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*Looking back: The hole-in-the-ground antenna at Dover Heights*

*Photo: © CSIRO, ATNF photo archive B3017*

Australia has a long history of innovation and excellence in the design of radio telescopes and their use for radio astronomy. In 1951, staff at the CSIRO Division of Radiophysics excavated a 21.9-metre diameter depression in the sandy soil near the cliff top at Dover Heights, to construct the “hole-in-the-ground” antenna. This antenna was used at a frequency of 160 MHz, with the detection of a strong peak in radio continuum emission detected in the direction of Sagittarius A.

In early 1953 the hole-in-the-ground antenna was extended and upgraded to have a diameter of 24.4 metres. A wooden jig was used to achieve an accurate parabolic surface and this was filled with concrete and lined with wire mesh to provide a reflecting surface. The upgraded antenna was partially steerable, with the position of the antenna aerial adjusted using guy ropes. This image shows construction work in February 1953 on the upgraded hole-in-the-ground antenna. South and North Head of Sydney Harbour can be seen in the background.

The hole-in-the-ground antenna was used with outstanding success to survey radio emission from the Galactic plane at a frequency of 400 MHz. In 1953, this survey provided an accurate position for the centre of our own Galaxy, confirming its location in Sagittarius A, and also provided new detections of discrete Galactic and extra-galactic radio sources.