

Hobart, Mt. Pleasant, Station Report for 2002

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Abstract

This is a brief report on the activities carried out at the Mt. Pleasant Radio Astronomy Observatory at Hobart, Tasmania. During 2002 the Observatory participated in about 32 geodetic VLBI observing sessions. We also obtained funds to support an equipment upgrade from Mark 3 to Mark 4/5 which is due to be complete early in 2003.

1. Introduction

The Mt. Pleasant Observatory is located about 15 km north of Hobart at longitude 147.5 degrees East and latitude 43 degrees South. The station is operated by the School of Mathematics and Physics at the University of Tasmania with financial support from the University and with the aid of an Australian Research Council Linkage grant in conjunction with AUSLIG (now Geoscience Australia). The station has participated in geodetic VLBI programs since 1988 but only joined IVS in 2002 when we were able to secure funding support for geodetic observations for a five year period. The station has a co-located GPS receiver and a site which has been used on several occasions for absolute gravity measurements.

2. Brief Description of VLBI Facilities

The antenna is a 26m prime focus instrument with an X-Y mount. The focus cabin has recently been upgraded to include a feed translator with provision for four different receiver packages which enables rapid change over between geodetic and astronomical requirements. When the upgrade is complete, mid 2003, standard receiver packages will provide for operation at L band, S, C, X and K bands as well as the dual frequency S/X geodetic receiver. All of these receivers will be cryogenically cooled. The antenna has a maximum slew rate of 40 degrees per minute about each axis. The station is currently equipped with a Mk IIIa VLBI recording system as well as S2. During 2002 we received funds to upgrade the system to Mark 4/5 and this is currently in progress. We have just taken delivery of the upgraded base band converters and expect to receive the remainder of the system over the next few months.

3. Staff

Staff at the observatory consists of two academics, Professor Peter McCulloch and Dr. Simon Ellingsen as well as an Observatory Manager Mr. Brett Reid funded by the University. In addition we have an electronics technician, Mr. Eric Baynes funded through the ARC grant and a half time mechanical technician. For operation of the observatory during geodetic observations we rely heavily on support from astronomy post-graduate students.

4. Geodetic VLBI Observations

Hobart participated in about 32 geodetic VLBI experiments during 2002. These were divided between the IVS-R4, OHIG, SYOWA CRF and APSG programs.