



Government of India
Earth System Science Organization
Ministry of Earth Sciences
India Meteorological Department

Press Release

Date: 22nd March, 2021

Time of Issue: 1730 hrs IST

Subject: Update of wet spell over Western Himalayan Region and plains of Northwest India during 22nd-24th March, 2021.

Meteorological analysis:

- A Western Disturbance as a trough in mid & upper tropospheric westerlies with its axis at 5.8 km above mean sea level runs along Long 64°E to the north of Lat 17°N.
- An induced cyclonic circulation lies over northwest Rajasthan at lower levels and likely to move over Punjab & neighbourhood by tomorrow, the 23 March.
- There is high moisture feeding from north Arabian Sea over northwest India at lower & middle tropospheric levels and is likely to continue till tomorrow, the 23 March, 2021.
- Under the influence of all these meteorological features:
 - ✓ Fairly widespread to widespread rainfall/snowfall and thunderstorm & lightning very likely over Western Himalayan Region (Jammu, Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad, Himachal Pradesh and Uttarakhand) on 22 & 23 March and decrease significantly thereafter.
 - ✓ Isolated hailstorm very likely over Himachal Pradesh on 22 & 23 and Uttarakhand during 22 to 24 March. **Isolated heavy rainfall/snowfall also likely over Jammu, Kashmir, Gilgit, Baltistan & Muzaffarabad and Himachal Pradesh on 22 & 23 March, 2021.**
 - ✓ Fairly widespread to widespread rainfall and thunderstorm & lightning very likely over Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh on 22 & 23 March and isolated to scattered over Rajasthan during same period. Dry weather likely thereafter
 - ✓ Isolated hailstorm very likely over Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh and East Rajasthan during 22-23 March and over West Rajasthan on 22 March.
- **Detailed forecast & warnings are given in following page:**

Sub-Divisions	22-Mar-21	23-Mar-21	24-Mar-21
Jammu & Kashmir, Ladakh, Gilgit-Baltistan & Muzaffarabad	Rainfall at most places with heavy falls at isolated places and thunderstorm & lightning	Rainfall at most places with heavy falls at isolated places and thunderstorm & lightning	Rainfall at a few places
Himachal Pradesh	Rainfall at most places with heavy falls at isolated places and thunderstorm, lightning & hail	Rainfall at most places with heavy falls at isolated places and thunderstorm, lightning & hail	Rainfall at isolated places
Uttarakhand	Rainfall at a few places with thunderstorm & lightning, hail & gusty winds	Rainfall at many places with thunderstorm & lightning, hail & gusty winds	Rainfall at isolated places with thunderstorm & lightning & gusty winds
Punjab	Rainfall at most places with thunderstorm & lightning, hail & gusty winds	Rainfall at many places with thunderstorm & lightning, hail & gusty winds	Dry
Haryana, Chandigarh & Delhi	Rainfall at most places with thunderstorm & lightning, hail & gusty winds	Rainfall at most places with thunderstorm & lightning, hail & gusty winds	Dry
West Uttar Pradesh	Rainfall at a few places with thunderstorm & lightning, hail & gusty winds	Rainfall at a few places with thunderstorm & lightning, hail & gusty winds	Dry
West Rajasthan	Rainfall at a few places with thunderstorm & lightning, hail & gusty winds	Rainfall at isolated places with thunderstorm, lightning & gusty winds	Dry
East Rajasthan	Rainfall at a few places with thunderstorm & lightning, hail & gusty winds	Rainfall at isolated places with thunderstorm, lightning, hail & gusty winds	Dry

Impact expected and action suggested due to Thunderstorm, Lightning & Hail over Himachal Pradesh, Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh and East Rajasthan during 22nd-23rd March; over Uttarakhand during 22nd-24th March and over West Rajasthan on 22nd March.

Impact expected:

- Hail may damage plantation, horticulture and standing crops.
- Hail may injure people and cattle at open places.

Action suggested:

- Stay indoors, close windows & doors and avoid travel if possible.
- Take safe shelters; do not take shelter under trees.
- Do not lie on concrete floors and do not lean against concrete walls.
- Unplug electrical/ electronic appliances.
- Immediately get out of water bodies.
- Keep away from all the objects that conduct electricity.
- Farming operations may be suspended during the event.

Impact expected & action suggested due to heavy rainfall/snowfall over Jammu & Kashmir, Ladakh, Gilgit, Baltistan & Muzaffarabad and Himachal Pradesh on 22nd & 23rd March, 2021.

- Localized flooding of roads, water logging in low lying areas and closure of underpasses mainly in urban areas of the above region.
- Occasional reduction in visibility due to heavy rainfall/snowfall.
- Disruption of traffic due to water logging in roads leading to increased travel time.
- Minor damage to kutcha roads.
- Possibilities of damage to vulnerable structure.
- Localized Landslides/Mudslides.

Action Suggested

- Check for traffic congestion on your route before starting your journey.
- Follow any traffic advisories that are issued in this regard.
- Avoid going to areas that face water logging problem often.
- Avoid staying in vulnerable structure.

LEGENDS

WARNING

WARNING (TAKE ACTION)
ALERT (BE PREPARED)
WATCH (BE UPDATED)
NO WARNING (NO ACTION)

Probabilistic Forecast

Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75



Rain/ Snow *
 Heavy: 64.5 to 115.5 mm/cm *
 Very Heavy: 115.6 to 204.4 mm/cm *
 Extremely Heavy: > 204.4 mm/cm *



When maximum temperature of a station reaches $\geq 40^{\circ}\text{C}$ for plains and $\geq 30^{\circ}\text{C}$ for hilly regions
(a) Based on Departure from normal

Heat Wave: Maximum Temperature Departure from normal 4.5°C to 6.4°C ,
Severe Heat Wave: Maximum Temperature Departure from normal $\geq 6.5^{\circ}\text{C}$

(b). Based on Actual maximum temperature

Heat Wave: When actual maximum temperature $\geq 45^{\circ}\text{C}$.
Severe Heat Wave: When actual maximum temperature $\geq 47^{\circ}\text{C}$

(c). Criteria for heat wave for coastal stations

When maximum temperature departure is $>4.5^{\circ}\text{C}$ from normal. Heat Wave may be described provided maximum temperature $\geq 37^{\circ}\text{C}$



When maximum temperature remains 40°C

Warm Night: When minimum temperature departure 4.5°C to 6.4°C .
Severe Warm Night: When minimum temperature departure $>6.4^{\circ}\text{C}$.



When minimum temperature of a station $\leq 10^{\circ}\text{C}$ for plains and $\leq 0^{\circ}\text{C}$ for hilly regions.
(a). Based on departure

Cold Wave: Minimum Temperature Departure from normal -4.5°C to -6.4°C .
Severe Cold Wave: Minimum Temperature Departure from normal $\geq -6.5^{\circ}\text{C}$

(b) Based on actual Minimum Temperature (for Plains only)

Cold Wave : When Minimum Temperature is $\leq 4.0^{\circ}\text{C}$
Severe Cold Wave: When Minimum Temperature is $\leq 2.0^{\circ}\text{C}$

(c) For Coastal Stations

When Minimum Temperature departure is $\leq -4.5^{\circ}\text{C}$ or actual Minimum Temperature is $\leq 15^{\circ}\text{C}$



When minimum temperature of a station $\leq 10^{\circ}\text{C}$ for plains and $\leq 0^{\circ}\text{C}$ for hilly regions
Based on departure

Cold Day: Maximum Temperature Departure from normal -4.5°C to -6.4°C .
Severe Cold Day: Maximum Temperature Departure from normal $\leq -6.5^{\circ}\text{C}$



Phenomenon of small droplets suspended in air and the horizontal visibility $< 1\text{km}$

Moderate Fog: When the visibility between 500-200 metres
Dense Fog: when the visibility between 50- 200 metres
Very Dense Fog: when the visibility < 50 metres



Sudden electrical discharges manifested by a flash of light (Lightning) and a sharp rumbling sound (thunder)



An ensemble of particles of dust or sand energetically lifted to great heights by a strong and turbulent wind.



Ice deposits on ground

Air temperature $\leq 4^{\circ}\text{C}$ (over Plains)



A strong wind that rises suddenly, lasts for atleast 1 minute.

Moderate: Wind speed 52-61 kmph
Severe: Wind speed 62-87 kmph
Very Severe: Wind speed >87 kmph



Effect of various waves in the sea over specific area

Rough to very rough: Wind speed 41-62 kmph (22-33 knots) & Wave height 2.5-6 metre
High to very high: Wind speed 63-117 kmph (34-63 knots) & Wave height 6-14 metre
Phenomenal: Wind speed >117 kmph (>63 knots) & Wave height >14 metre



Cyclonic Storm: Wind speed 62-87 kmph (34-47 knots)

Severe Cyclonic Storm: Wind speed 88-117 kmph (48-63 knots)

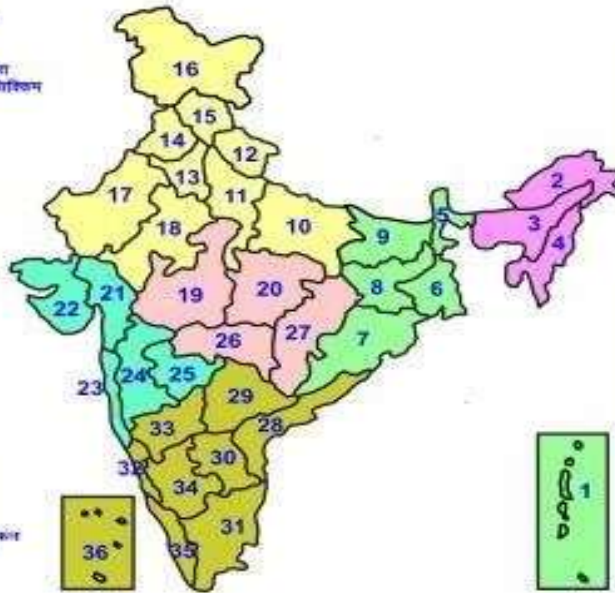
Very Severe Cyclonic Storm: Wind speed 118-165 kmph (64 - 89 knots)

Extremely Severe Cyclonic Storm: Wind speed 166-220 kmph (90 -119 knots)

Super Cyclone Storm: Wind speed >220 kmph (>119 knots)

LEGENDS

- 1 अंडमान और निकोबार द्वीप समूह
- 2 अरुणाचल प्रदेश
- 3 असम और मेघालय
- 4 नागलैंड, मणिपुर, मिजोरम और त्रिपुरा
- 5 उप हिमालय पश्चिम बंगाल एवं सिक्किम
- 6 गंगेयि पश्चिम बंगाल
- 7 ओडिशा
- 8 झारखंड
- 9 बिहार
- 10 पूर्वी उत्तर प्रदेश
- 11 पश्चिम उत्तर प्रदेश
- 12 उत्तराखण्ड
- 13 हरियाणा, चंडीदाह और दिल्ली
- 14 पंजाब
- 15 हिमाचल प्रदेश
- 16 जम्मू एवं कश्मीर एवं लद्दाख
- 17 पश्चिम राजस्थान
- 18 पूर्वी राजस्थान
- 19 पश्चिम मध्य प्रदेश
- 20 पूर्वी मध्य प्रदेश
- 21 गुजरात
- 22 सौराष्ट्र
- 23 कर्नाटक
- 24 मध्य महाराष्ट्र
- 25 महाराष्ट्र
- 26 कोकण एवं गोवा
- 27 मध्य महाराष्ट्र
- 28 महाराष्ट्र
- 29 तेलंगाना
- 30 तमिळुनाडु
- 31 पश्चिम चंडीदाह एवं कर्नाटक
- 32 पूर्वी चंडीदाह
- 33 उत्तराखण्ड
- 34 उत्तराखण्ड
- 35 केरल एवं माहे
- 36 लक्षद्वीप



1. Andaman & Nicobar Islands
2. Arunachal Pradesh
3. Assam & Meghalaya
4. Nagaland, Manipur, Mizoram & Tripura
5. Sub-Himalayan West Bengal & Sikkim
6. Gangetic West Bengal
7. Orissa
8. Jharkhand
9. Bihar
10. East Uttar Pradesh
11. West Uttar Pradesh
12. Uttarakhand
13. Haryana, Chd & Delhi
14. Punjab
15. Himachal Pradesh
16. Jammu & Kashmir and Ladakh
17. West Rajasthan
18. East Rajasthan
19. West Madhya Pradesh
20. East Madhya Pradesh
21. Gujarat
22. Saurashtra
23. Konkan & Goa
24. Madhya Maharashtra
25. Marathwada
26. Vidharbha
27. Chhattisgarh
28. Coastal Andhra Pradesh & Yanam
29. Telangana
30. Rayalaseema
31. Tamilnada, Puducherry & Karaikal
32. Coastal Karnataka
33. North Interior Karnataka
34. South Interior Karnataka
35. Kerala & Mahe
36. Lakshadweep

SPATIAL DISTRIBUTION (% of Stations reporting)

% Stations	Category	% Stations	Category
76-100	Widespread (WS/ Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespread (FWS/ Many Places)	1-25	Isolated (ISOL)

WARNING

WARNING (TAKE ACTION)
ALERT (BE PREPARED)
WATCH (BE UPDATED)
NO WARNING (NO-ACTION)

Probabilistic Forecast

Terms	Probability of Occurrence (%)
Unlikely	< 25
Likely	25 - 50
Very Likely	50 - 75
Most Likely	> 75

	Heavy Rain		Heavy Snow		Thunderstorm		Dust Storm
	Strong Winds		Visibility		Cyclone		Squall/ Hall
	Frost		Cold Wave		Heat Wave		Sea State

Kindly download **MAUSAM** APP for location specific forecast & warning, **MEGHDOOT** APP for Agromet advisory and **DAMINI** APP for Lightning Warning & visit state MC/RMC websites for district wise warning.