

Rainbow Clouds

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Rainbow Clouds Latest News

Indonesia recently witnessed a breathtaking 'rainbow cloud' phenomenon, captivating residents and going viral online.

About Rainbow Clouds

- A rainbow cloud can occur because of something called **cloud iridescence**.
- Cloud iridescence occurs when **sunlight is diffracted** by **extremely small water droplets or tiny ice crystals suspended in clouds**.
- Diffraction happens when light bends and spreads after encountering particles similar in size to the wavelength of visible light.
- This process **separates sunlight into multiple colours**, creating the **striking pastel shades and rainbow-like patterns** seen across the clouds.
- They **form most clearly when cloud particles** are **unusually small** and **relatively uniform in size**.

Why is the Phenomenon Relatively Rare?

- Cloud iridescence does not appear frequently because several atmospheric conditions must align at the same time.
- The **clouds need to be thin enough for sunlight to pass** through while **also containing droplets or ice crystals** that are **nearly identical in size**.
- Even small differences between particles can weaken the colours or prevent the phenomenon from appearing altogether.
- The **position of the Sun** and the **observer's viewing angle** are extremely important.

Which Clouds Can Produce Iridescence?

- **Newly forming clouds** and **semi-transparent clouds** are **more likely** to produce vivid iridescence because **their particles tend to be more uniform**.
- It is commonly seen in **altocumulus, cirrocumulus, cirrus, and lenticular clouds**.
- **Lenticular clouds** are especially known for **dramatic iridescent displays** because **their smooth shape** and **stable airflow** often **allow highly uniform droplets to form**.
- These clouds typically develop at **high altitudes** where **atmospheric conditions** remain relatively **stable**, making it **easier for sunlight to interact** consistently with suspended particles.

Difference Between Rainbow Clouds and Real Rainbows

- Despite the popular nickname, rainbow clouds are not technically rainbows.
- **Traditional rainbows** form when **sunlight is refracted, reflected, and dispersed inside raindrops** after rainfall.
- **Cloud iridescence**, on the other hand, is mainly caused by **diffraction and interference involving microscopic droplets** or ice crystals.
- **Iridescent clouds** usually appear much **closer to the Sun** and often **produce softer, less structured colour patterns** than ordinary rainbows.
- Instead of forming a large arc across the sky, the colours **spread unevenly across sections of cloud**.

Source: **ET**

Source: <https://vajiramandravi.com/current-affairs/rainbow-clouds/>

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