

## 3.7 IERS Working Groups

### 3.7.1 Working Group on Site Survey and Co-location

The IERS Working Group on Site Survey and Co-location (*jointly with IAG Sub-Commission 1.2 – WG 2, SC1.2-WG2*) was established in February 2004. The major goals and objectives of the WG are:

#### Site Survey and Standards

- Develop, test, compare and set standards on site survey methods, including observational techniques, network design, classical adjustment, geometrical modelling and/or direct measurement techniques for invariant point determination, reference frame alignment, software implementation and SINEX generation. This will include the development of a standards document for undertaking site surveys;
- Preparation and coordination of a Pilot Project (PP) on site survey. The PP includes test campaigns to be used for the comparison of different approaches to local tie surveys addressing each of the technical elements;
- Develop standards for the documentation of site surveys, including survey report content and format; and
- Suggest a pool of expertise to provide advice to survey teams, as required, on standards for site surveys.

#### Coordination

- Liaise with local and international survey teams undertaking site surveys at important co-location sites;
- Liaise with the technique combination groups to ensure WG site survey products meet user requirements;
- Coordinate as required and make recommendations to observatories as to survey scheduling and re-survey frequency;
- Develop and distribute software tools to the community to assist in the generation of site survey products, including SINEX generation software; and
- Provide a forum to raise the profile of site survey as a critically important independent geodetic technique.

#### Site Survey Research

- Investigate new site survey methodologies, including observational techniques, observational modelling, invariant point definition, geometrical modelling and/or direct measurement techniques for invariant point determination, reference frame alignment and structural deformation analysis.

#### Future Planning

- The WG will make recommendations and prepare for the future in respect to the ongoing site survey needs of the community and how these needs will be met in the long term (to address issues outside of the scope of this WG).
- Develop recommendations as to how the community can provide the IERS database with all information relevant to inter-technique combination and to the maintenance of the ITRF.

#### Meetings in 2007

One meeting was held in 2007 at EGU in Vienna jointly with the GGOS Networks and communication working group. Copies of presentations from that meeting can be found at <http://www.iers.org/MainDisp.csl?pid=68-40>.

The meeting was well attended and presentations from a number of speakers illustrated current topics of interest. A particular emphasis was placed on attempting to establish a new methodology for monitoring collocation vectors in near real time. The current survey methodology is episodic and as such will not pick up variations to the collocation vector between surveys. The need to continually refine accuracies was also discussed. With the GGOS aim of refining the accuracy of the ITRF below the 1mm level it becomes imperative that component accuracies are well below that level of accuracy. Current local tie accuracies are at the 1 – 5 mm level and as such need to be refined further.

As usual the meeting also stressed the need to continue to develop the concept of Local Ties as a key component of the technique combinations and reference frame definition and to ensure all collocated sites have up to date tie information.

#### Other Activities

Geoscience Australia continues to undertake monitoring surveys at the Australian sites. A new calibration pier at Mt Stromlo has been constructed in an attempt to refine the accuracy of the Minico near real time IVP monitoring system. The IVP was showing an apparent seasonal motion through the Minico system. It is believed that the tallest of the four calibration piers was actually moving seasonally and this was biasing the IVP results at the 0.5 mm level.

Plans are also being developed for local tie infrastructure at the Yarragadee site which will have a 12 m VLBI telescope installed in 2009. A methodology for surveying the relationship between the VLBI dish, Moblas 5 system, Proposed NGLR system and the variety of GNSS sites is being developed.

IGN is now undertaking routine local tie surveys at numerous sites and offers this service to observatory operators who are unable to complete their own surveys.

### 3.7.1 Working Group on Site Survey and Co-location

Pierguido Sarti from the Italian Istituto di Radioastronomia (IRA) reports that in 2007 they have completely re-surveyed Medicina VLBI-GPS eccentricity and Noto elevation axis using terrestrial observations.

**Future Meetings** The working group has planned to meet again at the AGU2008 meeting in San Francisco, US.

*Gary Johnston*