IGN plans to support the international activity related to local ties

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International activity up to now:

IAG working group (2011-2014), joint with IERS:
JWG1.1: Tie vectors and local ties to support integration of techniques (Chair: P. Sarti)

Report of the previous IAG WG (2007-2011) at
http://iag.ign.fr/uploads/media/IC-WG1.4.pdf

The report pointed out difficulties to organize the activity and define standards. Some recommendations have been given:

- « a harmonization of the different surveying method is needed to dominate and control several factors that impact on the accuracy of the tie vector »

- « homemade software which are used specifically to reduce and condition indirect terrestrial observations must be inter-compared and tested. »

Current status of the activity (2/2)

Availability of data:

- No local survey raw observation publicly available. Probably available on request, but several data formats exist. It is also not easy to find who did what!
- Few reports available. Mainly at http://itrf.ign.fr/local_surveys.php
- Tables and SINEX files available at http://itrf.ign.fr/local_surveys.php but no hierarchy (Should I use the tie solutions used in the ITRF2008 estimation?) and almost no metadata

Fig. Herstmonceux survey 2008

Proposition (1/2)

According to the IERS ToRs, the "ITRS Center is responsible for the maintenance of the ITRS/ITRF, including network coordination (design collocation, local ties, and site quality)."

So IGN proposes to establish an "survey operational entity" that will interact with an "advisory group" composed of international local tie survey experts.

1
survey operational entity:
IGN/SGN (surveyors and engineers)
in interaction with the research laboratory

➡ day-by-day operational activities

Recommendations, discussions

2
Advisory group:
• Local tie experts:
members of the currently existing IERS/IAG WG
• Technique experts for technique systematic errors

Fig. GRAS ref. point

Proposition (2/2)

Mission:

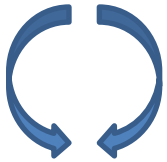
To supply local tie data and products as well as recommendations to surveyors and users.

Actions:

1) Creation and maintenance of a Survey Data Archive:
Observations (data), metadata (pictures, reports) and products (SINEX, reports). Availability through a web site.

2) Establishment of Survey Data Format conversion document and software.

3) Development of a document "Survey Guidelines/Specifications".

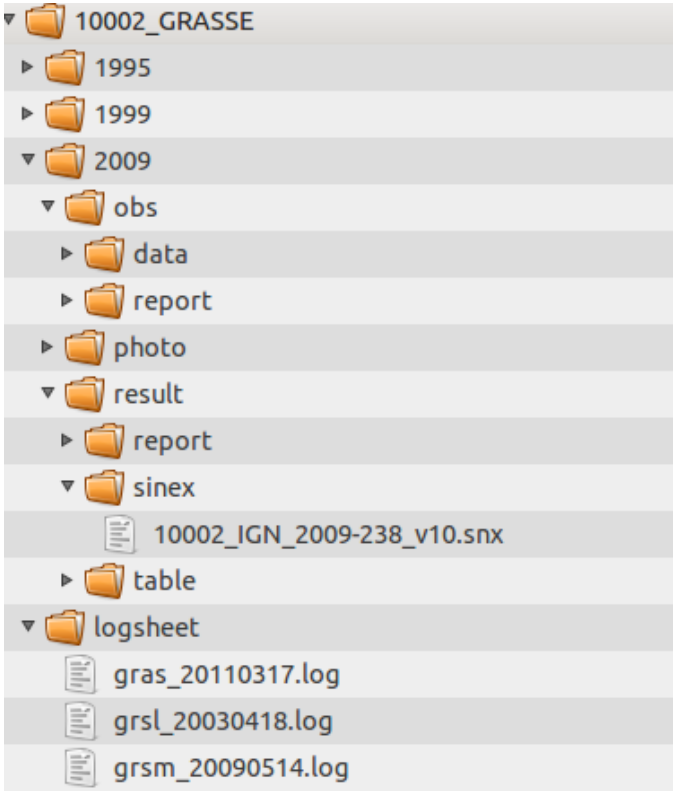


Interaction between the survey operational entity and the advisory working group

On going activity (1/2)

* Inventory of all the local surveys that have been carried out at the IERS co-location sites.

* Find metadata about the available survey products (table, SINEX) and make a hierarchy of the products.



Ex: do 2 distinct SINEX files come from the same survey?

Suggested normalized SINEX file name:
10002_IGN_1999-284_v10.snx

Site ID

Survey group

Epoch

Version starting from 10

On going activity (2/2)

Future database (draft model)

Picture
- File
- Date

Site
- Id
- Name
- Description
- Tectonic plate
- Country
- Coord.

contains

Reference point
- Id
- Name
- DOMES
- coord
- Start. Epoch
- End Epoch

Is monitored with

Station
- Code
- Type
- Description
- Logsheet
- Excentricity

Is equiped with

Equipment
- PCV model
- Type
- History

Survey

Survey
- Start. Epoch
- End Epoch
- Institution
- ... obs files ...
- Report

collects

Raw data
- Id Ref. point 1
- Id Ref. point 2
- Survey method
- Technique

Collected with

Instrument
- Name
- type

Data processing

Solution
- Id Ref. point 1
- Id Ref. point 2
- Epoch
- Dx
- Dy
- Dz
- Sdx
- Sdy
- Sdx
- Index_x
- Index_y
- Index_z

Have been processed

Processing
- Survey
- Institution
- Date
- ... Apllied corrections...
- version
- Ref. frame
- Units
- Coord. Of the ref. point
- software
- report

SINEX file
- Name

Have been used in

TRF
- ITRF name

Cov. matrix
- Index 1
- Index 2
- Value

Perspectives

- ❑ Continue the work on the section « product s and metadata» of the database
  - • Gather all available information about the existing products. Agencies may be contacted
  - • Create the database and publication on the website
- ❑ Start the work on the modeling of the raw observations

We hope stimulating the activity around the processing of local survey observations.

If you have reports, various SINEX file versions, observation data from local surveys, we would be happy to collect them.
Temporary contact e-mail: itrf@ign.fr