

46th IAA SYMPOSIUM ON THE SEARCH FOR EXTRATERRESTRIAL INTELLIGENCE (SETI) –
The Next Steps (A4)
SETI 1: SETI Science and Technology (1)

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ALL-SKY RADIO SETI

Abstract

Over the last decade, Aperture Arrays (AA) have successfully replaced parabolic dishes as the technology of choice at low radio frequencies – good examples are the MWA, LWA and LOFAR. Aperture Array based telescopes present several advantages, including sensitivity to the sky over a very wide field-of-view. As digital and data processing systems continue to advance, an all-sky capability is set to emerge, even at GHz frequencies. We argue that assuming SETI events are both rare and transitory in nature, an instrument with a large field-of-view, operating around the so-called “water-hole” (1-2 GHz), might offer several advantages over contemporary searches. Sir Arthur C. Clarke was the first to recognise the potential importance of an “all-sky” radio SETI capability, as presented in his book, *Imperial Earth*. As part of the global SKA (Square Kilometre Array) project, a Mid-Frequency Aperture Array (MFAA) prototype known as MANTIS (Mid-Frequency Aperture Array Transient and Intensity-Mapping System) is now being considered as a precursor for SKA-2. MANTIS can be seen as a first step towards an “all-sky” radio SETI capability at GHz frequencies. This development has the potential to transform the field of SETI research, in addition to several other scientific programmes.