Bologna, 28th September 2010

3rd periodic activity report of the IERS WG on local ties and co-location sites
Prepared by Pierguido Sarti

WG meeting
The second meeting of the WG took place in Vienna, during the EGU 2010 meeting, May 4th, 2010, 19.00 h-20.00 h at the Vienna International Centre venue, Meeting Room SM3. The minutes of the meeting are under preparation.

Participants:
C. Abbondanza, Z. Altamimi, J. Dawson, R. Haas, M. Pearlman, J. Ray, R. Schmid, P. Sarti, M. Seitz, L. Vittuari

Invitees:
D. Angermann, T. Kluegel, C. Ma, M. Pouttanen, S. Boeckmann, J. Pietzner, B. Richter, M. Rothacher

Excused:
G. Bianco, X. Collilieux, B. Garayt, C. Meertens, M. Hennes, M. Loesler, J. Long, V. Michel, A. Nothnagel, J.-C. Poyard, J. Saunier, A. Woods

The interest on the topics covered by the WG chart is high in the geodetic community, as shown by the remarkable number of invitees that participated in both the first and second WG meeting.

Ongoing activity
During the Vienna meeting, the discussion partially focussed on the possibility to write *guidelines for surveyors* to be resumed *in a reference manual* for practical on field operations. Although time consuming, a drafting of such document is feasible and would be useful under certain circumstances. Nevertheless, as chair of the working group, I have to stress the *complete lack of agreement on the methods to be adopted for tie vector surveying* among the groups involved in local tie surveying. This certainly jeopardizes the efforts spent on the preparation of a reference manual and it compromises its significance and validity.
As the *local ties* are performed mostly by local on-site surveyors, the *methods are highly site dependent* and may differ considerably one another. Nevertheless, a *harmonization* of the different surveying method *is needed to* dominate and *control* several factors that impact on the *accuracy of* the *tie vector*. In addition, the different *homemade software* which are used specifically to reduce and condition indirect terrestrial observations *must be inter-compared* and tested. To my knowledge, *only one test* was successfully carried out inter-comparing two indirect-method software and it *proved* their *consistency* (Dawson et al. 2007, J Geodesy). *This* mandatory *phase* of the harmonization process was identified as *crucial* during the San Francisco WG meeting *but* had *no follow up*.
Tie vectors residuals were recently released as a *by-product* of the recent *ITRF2008 combination*. Their values *are currently* being *investigated* for assessing critical situations at the co-location sites. A close *cooperation* with the Product and *Combination Centres* is compulsory and is part of the ongoing investigation.
The *WG needs closer cooperation with the single technique services* in order to investigate further the role of PCV to connect the Electronic and Conventional reference points of the different geodetic instruments and remove the possible biases. *Particularly,* the cooperation with *IVS, IDS and ILRS must be strengthened.*

Miscellaneous
During the EGU2010, the session “The Global Geodetic Observing System: Tying and Integrating Geodetic Techniques for Research and Applications” attracted contributions that covered several aspects relevant to the WG activity. Twelve oral and twenty one poster contributions were eventually presented and helped outlining the state-of-the-art on the WG activities.