLONIC STORM ‘SHAHEEN’ OVER NORTHWEST ARABIAN SEA AND  
ADJOINING GULF OF OMAN**

THE **SEVERE CYCLONIC STORM ‘SHAHEEN’** OVER NORTHWEST ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF ABOUT 16 KMPH, DURING PAST 6 HOURS, LAY CENTRED AT 1800 UTC OF 2<sup>ND</sup> OCTOBER, 2021 OVER NORTHWEST ARABIAN SEA AND ADJOINING GULF OF OMAN, NEAR LATITUDE 24.4°N AND LONGITUDE 60.0°E, ABOUT 950 KM WEST-NORTHWEST OF DEVBHOO MI DWARKA (42731), 110 KM NEARLY TO THE SOUTH-SOUTHWEST OF CHABA HAR PORT (40898) AND 180 KM EAST-NORTHEAST OF MUSCAT (41278).

THE SYSTEM IS VERY LIKELY TO MOVE NEARLY WESTWARDS SKIRTING MAKRAN COAST DURING NEXT 06 HOURS. THEREAFTER, IT IS LIKELY TO RE-CURVE WEST-SOUTHWESTWARDS, MOVE TOWARDS OMAN COAST ACROSS GULF OF OMAN AND WEAKEN GRADUALLY. IT IS VERY LIKELY TO CROSS OMAN COAST BETWEEN LONG.56°E & 58°E, AROUND 57°E, DURING EARLY HOURS OF 4<sup>TH</sup> OCTOBER 2021, AS A CYCLONIC STORM WITH A MAXIMUM SUSTAINED WIND SPEED OF 80 – 90 KMPH GUSTING TO 100 KMPH

FORECAST TRACK AND INTENSITY ARE GIVEN IN THE FOLLOWING TABLE:

<b>DATE/TIME (UTC)</b>	<b>POSITION (LAT. °N/ LONG. °E)</b>	<b>MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)</b>	<b>CATEGORY OF CYCLONIC DISTURBANCE</b>
02.10.21/1800	24.4/60.0	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
03.10.21/0000	24.3/59.5	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
03.10.21/0600	24.2/58.9	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
03.10.21/1200	24.1/58.3	95-105 GUSTING TO 115	SEVERE CYCLONIC STORM
03.10.21/1800	24.0/57.6	80-90 GUSTING TO 100	CYCLONIC STORM
04.10.21/0600	23.8/56.6	50-60 GUSTING TO 70	DEEP DEPRESSION
04.10.21/1800	23.3/55.4	30-40 GUSTING TO 50	DEPRESSION

AS PER INSAT-3D IMAGERY AT 1600 UTC, RAGGED EYE IS OBSERVED. MINIMUM CLOUD TOP TEMPERATURE IS  $-93^{\circ}\text{C}$ . INTENSITY OF THE SYSTEM IS CATEGORISED AS T 3.5. BROKEN LOW AND MEDIUM CLOUDS WITH EMBEDDED INTENSE TO VERY INTENSE CONVECTION LAY OVER ARABIAN SEA AREA BETWEEN LATITUDE  $21.5\text{N}$  &  $25.0\text{N}$  AND LONGITUDE  $60.0\text{E}$  &  $63.5\text{E}$  AND MAKRAN COAST.

AS PER SURFACE OBSERVATIONS AT 1800 UTC CHABAHAR(40898) REPORTED MSLP OF 1005.9 HPA & WIND 25KTS/ $70^{\circ}$  AND JASK (40893) REPORTED MSLP OF 1002.5 HPA & WIND 12KTS/ $130^{\circ}$ .

THE ESTIMATED MAXIMUM SUSTAINED WIND SPEED IS 60 KNOTS GUSTING TO 70 KNOTS. THE SEA CONDITION IS HIGH TO VERY HIGH OVER THE SYSTEM AREA. THE ESTIMATED CENTRAL PRESSURE IS 986 HPA.

**STORM SURGE GUIDANCE:** STORM SURGE OF HEIGHT ABOUT 1M ABOVE THE ASTRONOMICAL TIDE IS LIKELY TO INUNDATE THE LOW LYING AREAS OF COASTAL OMAN AT THE TIME OF LANDFALL (MODEL OUTPUT GRAPHICS ATTACHED).

#### REMARKS:

SEA SURFACE TEMPERATURE (SST) IS ABOUT  $28-29^{\circ}\text{C}$  OVER NORTHWEST ARABIAN SEA. HOWEVER, A WARM TONGUE OF SST ( $29-30^{\circ}\text{C}$ ) PREVAILS OVER GULF OF OMAN. TROPICAL CYCLONE HEAT POTENTIAL (TCHP) IS ABOUT  $60-70\text{ KJ}/\text{CM}^2$  OVER NORTHWEST ARABIAN SEA AND ADJOINING GULF OF OMAN. POSITIVE VORTICITY IS ABOUT  $200 \times 10^{-6}\text{S}^{-1}$  TO THE SOUTHWEST SECTOR OF THE SYSTEM WITH VERTICAL EXTENSION UPTO 200 HPA. POSITIVE LOWER LEVEL CONVERGENCE IS AROUND  $20 \times 10^{-5}\text{S}^{-1}$  AND UPPER LEVEL DIVERGENCE IS ABOUT  $30 \times 10^{-5}\text{S}^{-1}$  SOUTH OF THE SYSTEM CENTER. STRONG EQUATORWARD OUTFLOW IS ALSO SEEN IN THE UPPER LEVEL. LOW LEVEL VERTICAL WIND SHEAR (VWS) OF 10-15 KTS IS PREVAILING AROUND THE SYSTEM CENTRE AND ALONG THE FORECAST TRACK OVER ENTIRE GULF OF OMAN. DECREASING SHEAR TENDENCY PREVAILS OVER THE GULF OF OMAN AND OVER THE OMAN COAST.

AS PER SATELLITE WATER VAPOUR IMAGERIES, THE DRY AIR INTRUSION TAKING PLACE SINCE MORNING HOURS OF  $02^{\text{ND}}$  OCTOBER HAS CEASED, CURRENTLY NO DRY AIR INTRUSION IS BEING OBSERVED AND THE SYSTEM IS UNDER FAVOURABLE ENVIRONMENT OF WARM MOIST AIR. OTHER DYNAMIC & THERMODYNAMIC PARAMETERS INCLUDING WARM SEA, LOW VERTICAL WIND SHEAR, STRONG EQUATORWARD OUTFLOW ARE FAVOURABLE FOR THE SYSTEM TO MAINTAIN ITS INTENSITY DURING NEXT 06 HOURS. THEREAFTER, THE SYSTEM WILL BEGIN TO WEAKEN GRADUALLY AS THE SYSTEM WILL MOVE WEST-SOUTHWESTWARDS. THE EAST-SOUTHEASTERLY WINDS IN THE MIDDLE & UPPER TROPOSPHERIC LEVELS IN ASSOCIATION WITH AN ANTICYCLONE OVER WESTERN PARTS OF INDIA, WILL STEER THE SYSTEM WEST-NORTHWESTWARDS DURING NEXT 12 HOURS. THEREAFTER, THE SYSTEM WILL BE STEERED WEST-SOUTHWESTWARDS GRADUALLY UNDER THE INFLUENCE OF EAST-NORTHEASTERLY WINDS IN THE PERIPHERY OF ANOTHER ANTICYCLONE OVER IRAN.

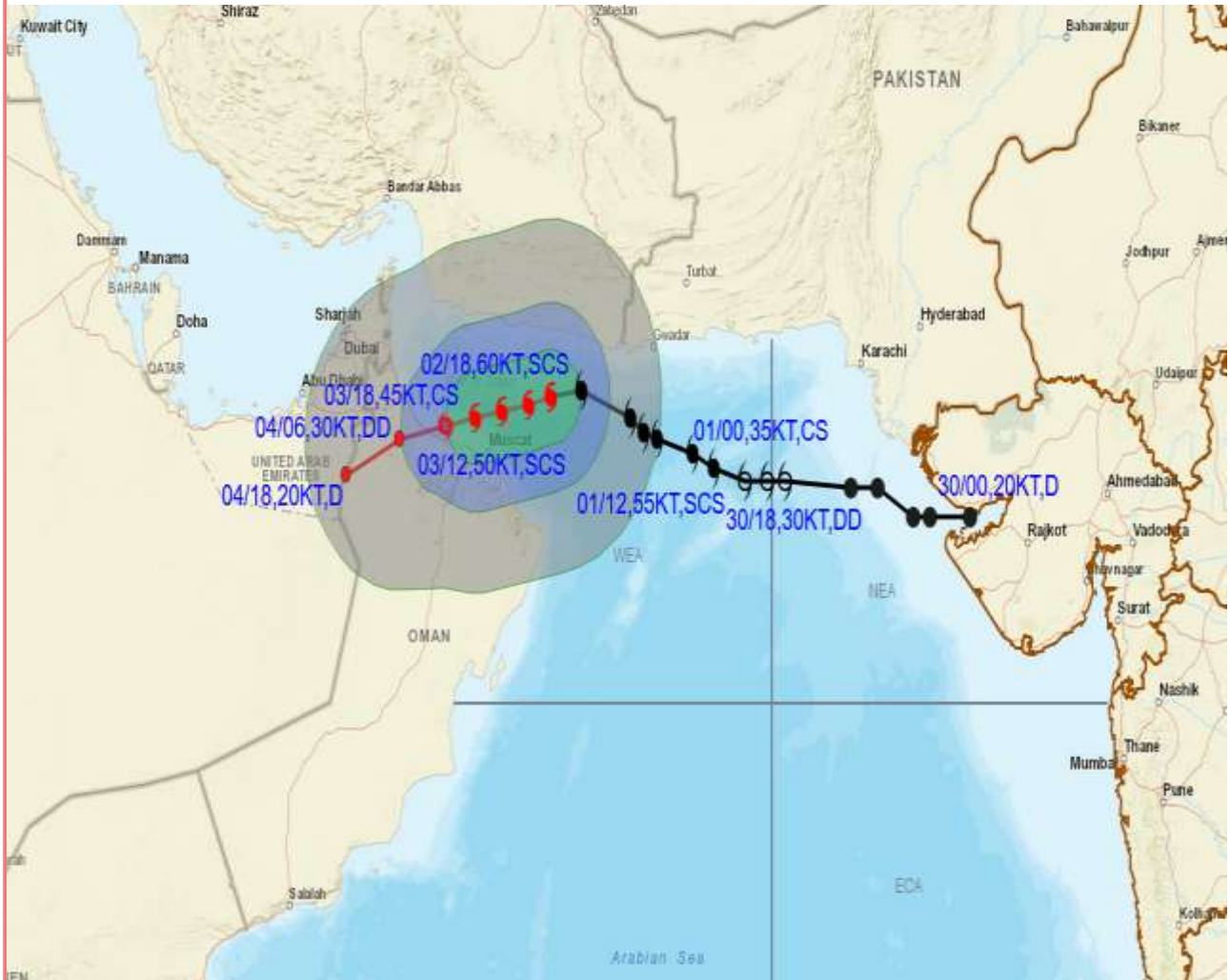
MOST OF THE MODELS ARE INDICATING THAT THE SYSTEM WOULD MOVE WEST-NORTHWESTWARDS FOR SOME MORE TIME, RECURVE WEST-SOUTHWESTWARDS, WEAKEN GRADUALLY AND CROSS NORTH OMAN COAST AROUND  $4^{\text{TH}}$  EARLY MORNING (0000 UTC).

**HENCE IT IS CONCLUDED THAT, SEVERE CYCLONIC STORM "SHAHEEN" WOULD MAINTAIN ITS INTENSITY AND MOVE NEARLY WESTWARDS SKIRTING MAKRAN COAST DURING NEXT 06 HOURS. THEREAFTER, IT IS LIKELY TO RE-CURVE WEST-SOUTHWESTWARDS, WEAKEN GRADUALLY AND MOVE ACROSS GULF OF OMAN AND CROSS NORTH OMAN COAST AROUND LONG.  $57^{\circ}\text{E}$  DURING 2100 UTC OF  $3^{\text{RD}}$  OCTOBER – 0000 UTC OF  $4^{\text{TH}}$  OCTOBER AS A CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 80-90 KMPH GUSTING TO 100 KMPH.**

(ANANDA KUMAR DAS )  
SCIENTIST-E, RSMC, NEW DELHI



## OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM “SHAHEEN” OVER NORTHWEST ARABIAN SEA AND ADJOINING GULF OF OMAN BASED ON 1800 UTC OF 2<sup>ND</sup> OCTOBER, 2021



**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)

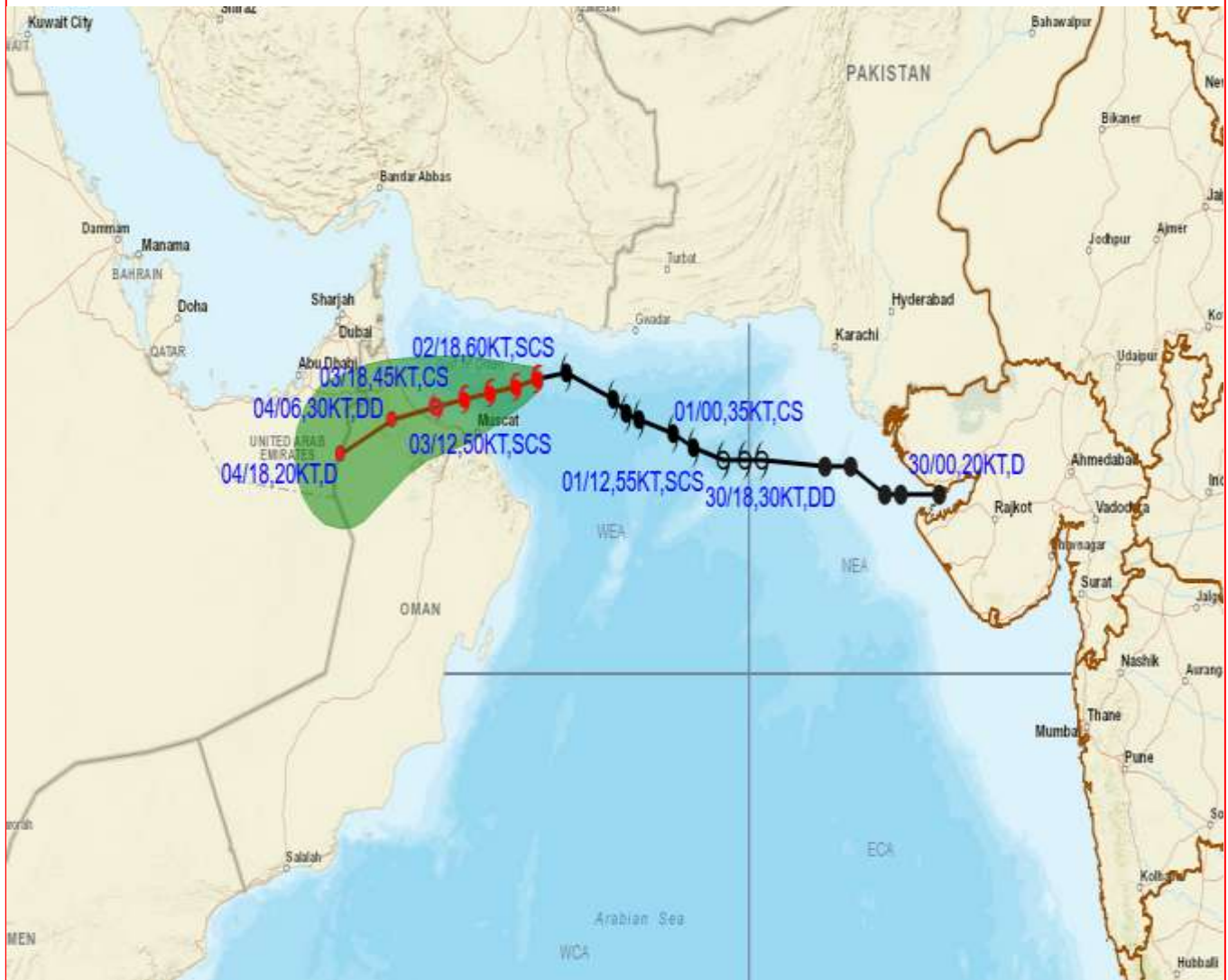
● LESS THAN 34 KT  
 ○ 34-47 KT  
 ● ≥ 48 KT  
 — OBSERVED TRACK  
 — FORECAST TRACK  
 ● CONE OF UNCERTAINTY  
**AREA OF MAXIMUM SUSTAINED WIND SPEED:**  
 ■ 28-33 KT (52-61 KMPH)  
 ■ 34-49 KT (62-91 KMPH)  
 ■ 50-63 KT (92-117 KMPH)  
 ■ ≥ 64 KT (≥118 KMPH)

### 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

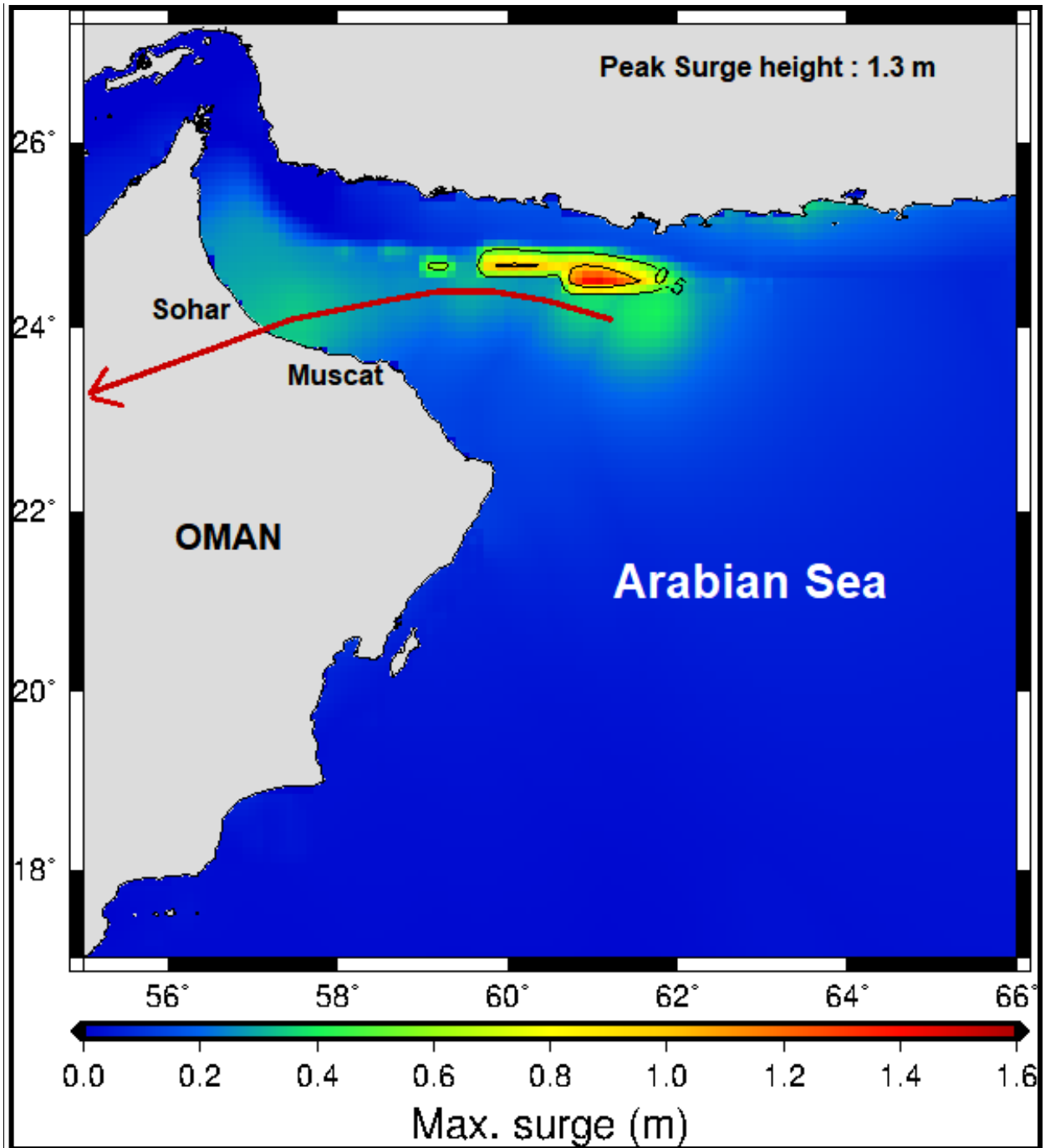


**OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM "SHAHEEN" OVER NORTHWEST ARABIAN SEA AND ADJOINING GULF OF OMAN BASED ON 1800 UTC OF 2<sup>ND</sup> OCTOBER, 2021**



DATE/TIME IN UTC  
 IST=UTC + 0530  
 L: LOW PRESSURE AREA  
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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 ( $\geq$  120 KT)

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





60E 70E 80E 90E 100E  
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20211002\_2000UTC

