

Parkes Network Station Report 2017–2018

John Reynolds

Abstract This report describes observing carried out by the Parkes 64-m telescope during 2017 and 2018 and the future outlook for the telescope.

1 Observing in 2017 and 2018

The Parkes 64-m telescope did not participate in any scheduled IVS sessions over this period, owing to continued scheduling pressures. However, the Observatory continues to operate the Mark-5B recording system and concentric S/X receiver and supported two precision astrometry/geodesy programs over this period. Both programs used the software correlator at the Pawsey Supercomputing Centre in Perth, Western Australia.

Parkes participated in two 24-hour sessions aimed at improving the accuracy of the ICRF in the south by a factor of two. This program was led by Dr Oleg Titov of Geoscience Australia with collaborators from Australia, New Zealand, South Africa, and China. Three telescopes from the Russian Federation also participated. A second aim of this program is to investigate quadrupole systematic effects in positions and proper motion that could be an indication of the stochastic background gravitational waves.

A second program led by Leonid Petrov of the Astrogeo Center, USA used Parkes for another two 24-hour sessions in a program aimed at improving the VLBI positions of southerly AGN detected by ESA's Gaia mission. This program team also includes collaborators from Australia, New Zealand, South Africa, and China. The goal of these observations was to improve VLBI position accuracy to sub-milliarcsecond levels through imaging at X- and S-bands, and determining jet directions. Results from this program will form part of the Radio Fundamental Catalogue (<http://astrogeo.org/rfc>).

The participation of Parkes in precision astrometry and geodesy observations remains at a modest level, but it is planned to continue to support programs that require a large Southern hemisphere aperture to meet specific science goals.

Commonwealth Scientific and Industrial Research Organisation
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