

## Benefits to Australia

### Frontier technology and industry

The ASKAP telescope will produce several terabytes of raw data per hour. New systems are needed to collect, transfer and process this data at reasonable cost. Australian industry has the opportunity to “get in on the ground floor” in developing the necessary technologies, which will be widely applicable outside astronomy. Development of the Pathfinder will be a powerful demonstration that Australian industry---including in regional areas---has the capabilities that will be needed for the full SKA.

**“The investment in the Australian SKA Pathfinder will provide Australian industry with opportunities to showcase and build their capabilities within a high-profile international project.”**

— Dr Geoff Garrett  
Chief Executive Officer, CSIRO

## Education

The ASKAP telescope will provide a unique opportunity for students at all levels to work with a world-leading professional telescope. Radio telescopes operate around the clock, so Australian high-school students could access the telescope in their regular classroom hours. CSIRO astronomy outreach programs in regional WA are already highlighting for students the possibilities of careers in science and technology, and will link students in WA with students in Canada, a partner in the Pathfinder telescope.



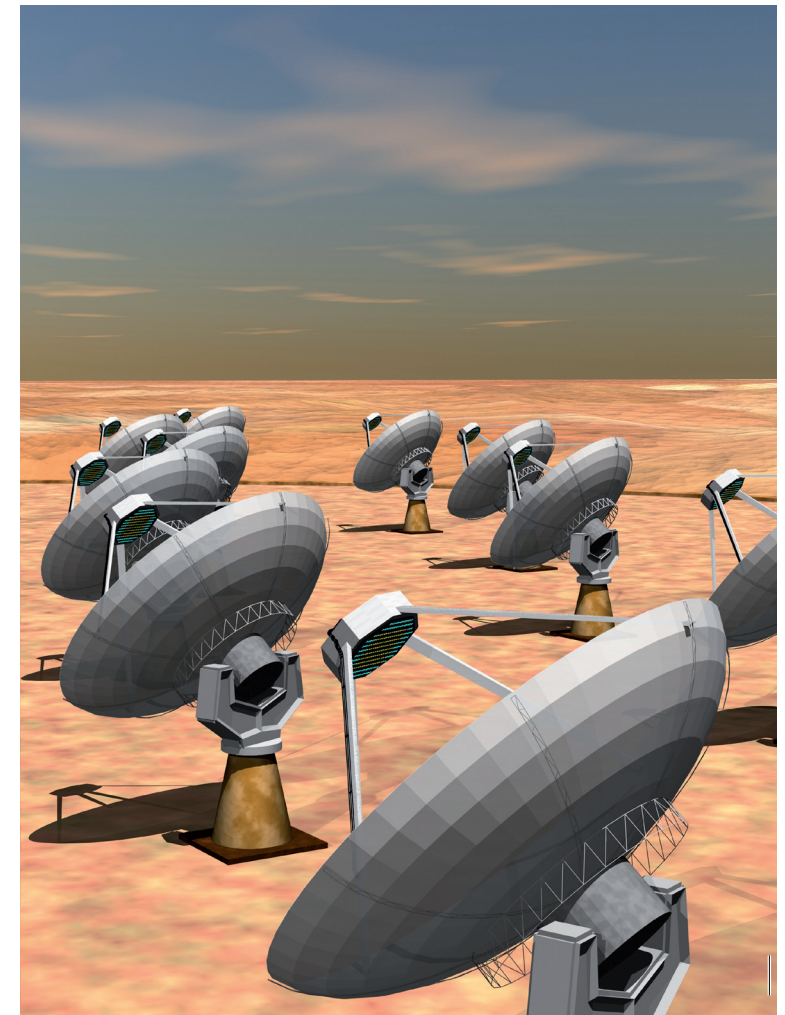
Daytime observing of the Moon by students at Cue Primary School in WA, during a CSIRO astronomy outreach program.  
Credit: Robert Hollow



Australian Government  
Department of Education,  
Science and Training



# The Australian Square Kilometre Array Pathfinder



## What is the Australian Square Kilometre Array Pathfinder?

The Square Kilometre Array (SKA) is a \$1.8 billion international mega-science project now under consideration: a telescope that will answer fundamental questions in physics and cosmology. The Australian SKA Pathfinder (ASKAP) is a new radio telescope, to be designed and built by CSIRO, in collaboration with leading overseas astronomers and engineers, that will provide an important test-bed for SKA technology as well as being a world-leading telescope in its own right.

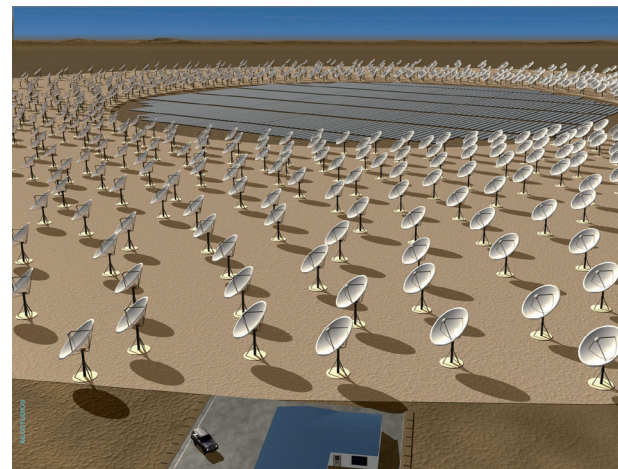
In the 2007-08 Budget, the Australian Government announced new funding of \$56.7 million over four years to support Australia's involvement in the SKA project. This takes the Australian Government's commitment to SKA-related projects so far to \$117 million, of which \$100.9 million is for ASKAP itself.



The Australian Government is working with the Western Australian Government to develop the WA telescope site (indicated by the dish) as one of the best places in the world for radio astronomy. The linked, smaller group of dishes will be sited at a yet to be determined location in New South Wales.

## The international SKA program

Australia is a world leader in both radio astronomy in general and in developing SKA technologies. Australia has been short-listed as one of the two sites suitable for the SKA. The Pathfinder funding will allow Australia to engage deeply in an international collaborative effort to finalise the technical design and organisational structure of the SKA.



A visualisation of the SKA. Image: Xilostudios / ISPO

**“The SKA project is an unprecedented opportunity for Australia to potentially host one of the most important international science projects of the 21st Century.”**

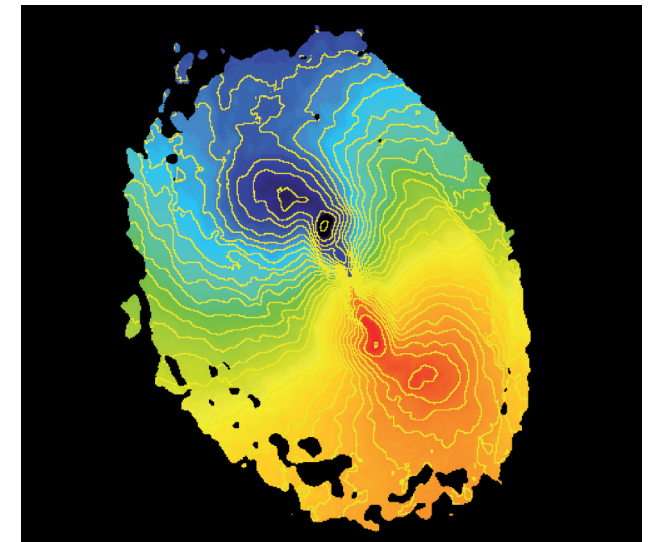
— The Hon Julie Bishop MP  
Minister for Education, Science and Training

## The Pathfinder telescope

At the main ASKAP site in Western Australia there will be up to 45 dishes, working together as a single telescope. The dishes will use innovative radio-wave receivers that will give them an unparalleled view of the sky. The WA site will be linked to a smaller group of dishes in NSW by optical fibre.

## Pathfinder science

The ASKAP telescope will be able to detect hundreds of times more galaxies than previous radio telescopes, helping us to understand how galaxies have formed and evolved. It will help us to understand how our own Galaxy has developed, and its current structure. It will also be a world leader in studies of pulsars, transient radio sources, and magnetic fields in space, helping to cast light on fundamental physics and processes at work in the Universe today.



The Circinus galaxy, as imaged by CSIRO's Australia Telescope. Credit: B. Koribalski et al.