Cosmic rays and global warming

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Why in news?

The cosmic rays affect the earth's climate by creating low-cloud cover, according to a study published in the journal Scientific Reports.

What are cosmic rays?

- Cosmic rays are fragments of atoms that rain from outside the solar system on Earth. Most cosmic rays are nuclei of the atom: most are nuclei of hydrogen, others are nuclei of helium, and the others are heavier elements.
- Cosmic rays travel at the speed of light and in satellites and other devices have been responsible for electronics issues.

How do they impact earth's climate?

- According to scientists: Cosmic rays will influence the earth's climate by raising the coverage of clouds and creating a "umbrella effect."

What is Umbrella Effect?

- In this case Umbrella effect refers to the cooling of earth, as cosmic rays increase low level clouds which blocks the sunlight thereby acting as an Umbrella.
- Cosmic rays beaming down from space often contribute to cloud formation, in addition to atmospheric temperature and the amount of water vapour in the air.
- So, this study provides an opportunity to rethink the impact of clouds on climate. As galactic cosmic rays increase, low clouds do so, and when cosmic rays

decrease clouds do similarly, climate warming can be caused by a opposite-umbrella effect.

- Previously, the Intergovernmental Panel on Climate Change addressed the effect of cloud cover on climate but due to insufficient physical knowledge, this phenomenon has never been included in climate forecasts.
- Therefore, understanding the role of cosmic rays in global warming might be relevant with the increase in climate change events.