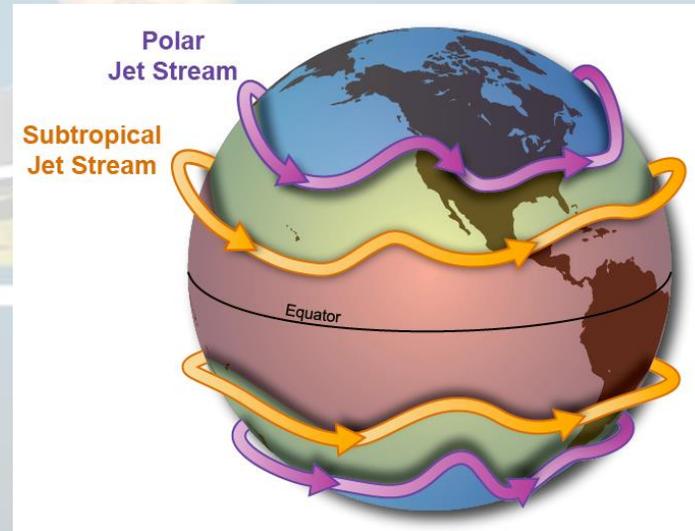
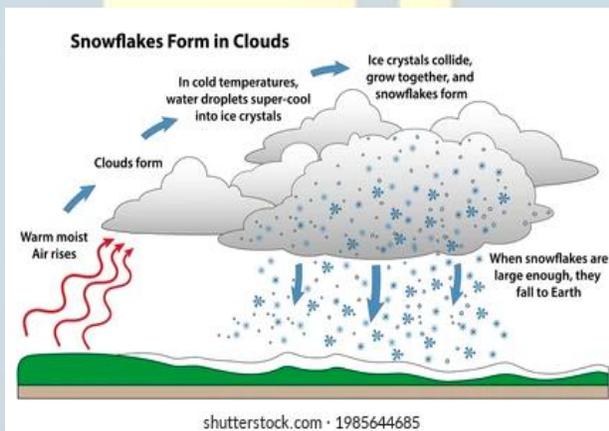
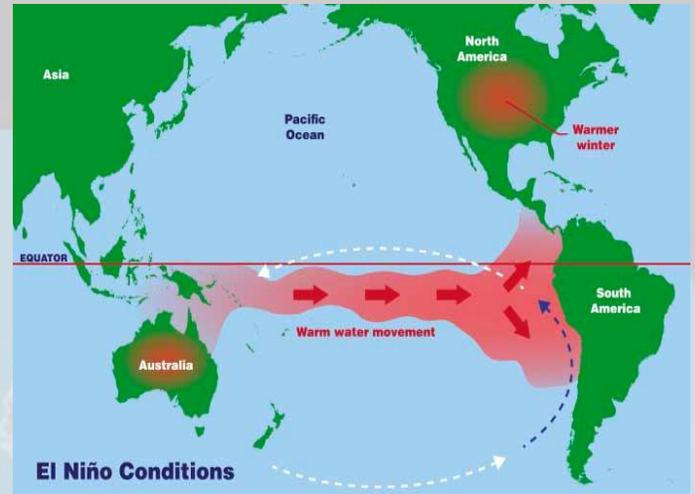


## Why no snowfall in Kashmir?



## What is the reason for the lack of snowfall?

- Snowfall requires adequate moisture as well as atmospheric temperatures to be zero degrees or less.
- Temperatures have been fairly low since December.
- An analysis by the IMD in mid-January reported that maximum temperatures are running 5-8°C

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'below normal' over the plains of north India since December 29.

- Minimum temperatures were also below 4 degrees Celsius at many stations of northwest India for most of January.
- This also resulted in a very dense fog persisting over the plains of northwest India.
- While moisture and high aerosol loads contribute to fog, there were three major reasons behind the lack of snowfall and consequently intensifying cold waves over north India.
- These were a drastic fall in Western Disturbances (WDs) over northwest India; prevailing El Niño conditions; and the absence of a strong jet stream.

How do these three factors influence snowfall?

- Western Disturbances are storms that originate in a multitude regions and travel thousands of kilometres to bring rains to northern India.
- Such WDs in the winter dissipate fog and increase the sunshine incident on the ground raising temperatures.
- They also, when the temperatures are low, result in snowfall and water being available as snow melts.

- The melting glaciers contribute to the water available in the Ganga, Indus and Yamuna. On the other hand, they can also bring in hail, which is destructive to standing wheat crop.
- Usually, 57 WDs impact northwest India during December to January. But this winter there have been none.
- There were two WDs in this period, but their impact was mainly confined to Gujarat, north Maharashtra, east Rajasthan and Madhya Pradesh.
- As a result of the lack of these rains, the Western Himalayan Region got 80% less rain than normal.
- Prevailing El Niño conditions over the equatorial Pacific Ocean, or warmer ocean temperatures, may also have had a role to play.
- However, irrespective of El Niño, or the converse, La Niña, the number of WDs in December and January have been on a decline.

What role do the jet streams play?

- Jet streams are powerful winds, ranging from 250-320 kmph, travelling at about 12 km above mean sea level.
- They are carriers of the western disturbances but the lack of moisture means that so far, they have been

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contributing to the subsidence of cold air thereby enhancing the cold over north India.

- The jet streams set in after the withdrawal of the monsoon are also able to draw in moisture from the Arabian Sea.
- In recent years, the jet stream has been shifting northwards.
- This, emerging research suggests, is a consequence of a warming in the Arctic seas that affects the natural gradient of temperature necessary to ensure the strength and direction of the jet streams.
- The Hindu

### Minority status

**What constitutes 'minority character'?**

- Article 30(1) in Part III of the Constitution empowers all religious and linguistic minorities with a fundamental right to establish and administer educational institutions of their choice.
- Clause 2 ensures that the State maintains 'equality of treatment' in granting aid to all educational institutions, irrespective of their minority status.

• This includes educational institutions at all levels, from primary schools to professional education.

• Notably, these institutions enjoy exemptions from the implementation of SC, ST, and OBC reservations in both admissions and employment.

• Additionally, they can reserve up to 50% of seats for students from their community and exercise greater control over employees compared to other institutions.

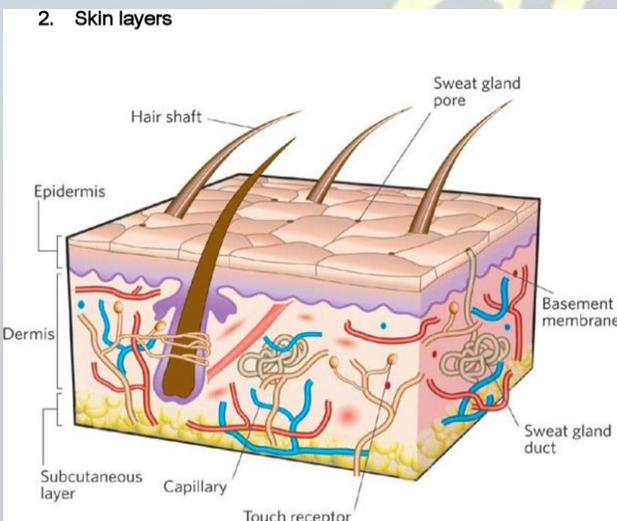
• In the T.M.A Pai Foundation (2002) case, the SC clarified that a 'minority' is to be determined by the concerned State's demography, not the national population.

• In 1877, Sir Syed Ahmed Khan, a Muslim reformer, founded the Muhammadan — Anglo — Oriental College (MAO College) at Aligarh.

• The Aligarh Muslim University Act, 1920 (AMU Act) was passed to incorporate the MAO College and the Muslim University Association.

### The Hindu

## Artificial skin



which closely resembles human skin by simultaneously sensing pressure, moisture, and temperature and converting them into electronic signals.

- With 2,000 individual sensors per square millimetre, the hybrid material is more sensitive than a human fingertip, giving it its reputation, and, at 0.006 millimeters thick, many times thinner than human skin.
- Artificial skins are a series of materials that try to emulate the functionality of our skin.
- Artificial skin projects try to emulate at least some of the function.
- one is a piezoelectric material which when compressed or stretched, generates an electric current.
- This type of material for example, is the one that allows the artificial skin to sense force or pressure.
- The other material that is also very fundamental in this is the smart polymer that changes thickness depending on humidity and temperature, and in particular, these two materials have been combined in various nano rods.

- Dr. Coclite and her team had succeeded in developing a three in one “smart skin” hybrid material,

- One area of practical application that really excites her and the team is prosthetics.

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- “The artificial skin could cover the prosthetics and help the patient with the amputation regain sensation.

- The Hindu

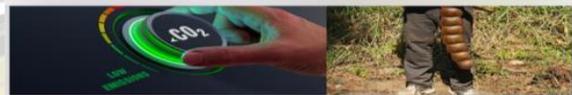
### Cold waves and community

- With temperatures hitting record lows, communities grapple with a spectrum of physical health challenges.
- Prolonged exposure to extreme cold can lead to hypothermia, a condition where the body loses heat faster than it can generate it, resulting in shivering, confusion, and potentially life threatening consequences.
- Respiratory issues come to a head as cold air irritates the airways, worsening conditions like asthma and bronchitis.
- Cardiovascular health is not exempt, as the heart works overtime to maintain a stable internal temperature.
- Elevated blood pressure and heart rate become commonplace, posing additional risks for those with underlying cardiovascular issues.
- The convergence of cold waves and flu seasons heightens risks. The psychological toll is substantial. Reduced social interaction during cold spells affects psychological well

being. Seasonal Affective Disorder (SAD) can set in when low visibility and weather related mobility restrictions lead to a lack of sunlight and limited movement.

- Sleep disruptions further compound the mental toll, as the discomfort of cold temperatures interferes with achieving restful sleep. The cumulative effects of physical discomfort and mental strain create a challenging environment for individuals during the winter season.

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