

India becomes a Full Member of the SKA Mega-Science Project, the largest radio telescope in the world

India is now formally a part of the international project to build the largest radio telescope in the world, the Square Kilometre Array (SKA), to be co-located in Africa and Australia. The secretary of the Department of Atomic Energy (DAE), Dr. R.K.Sinha signed the documents on behalf of the Government of India in a ceremony in Mumbai on Monday, 5th October 2015, in the presence of Professor Philip Diamond, Director General of the SKA Organisation. The event was attended by dignitaries from the SKA Organisation in the UK, scientists and officials from the DAE (and DST) and scientists from various research organisations in India, who are contributing to the project. The National Centre for Radio Astrophysics (NCRA-TIFR) in Pune is identified to be the nodal institute for overseeing SKA related activities within India. On this occasion, Prof. Philip Diamond, Director General of the SKA, said "We welcome India as part of the ongoing SKA project. India, via NCRA, has already been playing a significant role in the design phase of the telescope which will continue till 2017, and I look forward to continued involvement of India during the construction of the telescope, starting 2018. India has several decades of expertise in low frequency radio astronomy which is an added advantage."

The SKA is an international effort to build the largest and the most sensitive radio telescope in the world. Currently there are ten countries namely, Australia, Canada, China, India, Italy, Netherlands, New Zealand, South Africa, Sweden and United Kingdom which are involved in the SKA mega-project. The SKA will be a collection of thousands of dishes and radio receivers spread across two sites in Africa and Western Australia. When fully functional, the SKA will produce more data flow than the total daily traffic on the entire internet today. Several cutting edge technologies are being explored and developed in order to realise the SKA project. The first science is expected from the SKA in the early 2020's, when the first phase will be nearing completion. The SKA is expected to address some of the fundamental questions about our Universe. For example, it will look back to a time when the Universe was in its infancy, and is expected to tell us how the first stars and black holes formed and lit up the Universe. In another important project, the SKA will use very compact astronomical objects like pulsars and black holes to test the limits of Einstein's theory of gravity. "Several Indian scientists are working on research areas relevant to the SKA, and are gearing up for doing cutting edge science with the instrument when it is ready", said Prof. Swarna Kanti Ghosh, Centre Director, NCRA.

Prof. Yashwant Gupta of NCRA, Principal Investigator for the SKA related effort in India, added "At present, Indian scientists are leading one of the ten design work packages for the SKA, the Telescope Manager, which will be the brain and nervous system controlling the entire SKA observatory. This work is being carried out in collaboration with other research organisations and industry partners in India, as well as with six other SKA member nations, with NCRA as the lead organisation. "

Earlier this year, the SKA-India Consortium was formed to organise and execute all the SKA related activities in India under a common umbrella. SKA related activities in India received a major boost recently when the SKA Organisation accorded the status of a "SKA Pathfinder" to the Giant Metrewave Radio Telescope (GMRT, operated by NCRA), in recognition of the fact that important technical and scientific developments are being carried out for upgrading the GMRT which will provide valuable feedback to the teams designing the SKA, as well as excellent opportunities for astronomers to try out science experiments of relevance to their planned quests with the SKA.

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