NASA ICON Mission

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Why in news?

National Aeronautics and Space Administration (NASA) has deployed an ICON satellite to detect dynamic regions in the Ionosphere of the Earth.

What's the mission about?

- The ICON satellite will study the Earth's Ionosphere. It includes different layers of the uppermost atmosphere where free electrons flow freely and are vital for understanding the composition of the atmosphere on earth.
- The ICON mission is the 39th successful launch and satellite deployment by Pegasus rocket and is operated by the University of California.
  It is equipped with 780-watt solar arrays to power the instruments.

Earth's Atmospheric Layers:

- Troposphere: It starts at the Earth's surface and extends 8 to 14.5 kilometres high (5 to 9 miles). This part of the atmosphere is densest. Almost all-weather phenomenon's take place in this region.
- Stratosphere: It starts just above the troposphere and extends to 50 kilometres (31 miles) high. The ozone layer, which absorbs and scatters the solar ultraviolet radiation, is in this layer.
- Mesosphere: The mesosphere starts just above the stratosphere and extends to 85 kilometres (53 miles) high. Meteors burn up in this layer.
- Thermosphere: It starts just above the mesosphere and

extends to 600 kilometres (372 miles) high. Aurora and satellites occur in this layer.

- Ionosphere: It is an abundant layer of electrons and ionized atoms and molecules that stretches from about 48 kilometres (30 miles) above the surface to the edge of space at about 965 km (600 mi), overlapping into the mesosphere and thermosphere. This dynamic region grows and shrinks based on solar conditions and divides further into the sub-regions: D, E and F; based on what wavelength of solar radiation is absorbed. The ionosphere is a critical link in the chain of Sun-Earth interactions. This region is what makes radio communications possible.
- Exosphere: This is the upper limit of our atmosphere. It extends from the top of the thermosphere up to 10,000 km (6,200 mi).