

Prototype SRC activities in India

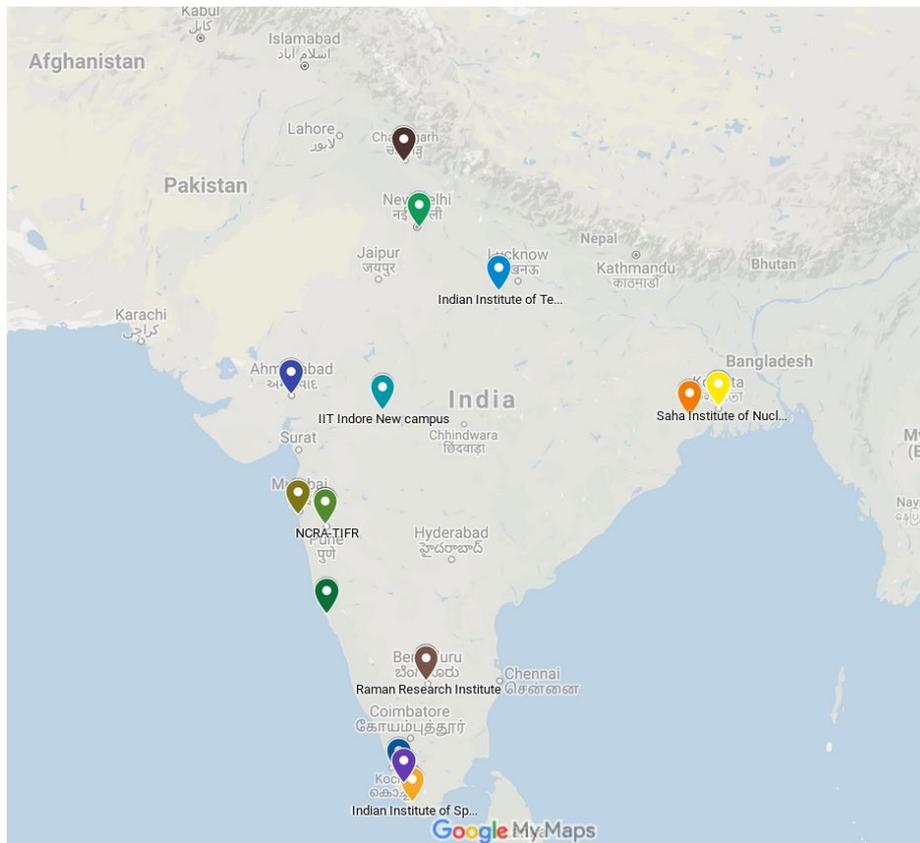
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Motivation for an Indian SRC

The Indian radio astronomy community is quite large.

SKA India Consortium

- 18 institutions
- ~100 individuals
- Diverse interests in several areas of SKA science



Motivation for an Indian SRC

This community is already involved with a number of projects on the SKA pathfinders (uGMRT) and precursors (MWA, MeerKAT) and needs access to a data centre for storing, processing and analysing these large datasets quite urgently. Several astronomers are also involved in running large simulations for SKA science.

As a first step to building a full fledged data centre, we plan to build a **prototype** data centre in India, to cater to the immediate requirements. This is a necessary first step to develop the technical capability to host a SRC in the future.

Plans for building a prototype SRC

NCRA has put in a proposal to the Indian funding agencies funding our SKA participation, requesting for about 6 million Euros for a prototype data centre in India. The requested funds will cover construction of a suitable data centre (with ~10 PB storage and appropriate compute capability) and manpower to manage these. High speed Internet connectivity costs are not included because they are covered through access to our national REN called NKN.

If awarded, these funds will be spent over a ~4 year period - mid-2019 to mid-2023

Prototype data centre capabilities

This precursor data centre that we have proposed will provide:

- Compute, storage and a fast Internet connection to support data processing for all large radio astronomy projects that Indian astronomers are involved with using uGMRT, MWA and MeerKAT.
- Compute and storage for large simulations related to epoch of reionisation science

This precursor data centre will also provide opportunities to train technical manpower to build and manage a full fledged SKA regional centre in the future.

National SRC landscape

- No large ($> 1\text{PB}$) archive for astronomy data currently exists.
- NCRA hosts a disaster resistant archive of the GMRT data since its dedication in 2002. It is the largest astronomy archive in India.
- It is expected to grow to $>1\text{ PB}$ in the next 2-3 years.

Relevant projects, infrastructures, and institutes with relevant expertise

- IUCAA has set up a large data centre for LIGO and MALS/MeerKAT, with significant spare cooled space which will be made available for the prototype SRC.

What mandate/authority and resources are available

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Desires/expectations from the SRCSC

- Learn from the design studies such as AENEAS.
- Learn from the experience of large archives currently in operation, e.g. the Pawsey archive in Australia
- Training of technical personnel via exchange programmes etc. with other SRCSC members
- Work with the relevant agencies in the SKA host countries and Indian NREN to build the capacity for fast and reliable transfer of data from the SKA host countries.
- Work in close collaboration with other SRCSC members to construct an optimal Indian SRC meeting the joint requirements of the SKA and the Indian astronomers.