

MeerKAT Telescope Open for Big Science

after a decade of design and construction, South Africa's 64-array MeerKAT radio telescope was launched at the Square Kilometre Array (SKA) site in the Karoo, Northern Cape on Friday, 13 July 2018. The project is operated by the South African Radio Astronomy Observatory (SARAO), a national facility managed by the NRF.

MeerKAT, the largest and most sensitive radio telescope in the Southern Hemisphere, paves the way to the larger SKA project, which will be 50 times more sensitive than any other radio telescope on earth. MeerKAT will be incorporated into the mid – frequency component of the SKA. The many benefits of this science investment include:

- ◆ Demonstrating South Africa's excellent science and engineering skills.
- ◆ The cutting edge technology developed which places Africa's astronomy among the best.
- ◆ The creation of a large group of young scientists and engineers with world class expertise in technologies crucial to fourth industrial revolution.

Radio telescope reveals clearest view yet of the centre of the Milky Way

Exciting views of the Universe obtained with the new telescope were unveiled at the launch event. The images revealed extraordinary detail in the region

surrounding the supermassive black hole at the centre of our Milky Way Galaxy.

“We wanted to show the science capabilities of this new instrument. The centre of the galaxy was an obvious target: unique, visually striking and full of unexplained phenomena – but also notoriously hard to image using radio telescopes”, said Fernando Camilo, chief scientist of NRF-SARAO.

the centre of the Milky Way, 25,000 light-years away from Earth and lying behind the constellation Sagittarius (the “Teapot”), is forever obscured by intervening clouds of gas and dust, making it invisible from Earth using ordinary telescopes. However, infrared, X-ray, and in particular, radio wavelengths penetrate the obscuring dust and open a window into this distinctive region with its unique 4 million solar mass black hole.

“The image from MeerKAT is remarkable. It has such clarity and shows so many features never before seen, including compact sources associated with some of the filaments, that it could provide the key to cracking the code and solve this three-decade riddle”, said Farhad Yusef-Zadeh of Northwestern University in Evanston, Illinois, one of the world's leading experts on the mysterious filamentary structures present near the central black hole but nowhere else in the Milky Way.

These long and narrow magnetised filaments were discovered in the 1980s using the Very Large Array (VLA) radio telescope in New Mexico, but their origin has remained a mystery.

According to Yusef-Zadeh “MeerKAT now provides an unsurpassed view of this unique region of our galaxy and will be the envy of astronomers everywhere, as well as be in great demand for years to come” [SM](#)

Read more about MeerKAT and SKA.

