



KAMARAJ IAS ACADEMY
Only IAS Academy by Grandson of "Perunthalaivar Kamarajar"

Alaknanda: Rethinking Cosmic Evolution

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Syllabus Connection: GS Paper III (Science & Technology - Space)

Contemporary News Pivot

Indian astronomers **Rashi Jain and Yogesh Wadadekar** (NCRA-TIFR, Pune) discovered a spiral galaxy named **Alaknanda** using data from the **James Webb Space Telescope (JWST)**. Located 12 billion light-years away, it existed when the universe was only 1.5 billion years old.

Scientific Significance

- **Challenging the "Chaos" Model:** Traditional cosmological models suggested that early galaxies (from the first 2 billion years) were chaotic, hot, and irregular. Alaknanda, with its two well-defined spiral arms and central bulge, proves that **mature structures** formed much faster than previously thought.
- **Stellar Productivity:** Alaknanda is a "Star-Forming Factory," creating stars at a rate of **63 solar masses per year**—roughly 30 times faster than our Milky Way.
- **Symbolic Naming:** The name follows the tradition of naming astronomical bodies after Indian rivers. Since the Milky Way is called *Mandakini* in Sanskrit, and the Alaknanda and Mandakini are sister rivers in the Himalayas, the name highlights its resemblance to a "sister" of our own galaxy.

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