

# Fascinating Clouds

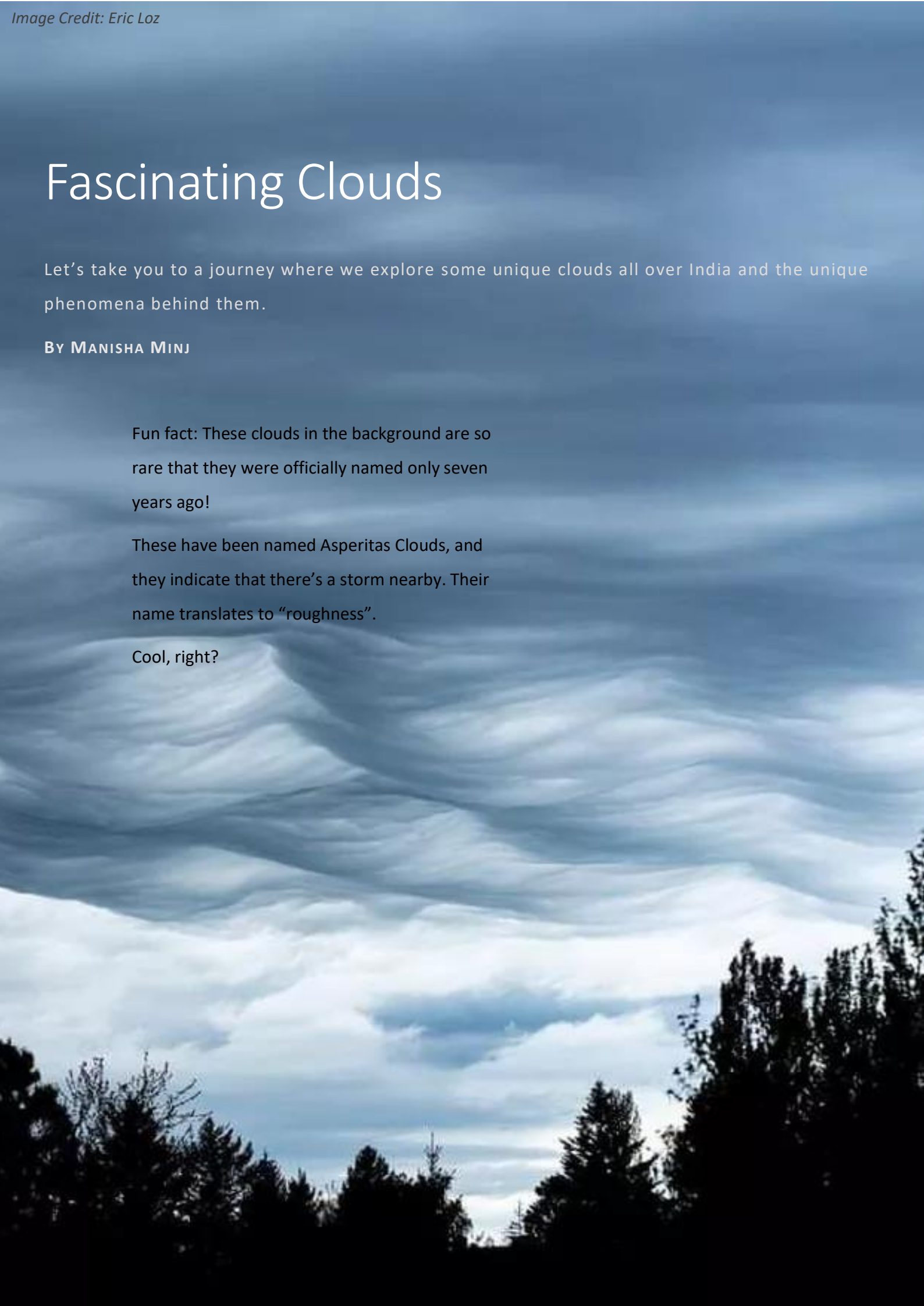
Let's take you to a journey where we explore some unique clouds all over India and the unique phenomena behind them.

**BY MANISHA MINJ**

Fun fact: These clouds in the background are so rare that they were officially named only seven years ago!

These have been named Asperitas Clouds, and they indicate that there's a storm nearby. Their name translates to "roughness".

Cool, right?



**C**louds, we see them regularly. We draw them in our notebooks, like cotton. We've studied them in our textbooks, about the four types of clouds: Cirrus, Cumulus, Stratus, Nimbus. But did you know that they go way deeper than that? Let's start with this majestic cloud at Haridwar last year.

Amidst heavy rains, this majestic cloud formation loomed over Haridwar on 9<sup>th</sup> July, 2023. Masses of people stood on the roads with fear and awe, many snapping pictures and taking videos. But what is this thing?



Image Credit: @anindya\_vernon on Twitter

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*...if they are moving towards you, expect rain to follow.*

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Sources state this to be Arcus Clouds. Commonly known as Shelf Clouds, these massive formations are formed when cold air is forced into a mass of warm air by wind. Hence, these clouds appear to move away from the storm rains. They are extremely wide and seem to roll horizontally (like a pencil on a table). They are also at the front of the storm. In other words, if they are moving towards you, expect heavy rain to follow.

Shelf clouds are often mistaken for Wall clouds, but they are not the same. To explain what Wall Clouds are, let's talk Tornadoes!

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*...you can tell if a tornado will form or not by observing the Wall Cloud.*

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The most common tornadoes are caused due to Supercell storms. Supercells are thunderstorms with a 2-20 km region of rotating air (called Mesocyclone). See the small portion extending downwards? That is the Wall Cloud.



Image Credit: Wikimedia Commons

You can tell if a tornado will form or not by observing the Wall Cloud. Unlike a Shelf Cloud, these only cover a small area. They also rotate vertically (like a top), and if the conditions are right, they can turn into a tornado.



Image Credit: Greg Thompson

(Those scenes where clouds descend from the sky and a tornado takes shape? Yes, those are Wall Clouds!)

Unfortunately, as majestic as they are, they're infinitely more destructive and scarier. This year, on the 31<sup>st</sup> March, a tornado struck Mainaguri in West Bengal. While it was short lived – a lifespan of ten minutes – it killed 5 people and injured more than a hundred. This demonstrates the sheer destructive capability these clouds have in their hands.

Let's move on to a lighter topic, the "Cloud Waterfall" of Mizoram.



Image Credit: @thebetterindia on Twitter

In 2021, a video of this "Cloud Waterfall" was shot by Simon Jaegar, posted by The Better India on Twitter, and retweeted by Harsh Goenka, at which moment this clip immediately became viral. And rightly so, as this looks like a scene straight out of heaven.

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*...this is the reason why hilly and mountainous regions get heavy rainfall (or very little rain)!*

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Curious? Let's break it down.

When moving air encounters a mountain, it moves up and then down, like how running water flows over a pebble. But sometimes, the air gets so cold while moving upwards that clouds begin to form, and come down, creating a veritable waterfall of clouds. These clouds are called Orographic clouds or Wave clouds, and this is the reason why hilly and mountainous regions get heavy rainfall (or very little rain)!

There are many other cool cloud phenomena too, such as this, seen over Hyderabad on 8<sup>th</sup> July 2023.



Image Credit: @balaji25\_t on Twitter

This is a Pileus Cloud, also known as Scarf Cloud or Cap Cloud. True to its name, it appears above a cumulus or a cumulonimbus cloud like a fancy little hat. They are fairly rare, and appear only for a few minutes. What makes this instance rarer (and even more special) is that this cloud has rainbow-like colours called Iridescence. Pileus clouds are sometimes Iridescent because they often have thin and uniform water droplets, which makes it easier to bend light into an array of colours.

This is the same reason why rainbows form as well!

On the topic of rainbows, have you ever thought of what rainbows look like during Sunset?



*Image Credit: Mark Kilner*

These are known as Monochrome Rainbows or Red Rainbows. They are no different than a regular rainbow, except for their fascinating red colour.

The reason why they are red is the exact same reason why sunsets are red: when the sun is low on the horizon, most other colours of light get scattered and are invisible to the human eye. Then, the only light that can be seen from the human eye is red, and so we see these rainbows as red.

(If you play close attention, you can faintly see the other colours in the rainbow. Perhaps the other colours haven't fully scattered yet!)

There are a lot more fascinating things in nature, and even the most mundane of things can hold a billion secrets. That is the beauty of both science and nature: *Everything is worth exploring.*