Northern Lights & Southern Lights

Prelims: *Current events of national and international importance*

Why in news?

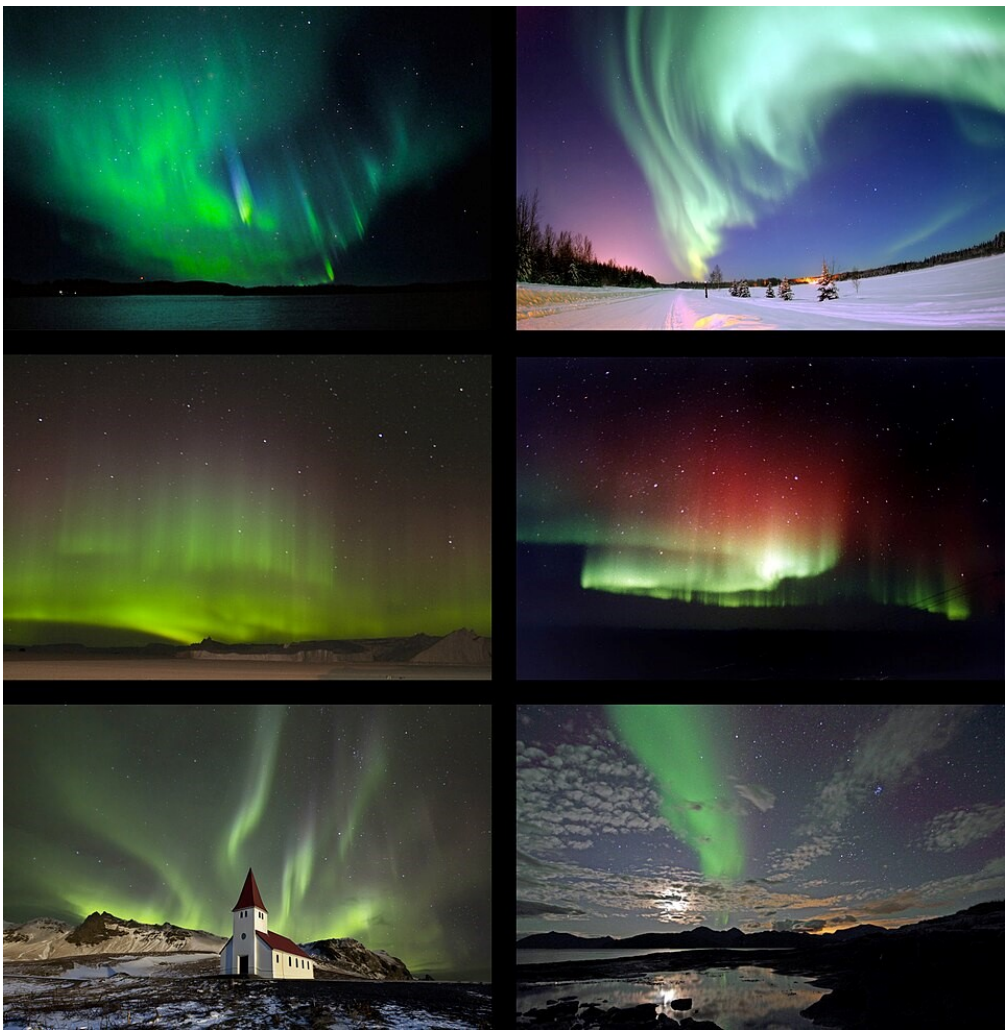
According to the National Oceanic and Atmospheric Administration, nearly a dozen states in the northern U.S. could have a chance to observe the northern lights in October 2025.

- **Auroras –** Also known as the northern lights (***aurora borealis***) or southern lights (***aurora australis***) which seen in the Northern Hemisphere and the Southern Hemisphere respectively.
- It is colorful, dynamic, and often visually delicate displays of an intricate dance of particles and magnetism between ***the Sun and Earth.***

  Most auroras happen about 97-1,000 kilometres above Earth's surface.

- **Causes for northern & southern lights –**
  - The Sun continuously produces an outflow of charged particles into the solar system known as the solar wind.
  - When the solar wind reaches Earth, it can interact with Earth's magnetic shield, often depositing and accumulating energy there.
  - When this energy is finally released, much of it rains down on our atmosphere, causing northern & southern lights.
- **Visibility –** They are typically visible during winter months when nights are long and dark.
  - They can be seen at the ***poles*** most of the time and also seen in nearby places like Norway, Sweden, Finland, Iceland, Canada, Alaska, and Greenland.
- **Colors –** The color of an aurora depends on the type of gas that is hit and where that gas is located in the atmosphere (altitude).
  - **Red & green light** – Ions clashing with oxygen at a high altitude release red light, at a low altitude, they release a green light.

    - **Reddish & bluish tinge** – Caused by ions interacting with nitrogen.
    - **Blue & purple** – Ions striking hydrogen and helium atoms.
    - Sometimes, the light emitted by these gases can appear to mix, making the auroras seem purple, pink, or even white.
- **Strongest auroras –** It occur during periods of ***high solar activity***, such as solar storms or solar flares.



To Know More about Auroras, Click Here

Reference

1. The Hindu | Northern Lights
2. NASA | Auroras

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