New Associate Analysis Center Established at PMD

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Abstract

In this report a new Associate Analysis Center is presented to the scientific community: the Politecnico di Milano DIIAR (PMD) Analysis Center (AC). The IVS Directing Board approved the proposal for such a new AC at its 24th meeting in Shanghai on October 23, 2010. An introduction of the group collaborating in the AC, location of PMD, its equipment, and the foreseen scientific activities are briefly presented in this report. We will make all efforts to develop the AC towards the scientific main purposes of the IVS.

1. Principal Characteristics

The proposal of DIIAR (Dipartimento di Ingegneria Idraulica, Ambientale, Infrastrutture viarie, Rilevamento) of Milano Politecnico to become an International VLBI Service for Geodesy and Astrometry Analysis Center (IVS AC) [1] was accepted at the 24th Directing Board meeting, which was held in correspondence with the Joint GGOS/IAU Science Workshop "Observing and Understanding Earth Rotation", in Shanghai, China on October 25-28, 2010.

All office supplies, hardware, and personnel are supported and maintained by DIIAR, Politecnico di Milano, the host institution of the PMD AC (see Figure 1).

Figure 1. Head office of Politecnico di Milano University where PMD is hosted.

The hardware equipment consists of a server, a personal computer, a notebook, two printers (one black-and-white and one color laser jet), a fax, and a scanner. All the equipment together with the MATLAB compiler are provided by DIIAR.

The software we are going to use in the Analysis Center is VieVs (Vienna VLBI Software) [3], which is developed by the members of the VLBI group of the Institute of Geodesy and Geophysics

(IGG), Vienna University of Technology (TU Wien). VieVs uses the programming language Matlab. Matlab is a very well known tool for university students. In many courses of their curriculum the students of Politecnico di Milano use Matlab. The use of Matlab will ease the implementation of new ideas and models also in the VieVs software.

2. Group at DIIAR Contributing to the PMD IVS Analysis Center

The following personnel will support the work of the new Analysis Center:

- Dr. Vincenza Tornatore: responsible for PMD (primary scientific/technical contact).

- Dr. Letizia Cannizzaro: expert in time series evolution and GPS data processing.

- Mrs. Cinzia Vajani: with secretary's and hardware maintenance tasks.

- PhD student: with primary interest in the geodetic VLBI technique; still to be engaged.

3. Main Interests and Future Plans

The principal interests of PMD IVS AC concern the study of the European baseline evolution.

The first objective of the Analysis Center is to start to analyze all EUROPE sessions under the same modeling conditions and analogous parametrization using the VieVs software. We would like first to compare our results with those of other ACs that have similar interest in the study of EUROPE sessions and preferably use the same VieVS software in order to have some degree of validation, e.g., with the KTU-GEOD (Karadeniz Technical University, Department of Geomatics Engineering) IVS AC that has also interest in EUROPE sessions [2]. The main purpose of PMD is to estimate European site coordinates and baseline lengths with respective variance-covariance matrices and to study their temporal evolution.

Another purpose of the Analysis Center is to compare VLBI results with GPS (Global Positioning System) results obtained for stations where the two techniques are present. We would like to apply the same statistical studies to both techniques to reveal possible differences in estimated deformations of the European plate. Comparisons with geophysical models in the area should also be performed.

Since the software VieVS is fully compatible with the Windows and Linux Operating Systems and it is distributed with its open source code based on Matlab, it would be very compelling to also involve students in the implementation of particular models compatible with those from other space geodetic techniques like GPS. The presence in the same Department of expertise in studies of GPS time series evolution will represent a good opportunity for direct comparisons of VLBI results obtained under the same processing strategies.

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References

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