



## GROWTH-India's First Robotic Telescope

India's **first robotic telescope** and the **first one designed to observe dynamic or transient events** in the universe has started observing the skies.

- The telescope is located at the **Indian Astronomical Observatory (IAO) at Hanle in Ladakh.**
- The telescope is a joint project of the Bangalore-based **Indian Institute of Astrophysics (IIA)** and the **Indian Institute of Technology Bombay (IITB).**
- It is fully funded by the **Science and Engineering Research Board (SERB)** of the Department of Science and Technology (DST) under the **Partnerships for International Research and Education (PIRE) project**, administered by Indo US Science and Technology Forum.
  - The primary goal of PIRE is to **support high quality projects** in which advances in research and education could not occur without international collaboration.
- Called GROWTH-India, the facility at Hanle is part of a multi-country collaborative initiative known as **Global Relay of Observatories Watching Transients Happen (GROWTH)** to observe **transient events in the universe.**
- The telescope also has the badge of being housed in the **one of the world's highest astronomical observatories** at 4,500 meters.
- The 70 cm robotic telescope joins other larger facilities at IAO in Hanle - the **Himalayan Chandra Telescope, the gamma-ray array telescope (HAGAR), and the imaging Cherenkov telescope (MACE).**

### Global Relay of Observatories Watching Transients Happen (GROWTH)

- The GROWTH program is a 5 year project, funded by the **National Science Foundation (NSF).** NSF is a United States government agency whose mission includes support for all fields of **fundamental science and engineering, except for medical sciences.**
- It is an international collaborative network of astronomers and telescopes dedicated to the study of **short-lived cosmic transients and near-earth asteroids.**
- Cosmic transients are **energetic flashes of light** that are millions to billions of times the brightness of the sun, e.g. explosive deaths of massive stars, white dwarf detonations, etc.
- Key follow-up observations of fast-fading or fast-moving events must occur at night promptly after discovery but before the sun rises.
- Therefore, a **relay or network of telescopes spanning multiple longitudes (time-zones)** on earth is required to pass the baton amongst each other to **effectively extend the night-time darkness.**
- GROWTH enables detailed monitoring of events that would otherwise vanish before the next night.
- Its goals are **threefold:**
  - Search for **explosions in the optical regime** whenever **Laser Interferometer Gravitational-wave Observatory (LIGO) group detects a Binary Neutron Star merger.**
  - Study **nearby young supernova explosions.**
  - Study **nearby asteroids.**
- Universities and research institutes from the US, the UK, Japan, India, Germany, Taiwan and Israel are part of the initiative.

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