Gr 7 English Home Language

SKA – Square Kilometre Array

The first of 64 antennas that make up South Africa's new radio telescope - MeerKAT - was officially launched on 27 March 2014

- The Square Kilometre Array will be the world's largest and most sensitive radio telescope, about 50 times more sensitive, and up to 10 000 faster (in terms of its survey speed) than the best radio telescopes of today. It will be powerful enough to sense radio waves from objects millions or even billions of light years away from Earth. (A light year is the distance light can travel in one year, at a velocity of 300 000 km/s.)

Scientist will use it to help us understand how the Universe evolved, how stars and galaxies form and change, and what "dark matter" really is. Scientists expect that the SKA will make new discoveries that we can't even imagine now. They may even find life elsewhere in the Universe!

- Why is it called the "Square Kilometre Array"?
- The collecting areas of all the receivers that make up the SKA add up to one square kilometre - that is why the instrument is called the "Square Kilometre Array".
- Who is building the SKA?
- Many different countries are working together to build - and pay for - the SKA

- How will the SKA work?
- Radio telescopes work in much the same way as your radio
- Where will the SKA be built?
- Thousands of SKA antenna dishes will be built in South Africa (in the Karoo, not far from Carnarvon), with outstations in other parts of South Africa, as well as in eight African partner countries and Western Australia

- Why is the SKA built in such remote locations?
- Radio telescopes must be located as far away as possible from man-made electronics or machines that emit radio waves that will interfere with the faint radio signals coming from the distant Universe.
- How does the MeerKAT telescope fit into all of this?
- South Africa's MeerKAT telescope is an SKA precursor(preceding/going before) or 'pathfinder' telescope. It will consist of 64 dish-shaped antennas and will be the most powerful radio telescope in the southern hemisphere.

TIMELINE FOR MeerKAT CONSTRUCTION

March 2014 : First antenna installed

June 2016: 16 array antenna ready

End 2017: 64 array antenna ready to do science

Discovery in 2019

- An international team of astronomers using South Africa's MeerKAT radio telescope has discovered enormous balloon-like structures that tower hundreds of light-years above and below the centre of our galaxy. The impressive result is the first to come from observations using MeerKAT's full 64-dish array, and reveals structures that have never been seen in such detail before.

Why is it called Meerkat?

- First it was the Karoo Array telescope – KAT
- Then it was extended from 20 antenna to 64
- The name was then changed to MEERKAT