

## Are we alone in the universe?

Australia will next year help NASA in the largest search ever made for radio signals from extraterrestrial civilisations.

The CSIRO Parkes telescope in central New South Wales, still relatively free of interference from man-made signals, has been identified as an ideal site for the search. Other radio telescopes to be used are at Arecibo, Puerto Rico, and Nancay, France.

The first search for signs of life from space was in 1960, and dozens of others have followed, but they have only examined a few hundred stars. There has not been any confirmed detection of signals.

This time, NASA's strategy is to use existing radio telescopes, but to hook them up to its own 'mobile research facility'. This self-contained trailer will be flown around the world, trucked to each site and plugged into the telescope in question.

The trailer houses a 10-million-channel spectrum analyser, which picks its way through all the natural radio signals emitted by stars and galaxies, looking for an artificial radio signal. The spectrum analyser is a special-purpose super-computer, equivalent to about five Crays in terms of its throughput. In five minutes of the search, the NASA system will process as many data as have been collected by the dozens of previous searches.

Starting in October, 1994, Parkes will be used to look for signals from 172 star systems. These systems are part of a group of about 1000 nearby solar-type bodies

that will receive special attention in the search.

Another part of the search is a broad-brush survey to look for signals coming from any direction in the sky. This will be done with the antennas of NASA's Deep Space Network, including those at its station at Tidbinbilla near Canberra.

The Parkes telescope will be used by NASA for 20 weeks. Included in this is a two-week period in which Australian scientists can run projects with the NASA equipment.

The search for radio signals is based on a number of assumptions about extraterrestrial civilisations. NASA is looking for life that in many ways resembles that on earth: life that lives on a planet, is interested in the universe and has a technology compatible with ours.

A civilisation could choose many ways to send information across the universe, but radio waves between 10 and 30 cm long are by far the most efficient. All radio searches to date have concentrated on these. The kind of signals that might be picked up include: directed signals, intended for 'emerging' civilisations such as ours; interstellar communications between two other civilisations; or signals that have 'leaked' from a planet (such as our own TV and radar signals).

A detailed report on the search for extraterrestrial intelligence will be published in a later issue of *Ecos*.

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