

CubeSat Radio Interferometry Experiment (CURIE)

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About CubeSat Radio Interferometry Experiment (CURIE):

- It aims to **investigate** the **enigmatic origins of radio waves** emanating from **the Sun**, a phenomenon first observed decades ago.
- The mission employs an innovative technique called low frequency radio interferometry, marking its first use in space.
 - CURIE consists of **two miniature spacecraft**, collectively no larger than a shoebox, which will orbit Earth approximately two miles apart.
 - This separation enables the instruments to detect minute differences in radio wave arrival times, pinpointing their exact solar origin.
- **Working**

- This spacecraft will measure **radio waves in the 0.1 to 19 megahertz range**, frequencies blocked by Earth's upper atmosphere, necessitating space-based observations.
 - CURIE will orbit **360 miles above Earth's surface** to obtain an unobstructed view of the Sun's radio emissions.
 - Once in orbit, the two CURIE spacecraft will separate, deploy their eight-foot antennas, and begin collecting data.
 - This mission not only promises to advance our understanding of solar phenomena but also paves the way for **future space-based radio astronomy endeavors**
 - It is sponsored by NASA's **Heliophysics Flight Opportunities for Research and Technology (H-FORT)** Program.
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Q1. What are the features of Radio waves?

They have the longest wavelengths in the electromagnetic spectrum, ranging from about 1 millimetre to 100 kilometres. Their frequencies are the lowest among electromagnetic waves, spanning from about 3 kHz to 300 GHz.

Source: Nasa's Curie to investigate the origin of Sun's radio waves

Source: <https://vajiramandravi.com/current-affairs/cubesat-radio-interferometry-experiment-curie/>

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