Multifrequency Interferometry Telescope for Radio Astronomy (Mitra)

Concept

Mitra, which means "friend" in Sanskrit, is a network of low-frequency antennae operating between 100 and 800 MHz, spread across Africa and linked via broadband Internet to operate as a very long baseline interferometry (VLBI) telescope. Each station will have several antennae linked together. It is proposed that at least one station be built in each of the African Square Kilometre Array (SKA) partner countries (Botswana, Ghana, Kenya, Madagascar, Mauritius, Mozambique, Namibia, South Africa and Zambia). However, the network can be extended to any country.

Science

Mitra will provide insights into the search for large-scale structures in the galaxy, investigation of solar and planetary magnetohydrodynamics, interplanetary scintillation, radio recombination lines and pulsar emission.

Human capital development

Engineers and technicians, along with students using the facility for research projects, will be trained at each Mitra station. They will get inexpensive, hands-on experience in radio astronomy and related engineering techniques, including telescope design and construction, data collection and reduction, and astronomy research.

Partners

MITRA was proposed by Mauritian scientists interested in replacing the now non-functional Mauritius Radio Telescope with a new longer baseline low-frequency VLBI network. Mauritius and South Africa are presently developing stations for Mitra. In South Africa, the Durban University of Technology is erecting a station at its Durban campus. The University of the Witwatersrand and the University of Zambia in Lusaka have also expressed an interest.