

Deeper look into space possible now

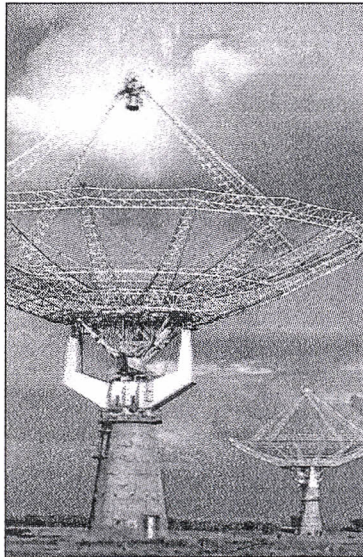
Frequency Coverage And Bandwidth Of The GMRT At Khodad To Be Increased

Swati Shinde Gole | TNN

Pune: Scientists using the Giant Metrewave Radio Telescope (GMRT), located in Khodad, about 80 km from Pune, will soon be able to see deeper into space with the ongoing upgradation programme that aims at increasing the frequency coverage and bandwidth of the observatory.

Established by the Tata Institute of Fundamental Research in 2001, the GMRT facility is operated by the National Centre for Radio Astrophysics (NCRA). This is the first time that the GMRT facility is being upgraded.

Part of the NCRA's activities for the 11th and 12th five-year plans of the Union government, this upgradation project, originally budgeted at Rs 30 crore, will be completed in the next three years. It will also enable scientists to observe fainter objects in the universe that are difficult



The Giant Metrewave Radio Telescope

to observe with the current bandwidth.

The operational frequency range for the GMRT is from 150 MHz to 1,450 MHz, but it is not possible to work over the entire range. "We would like to use it as far as possible from 130 MHz to 1450 MHz. However, there will be gaps where mobile, television and communication channels operate, as these signals are very strong," Yashwant Gupta, dean, GMRT Observatory, told TOI on Friday. He also emphasised the fact that the maximum continuous bandwidth usable will be increased from the present value of 32 MHz, to a maximum of 400 MHz.

With the upgradation, the radio telescope will also be more sensitive, thereby capturing fainter objects in the universe which are otherwise not visible. Besides, the upgradation will also allow scientists to see different phases of the universe.

"Almost all the major sub-systems of the GMRT, like receiver electronics, optical fibre equipment, digital hardware, servo system and control software will be changed as part of the upgradation, in addition to infrastructure improvements like electrical and mechanical systems and computing facilities," Gupta said.

The testing of many of the prototypes of the sub-systems required for the upgradation has been done, and the engineers are working on the final versions to be ready and operational in the next two to three years.

The GMRT facility is used by scientists all over the world and over 250 research papers have been produced since its inception. Various interesting researches are carried out at this facility including detection of emissions from planets, observation of the central region of the Earth's galaxy, among others.