



IAG Working Group "Regional Dense Velocity Fields" : Objectives and Work Plan



IAG WG 1.3
Regional Dense
Velocity Fields

AGU Fall Meeting 2008
San Francisco, US

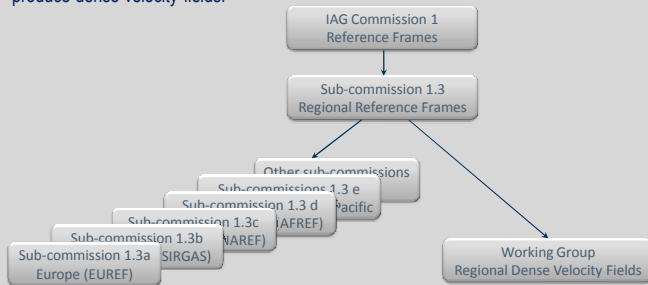
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Introduction

The Working Group "Regional Dense Velocity Fields" was created at the IUGG meeting in Perugia in 2007. It is part of IAG Sub-Commission 1.3 'Regional Reference Frames' which is imbedded in IAG Commission 1 on Reference Frames. The Working Group aims at using the large amount of available GNSS CORS and campaign data to produce dense velocity fields.



To achieve this goal, working group members join efforts with the regional sub-commissions (AFREF, NAREF, SIRGAS, EUREF, ...) and analysis groups processing data from local/regional continuous and episodic GNSS stations in order to

- collect SINEX solutions and their meta-data;
- provide dense regional velocity fields;
- provide a global the densification of the ITRF.

Approach

Two different approaches can be used to produce dense regional velocity fields in one global frame:

APPROACH I : Densification by weekly combination:

Weekly solutions are submitted to the WG which combines all weekly solutions and then stacks the weekly combinations to produce a velocity solution tied to the ITRS (IGS approach).

- requires consistency of the weekly solutions with respect to corrections and processing options: antennae, tides, loading, 2nd order ionospheric effect, tropospheric mapping function,...
- solutions since week1400 are incompatible with older ones because of the IGS adoption of absolute antenna phase center variation models since week 1400.
- outlier detection requires detailed station meta-data.

APPROACH II: Densification by combination of cumulative solutions:

Cumulative solutions are submitted to the Working Group, which combines the cumulative solutions and ties them to the ITRS.

- allows to combine if necessary only velocities (without the coordinates) helping to resolve inconsistent antenna heights
- but, no coordinate time series available to the WG.

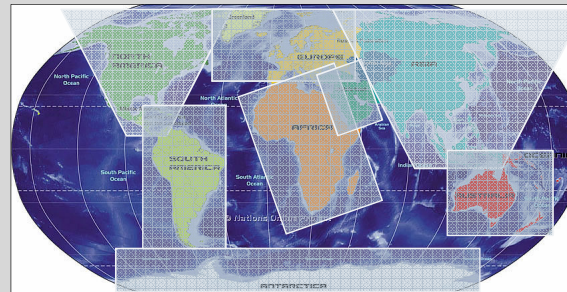
The Working Group has decided to go for **approach II**

Call for Participation

The goal of the Working Group is to provide, based on GNSS observations, regional dense velocity information in a common reference frame. For that purpose, we invite groups to submit their GNSS-based velocity solutions to the region coordinators in charge of their region.

Region coordinators

- Africa: R. Fernandes (rmanuel@di.ubi.pt), L. Combrinck (ludwig@hartrao.ac.za)
- Antarctica: M. Becker (becker@ipg.tu-darmstadt.de)
- Asia: D. Lavallée (d.a.lavallee@tudelft.nl)
- Australia: J. Dawson (John.Dawson@ga.gov.au)
- Europe: A. Kenyeres (kenyeres@gnsnet.hu)
- Middle East: R. King (rkw@chandler.mit.edu)
- North America: M. Craymer (craymer@nrcan.gc.ca)
- Latin America & Caribbean: L. Sánchez (sanchez@dgi.fidb.adw.de)



The region coordinators will combine the submitted solutions with GNSS solutions from the regional sub-commissions within IAG sub-commission 1 "Regional Reference Frames" (AFREF, NAREF, SIRGAS, EUREF, ...) to produce one regional combined velocity solution.

Analysts wishing to contribute to the regional combined solutions are invited to contact the coordinator of the concerned region.

Two combination coordinators, T. Herring (tah@mit.edu) and D.A. Lavallée (d.a.lavallee@tudelft.nl), will perform combinations of the regional combined velocity solutions provided by the region coordinators with long-term solutions from global networks such as the IGS and TIGA.

Analysts wishing to contribute with a global velocity solution are invited to contact the combination coordinators.

The collection of SINEX solutions starts in January 2009.

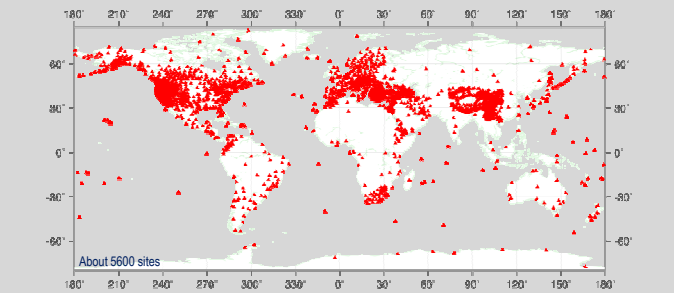
More Information

IAG Working Group "Regional Dense Velocity Fields", <http://www.epncb.oma.be/IAG/>
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Minimal Requirements for Contributing Solutions

- A minimum of 2 years of continuous data or a minimum of 2 campaign epochs over a 4 year period
- Constraints (in order of preference): free, minimally constrained, loosely constrained (with documentation of applied constraints) solutions are accepted. If constraints are applied, they should be removable.
- SINEX format preferred, software-dependent format accepted where possible, the inclusion of meta-data is strongly recommended.
- Solutions with fixed IGS orbits and EOPs are preferred

Contributions Received To Date...



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