



**REGIONAL SPECIALISED METEOROLOGICAL CENTRE-TROPICAL CYCLONES, NEW DELHI TROPICAL
TROPICAL CYCLONE ADVISORY BULLETIN NO. 12**

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. 12 FOR NORTH INDIAN OCEAN (THE BAY OF BENGAL AND
ARABIAN SEA) VALID FOR NEXT 120 HOURS ISSUED AT 1200 UTC OF 02.10.2021 BASED ON 0900
UTC OF 02.10.2021.**

SUB: SEVERE CYCLONIC STORM ‘SHAHEEN’ OVER NORTHWEST ARABIAN SEA

THE **SEVERE CYCLONIC STORM ‘SHAHEEN’** OVER NORTHWEST ARABIAN SEA MOVED WEST-NORTHWESTWARDS WITH A SPEED OF ABOUT 15 KMPH, DURING PAST 6 HOURS, LAY CENTRED AT 0900 UTC OF 2ND OCTOBER, 2021 OVER NORTHWEST ARABIAN SEA, NEAR LATITUDE 24.3°N AND LONGITUDE 61.3°E, ABOUT 830 KM WEST-NORTHWEST OF DEVBHOOMI DWARKA (42731), 130 KM SOUTH-SOUTHEAST OF CHABAHAH PORT (IRAN) AND 300 KM EAST-NORTHEAST OF MUSCAT (OMAN).

IT IS VERY LIKELY TO MOVE WEST-NORTHWESTWARDS SKIRTING MAKRAN COAST DURING NEXT 12 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 4TH 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:

DATE/TIME(UTC)	POSITION (LAT. °N/ LONG. °E)	MAXIMUM SUSTAINED SURFACE WIND SPEED (KMPH)	CATEGORY OF CYCLONIC DISTURBANCE
02.10.21/0900	24.3/61.3	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
02.10.21/1200	24.4/60.9	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
02.10.21/1800	24.4/60.3	110-120 GUSTING TO 130	SEVERE CYCLONIC STORM
03.10.21/0000	24.4/59.6	100-110 GUSTING TO 120	SEVERE CYCLONIC STORM
03.10.21/0600	24.3/58.9	90-100 GUSTING TO 110	SEVERE CYCLONIC STORM
03.10.21/1800	24.1/57.7	80-90 GUSTING TO 100	CYCLONIC STORM
04.10.21/0600	23.7/56.4	50-60 GUSTING TO 70	DEEP DEPRESSION
04.10.21/1800	23.3/55.1	20-30 GUSTING TO 40	WELL MARKED LOW

AS PER INSAT 3D IMAGERY AT 0900 UTC, RAGGED EYE IS OBSERVED. MICROWAVE BASED TOTAL PRECIPITABLE WATER IMAGERY CLEARLY INDICATES THE INCURSION OF DRY AIR INTO THE SYSTEM. MINIMUM CLOUD TOP TEMPERATURE IS -93°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 21.5N & 25.0N AND LONGITUDE 60.0E & 63.5E AND MAKRAN COAST.

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.

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 $200 \times 10^{-6}\text{S}^{-1}$ OVER NORTHWEST ARABIAN SEA WITH VERTICAL EXTENSION UPTO 200 HPA. POSITIVE LOWER LEVEL CONVERGENCE HAS DECREASED AND IS ABOUT $20 \times 10^{-5}\text{S}^{-1}$ OVER NORTHWEST ARABIAN SEA OFF MAKRAN COAST. POSITIVE UPPER LEVEL DIVERGENCE HAS INCREASED AND IS ABOUT $40 \times 10^{-5}\text{S}^{-1}$ TO THE EAST OF THE SYSTEM CENTRE. STRONG EQUATORWARD OUTFLOW IS ALSO SEEN IN THE UPPER LEVEL. LOW LEVEL VERTICAL WIND SHEAR (VWS) OF ABOUT 10 KTS IS PREVAILING AROUND THE SYSTEM CENTRE AND ALONG THE FORECAST TRACK UPTO GULF OF OMAN. SHEAR TENDENCY IS DECREASING ALONG THE FORECAST TRACK, WITH INCREASING TREND OVER OMAN COAST.

THE TOTAL PRECIPITABLE WATER VAPOUR IMAGERY INDICATES THAT THE SYSTEM IS UNDER FAVOURABLE ENVIRONMENT OF WARM MOIST AIR. HOWEVER, DRY AIR INTRUSION FROM IRAN-AFGHANISTAN REGION IS CONTINUING AND IS GRADUALLY COVERING AROUND THE SYSTEM. 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 UNDER THE INFLUENCE OF INCREASED DRY AIR INCURSION INTO THE SYSTEM AND WEST-SOUTHWESTWARDS MOVEMENT. 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.

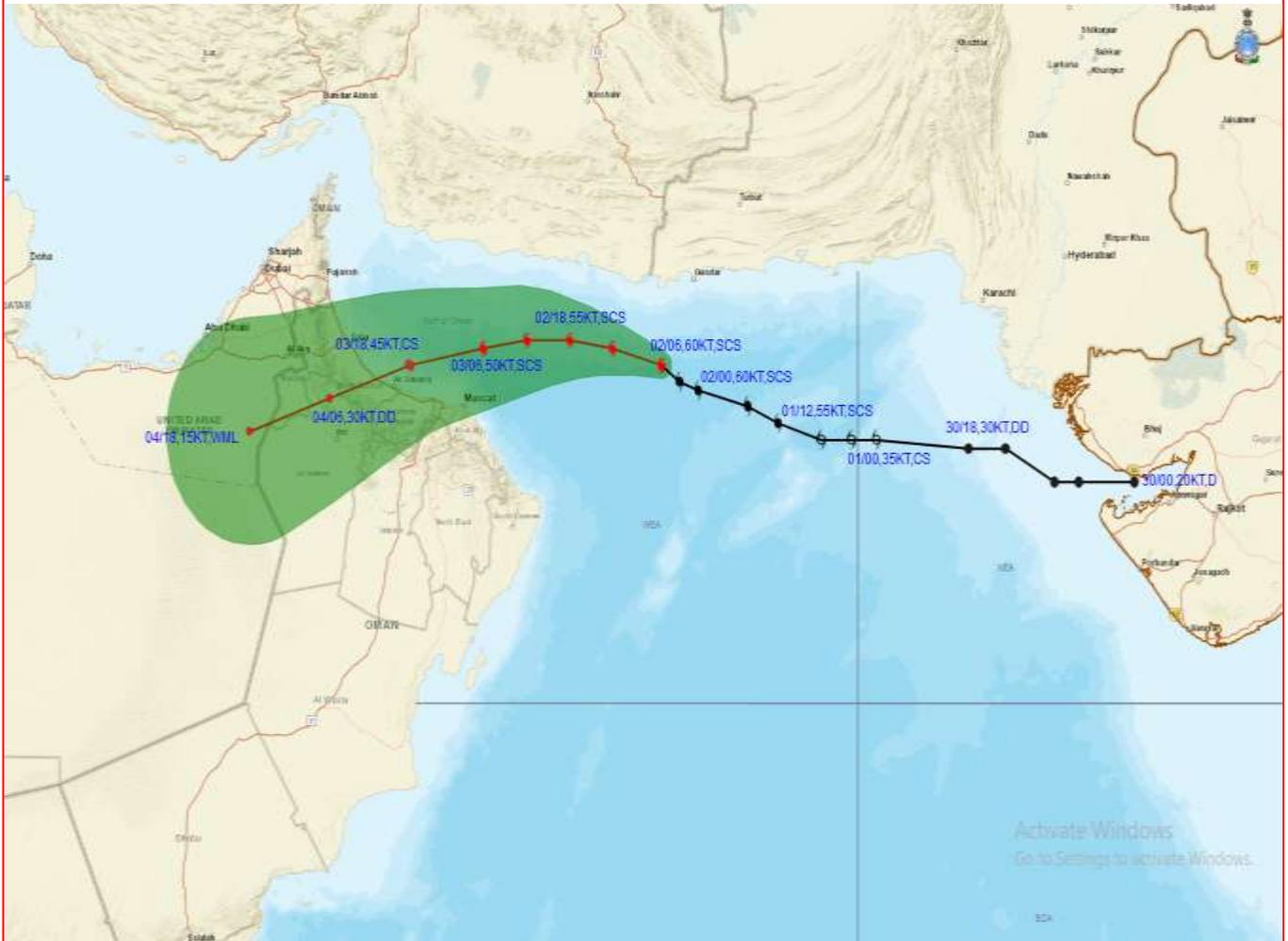
MOST OF THE MODELS ARE INDICATING THAT THE SYSTEM WOULD MOVE WEST-NORTHWESTWARDS FOR SOME MORE TIME, RECURVE WEST-SOUTHWESTWARDS, WEAKEN GRADUALLY AND CROSS NORTH OMAN COAST AROUND 4TH EARLY MORNING (0000 UTC).

HENCE IT IS CONCLUDED THAT, SEVERE CYCLONIC STORM "SHAHEEN" WOULD MAINTAIN ITS INTENSITY AND MOVE WEST-NORTHWESTWARDS SKIRTING MAKRAN COAST DURING NEXT 12 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 DEG. E DURING 2100 UTC OF 3RD OCTOBER – 0000 UTC OF 4TH OCTOBER AS A CYCLONIC STORM WITH MAXIMUM SUSTAINED WIND SPEED OF 80-90 KMPH GUSTING TO 100 KMPH.

(SUNITHA DEVI S)
SCIENTIST-F, RSMC, NEW DELHI



OBSERVED AND FORECAST TRACK ALONGWITH CONE OF UNCERTAINTY OF SEVERE CYCLONIC STORM "SHAHEEN" OVER NORTHWEST ARABIAN SEA BASED ON 0600 UTC OF 2ND 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 \geq 120 KT)

● LESS THAN 34 KT

⊙ 34-47 KT

⊙ \geq 48 KT

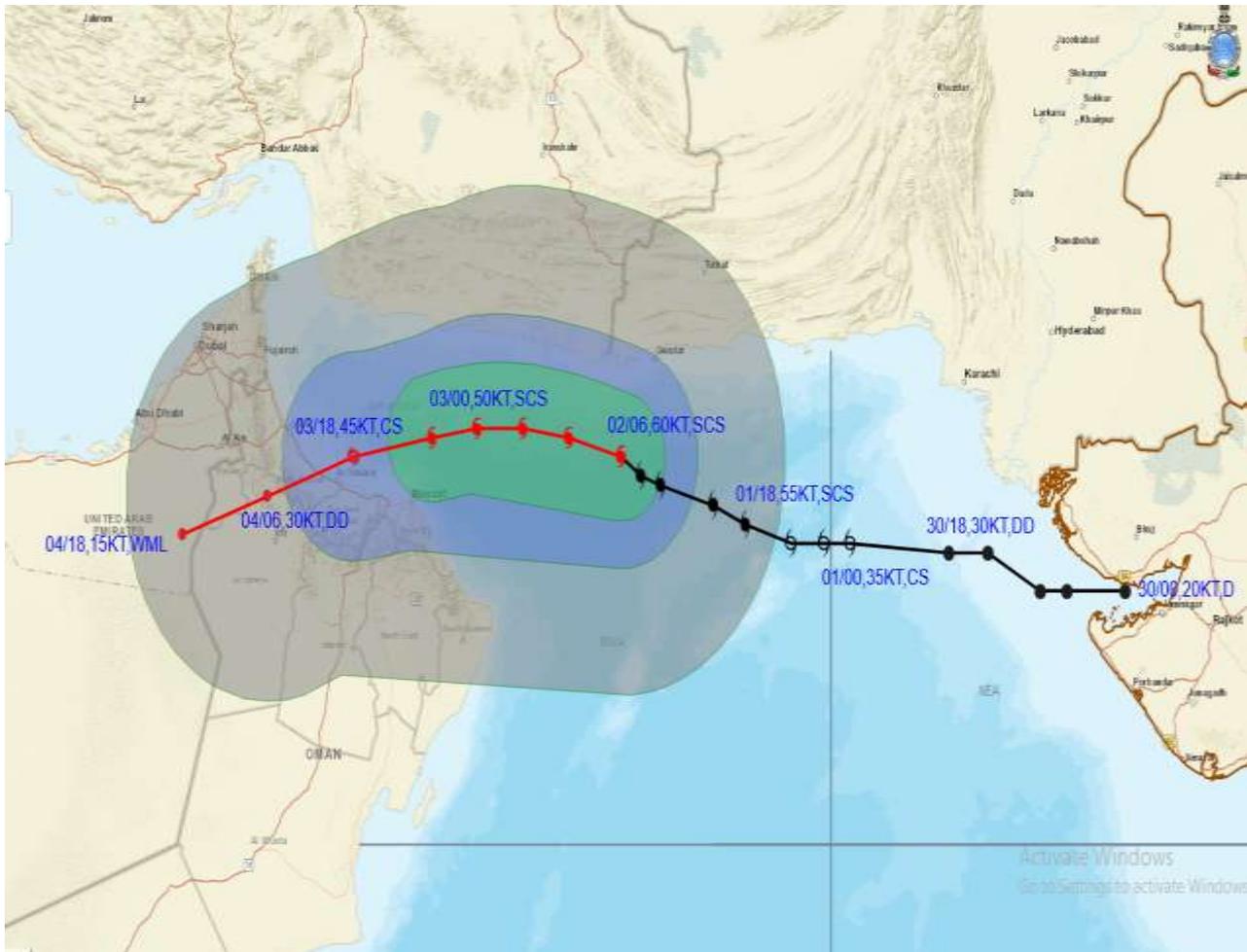
— OBSERVED TRACK

— FORECAST TRACK

▲ CONE OF UNCERTAINTY



OBSERVED AND FORECAST TRACK ALONGWITH QUADRANT WIND DISTRIBUTION OF SEVERE CYCLONIC STORM "SHAHEEN" OVER NORTHWEST ARABIAN SEA BASED ON 0600 UTC OF 2ND 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

