

First antenna launched on precursor to world's largest telescope

27 March 2014



First night in the Karoo for the first MeerKAT antenna against the backdrop of the Milky Way and the Magellanic Clouds. Credit: Photowise

(Phys.org) —British technologies are at the heart of the world's largest radio telescope and British scientists will be amongst the first in line to use it in 2015.

The first of 64 antennas that will make up South Africa's radio telescope precursor to the Square Kilometre Array (SKA), MeerKAT, has been officially launched by South Africa's Minister of Science and Technology today (27 March 2014).

MeerKAT has significant UK involvement including a company that is providing technology for the radio receivers that will keep the extremely sensitive data collected at the right temperature. In addition astronomers and researchers from a number of UK universities are not only designing the data analysis tools for the project but they will also be working on understanding the survey data once the project is operational. Once complete SKA will be the World's largest [radio telescope array](#) and the MeerKAT project is a key step to ensuring the success of the project.

Commenting from the SKA core site in South Africa, Oxford Cryosystems Managing Director Richard Glazer said: "We are honored to be a part of this international project. There are a number of member countries and organizations involved in designing, developing and building MeerKAT, and it is a significant development opportunity for Oxford Cryosystems, with many of our cryocoolers required during the first phase alone.

"When completed, the SKA will use thousands of radio telescope dishes like the antenna launched today, enabling astronomers to survey the entire sky in unprecedented detail and thousands of times faster than any system currently in existence."

Amongst the UK universities taking part in this international collaboration, The University of Manchester is involved with several of the surveys which MeerKAT will be doing.

Professor Albert Zijlstra, Professor in Astrophysics at the University of Manchester and Director of the Jodrell Bank Center for Astrophysics said: "MeerKAT is an exciting new telescope, where we are leading the search for new pulsars. We are also part of the survey of the Milky Way and a survey of nearby galaxies."

Dr. Benjamin Stappers also of the University of Manchester is Co-Principal Investigator of

TRAPUM, one of the MeerKAT legacy science projects. TRAPUM aims to find and investigate new and exotic pulsars. He added: "The SKA will be the largest and most sensitive radio telescope in the world, stretching data analysis and science technologies to their limits."

The full MeerKAT array will consist of 64 identical receptors (antennas with receivers, digitizers and other electronics installed) and will be located in the semi-desert Karoo region of South Africa. Connected by 170 km of underground fiber optic cable, the 64 receptors will operate as a single, highly sensitive astronomical instrument, controlled and monitored remotely from the MeerKAT control room in Cape Town.

By the end of 2014, the first four receptors will be standing in the Karoo. All 64 receptors will be installed by the end of 2016, with final commissioning being completed in 2017.

Provided by Science and Technology Facilities Council

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