Brightest gamma-ray radiation recorded

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In news– The brightest gamma-ray radiation of all time was recorded by astronomers around the world in October 2022.

Key updates-

- The **data from the radiation pulse may help overturn a decades-long theory of gamma ray burst (GRB) jets.**
- The 5-minute-long radiation recorded on October 9, 2022 was the most intense ever, causing disruptions in radio signals on earth and cutting across our solar system.
- Astronomers, including ones from the home of radio astronomy in India, National Centre for Radio Astrophysics (NCRA), Pune, concluded such signals were a birth cry of a black hole.
- The new study appeared and observations of the radiation named **GRB 221009A throw a fresh light on the long quest to fathom the origin of the noted extreme cosmic explosions.**
- **The observation was conducted jointly by Center for Astrophysics, Harvard and Smithsonian's Submillimeter Array (SMA) in Hawaii, the MeerKAT Array in South Africa,** the US National Science Foundation's Karl G Jansky Very Large Array (VLA) in New Mexico (USA), the Atacama Large Millimetre Array (ALMA) in Chile and **NCRA's Giant Metrewave Radio Telescope, India.**

What are GRBs?

- In gamma-ray astronomy, **gamma-ray bursts** (**GRBs**) are immensely energetic explosions that have been observed in distant galaxies.
- **They are the most energetic and luminous electromagnetic events since the Big Bang**. Bursts can last from ten milliseconds to several hours.

- After an initial flash of gamma rays, a longer-lived “afterglow” is usually emitted at longer wavelengths (X-ray, ultraviolet, optical, infrared, microwave and radio).
- **The intense radiation of most observed GRBs** is thought to be released during a supernova or superluminous supernova as a high-mass star implodes to form a neutron star or a black hole. A subclass of GRBs appear to originate from the merger of binary neutron stars.
- **The sources of most GRBs are billions of light years away from Earth,** implying that the explosions are both extremely energetic (a typical burst releases as much energy in a few seconds as the Sun will in its entire 10-billion-year lifetime) and extremely rare (a few per galaxy per million years).
- Long duration **GRBs were the outcome of a birth of a black hole formed as the core of a massive star falling** under its weight, according to the scientists.
- The phenomenon of the formation of a new black hole releases powerful plasma jets almost of the speed of light shooting gamma rays.