

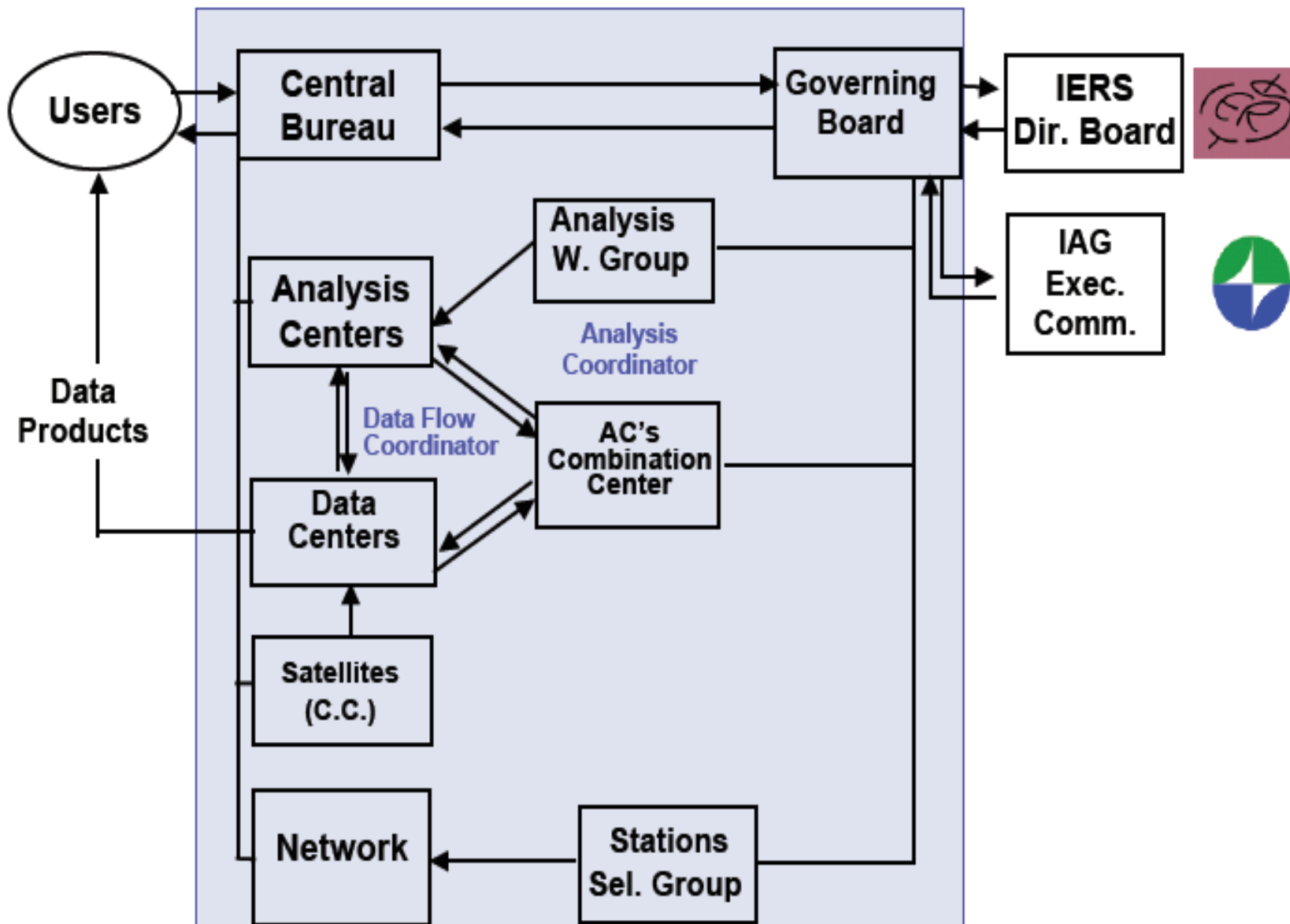
DORIS and VLBI

Frank Lemoine (NASA/GSFC)

Pascale Ferrage (CNES), Pascal Willis (IGN/IPGP), Laurent Soudarin (CLS), Hervé Fagard (IGN), Carey Noll (NASA/GSFC), John Ries (UT/CSR), Michiel Otten (ESA/ESOC), Jean-Jacques Valette (CLS), Philippe Yaya (CLS)



Organization of the International DORIS Service



IDS Analysis Centers

Contributed to ITRF2005 & ITRF2008

IGN: Pascal Willis, (**Gipsy, 1993-2008**)

LCA: Laurent Soudarin, (**GINS, 1993-2008**)

INA: Sergei Kuzin, (**Gipsy, 1993-2008**)

Contributed to ITRF2008 (New Analysis Centers)

GOP: Geodetic Observatory Pecny, Petr Stepanek, (**Bernese, 1993-2008**)

ESA: ESOC, Michiel Otten, (**NAPEOS, 1993-2008**)

GAU: Geoscience Australia, Ramesh Govind, (**GEODYN, 2003-2008**)

GSC: NASA GSFC, Karine Le Bail & Frank Lemoine, (**GEODYN, 2003-2008**)

Candidate Analysis Centers

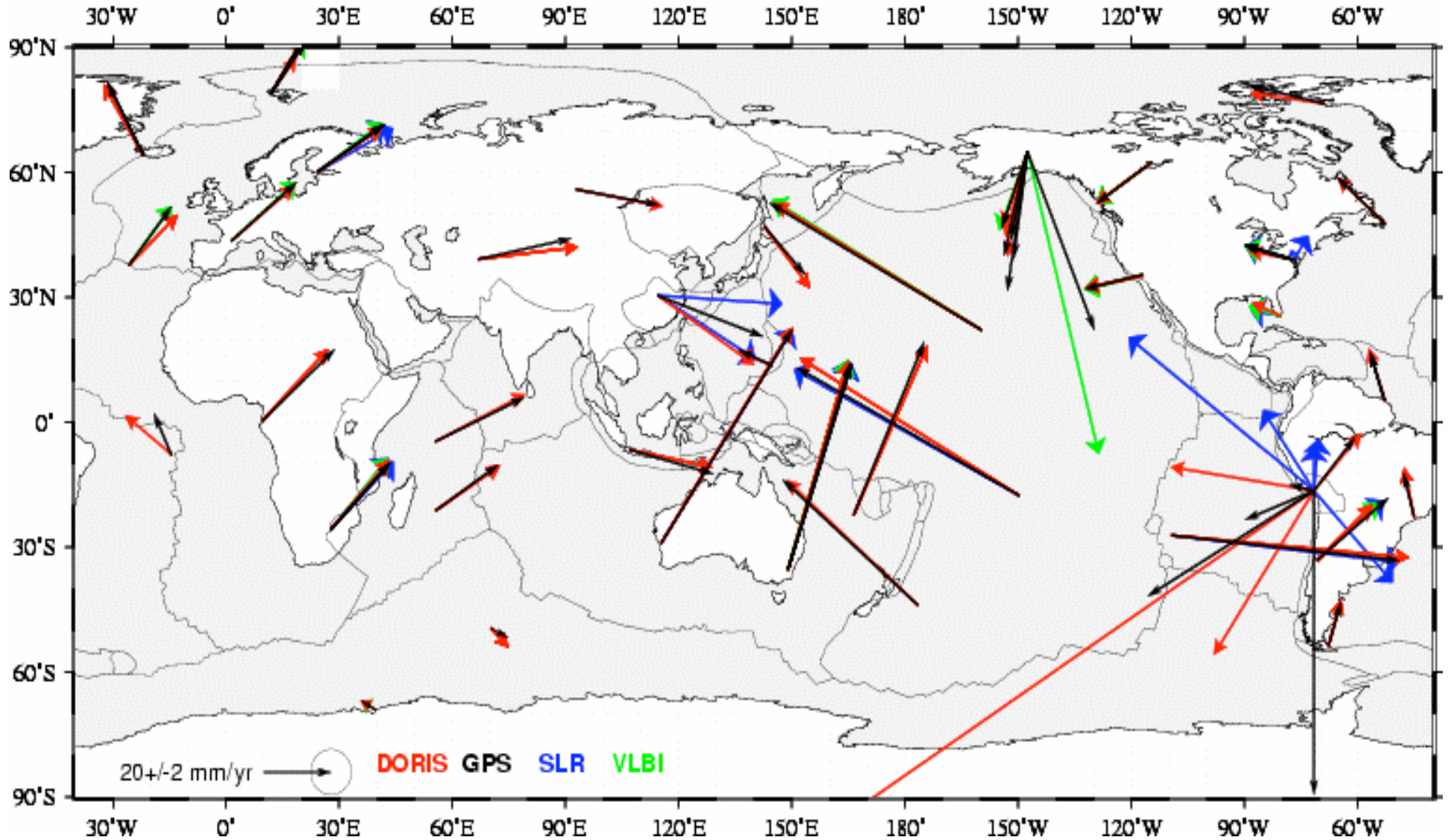
NCL: University of Newcastle, Phil. Moore

DORIS-VLBI Colocation Distances

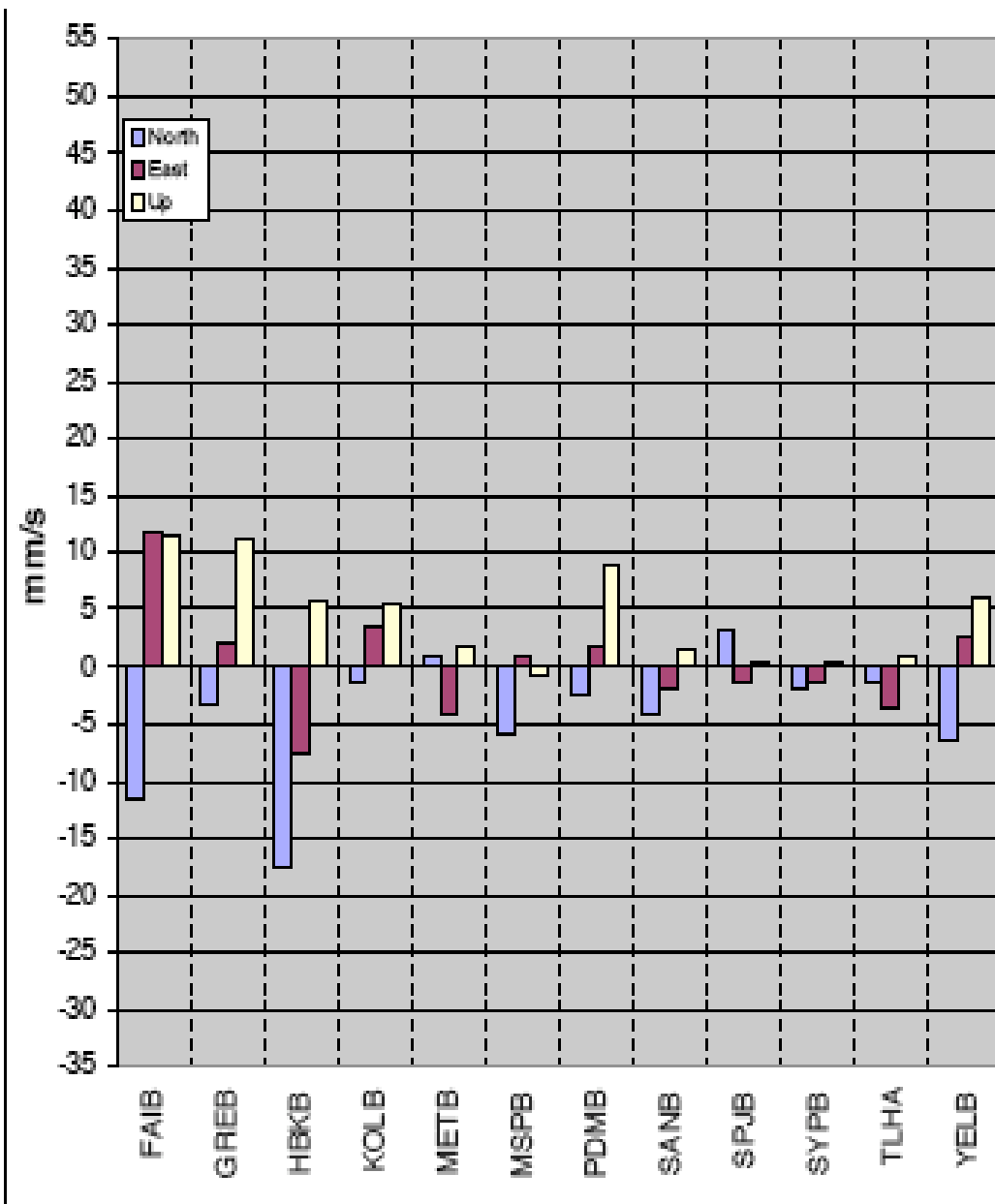
<u>Greenbelt:</u>	237 m
<u>Hartebeesthoek:</u>	2200 m
<u>Kauai:</u>	360 m
<u>Ny Alesund:</u>	1475 m
<u>Syowa:</u>	339 m
<u>Yellowknife:</u>	64 m
<i>Fairbanks:</i>	<i>1165 m</i>
<i>Metsahovi:</i>	<i>19 m</i>
<i>Ponta Delgada</i>	
<i>Santiago:</i>	<i>206 m</i>
<i>Saint John's:</i>	<i>88 m</i>
<i>Toulouse</i>	<i>1070 m</i>
<i>(Goldstone)</i>	<i>12.7 km</i>
<i>(Richmond)</i>	<i>1200 m</i>



ITRF2005 DORIS Velocity Comparisons

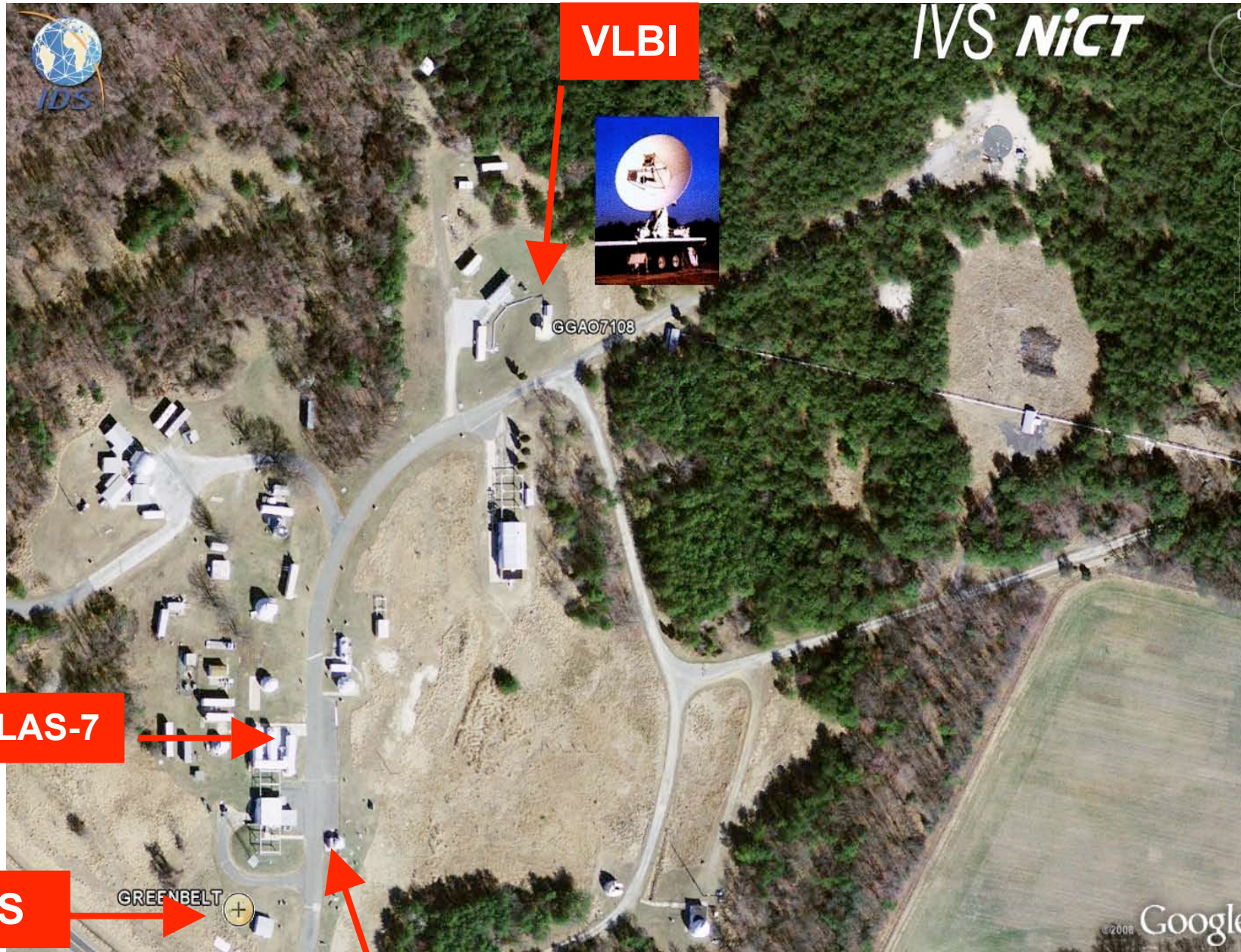


Comparison of Velocities (example): IDS Combination vs ITRF2005 (VLBI)



From: Ph.Yaya, J.J. Valette, IDS Analysis Working Group Meeting: June 5-6, 2008.

Greenbelt Site Map



MOBLAS-7

DORIS

VLBI

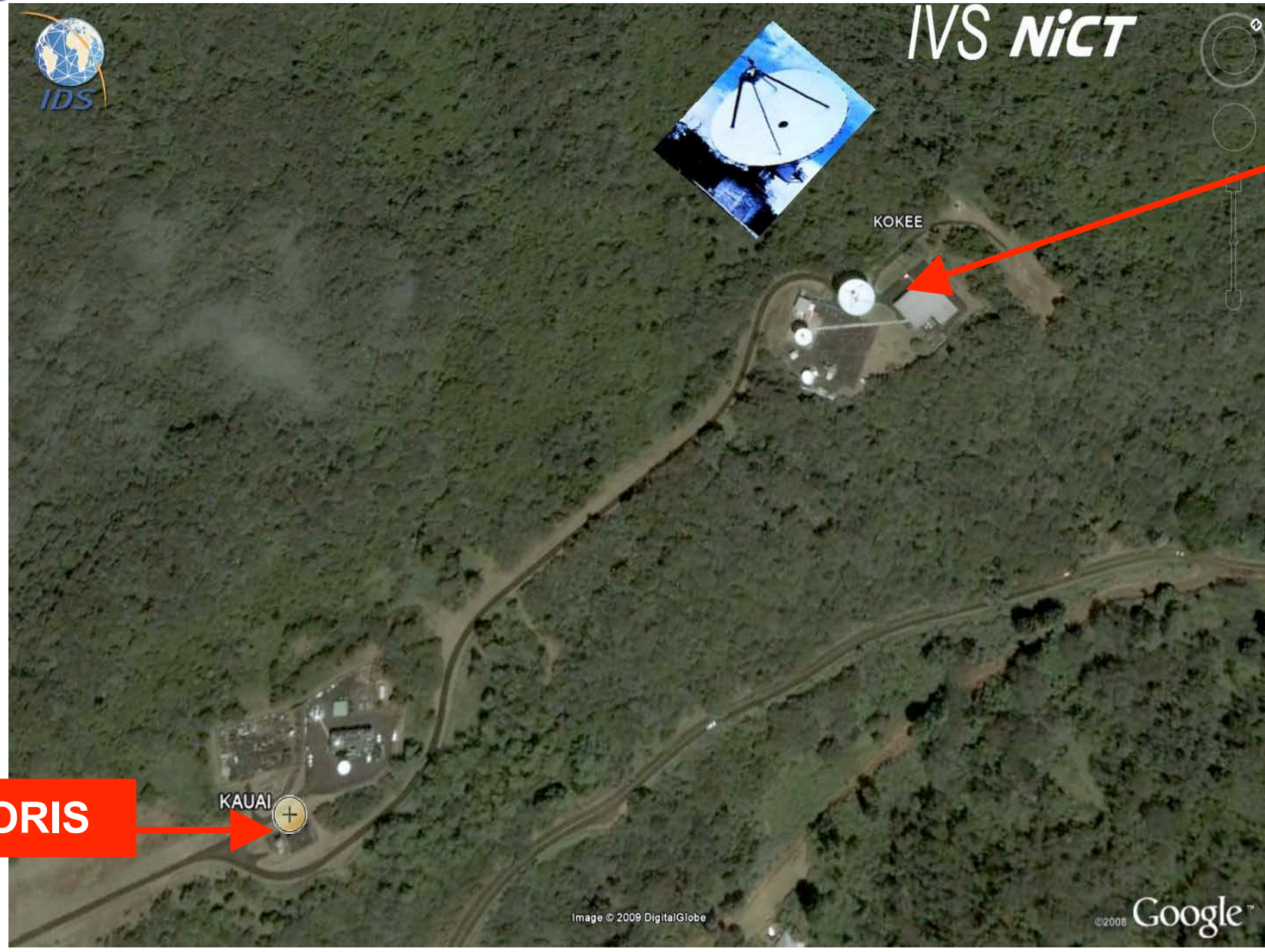
NGSLR





Kauai Site Map

IVS NiCT



VLBI

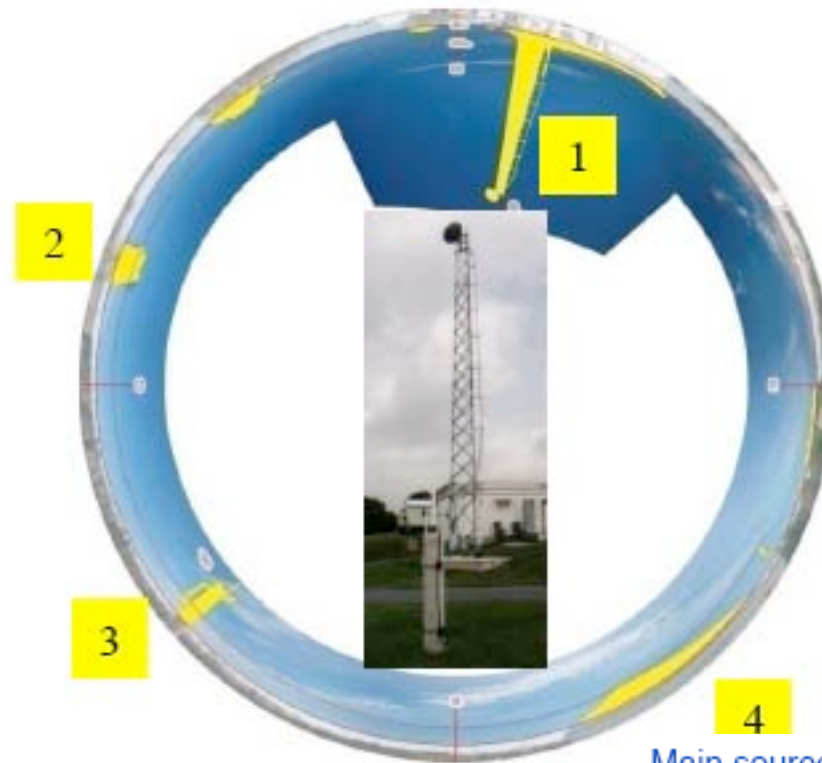
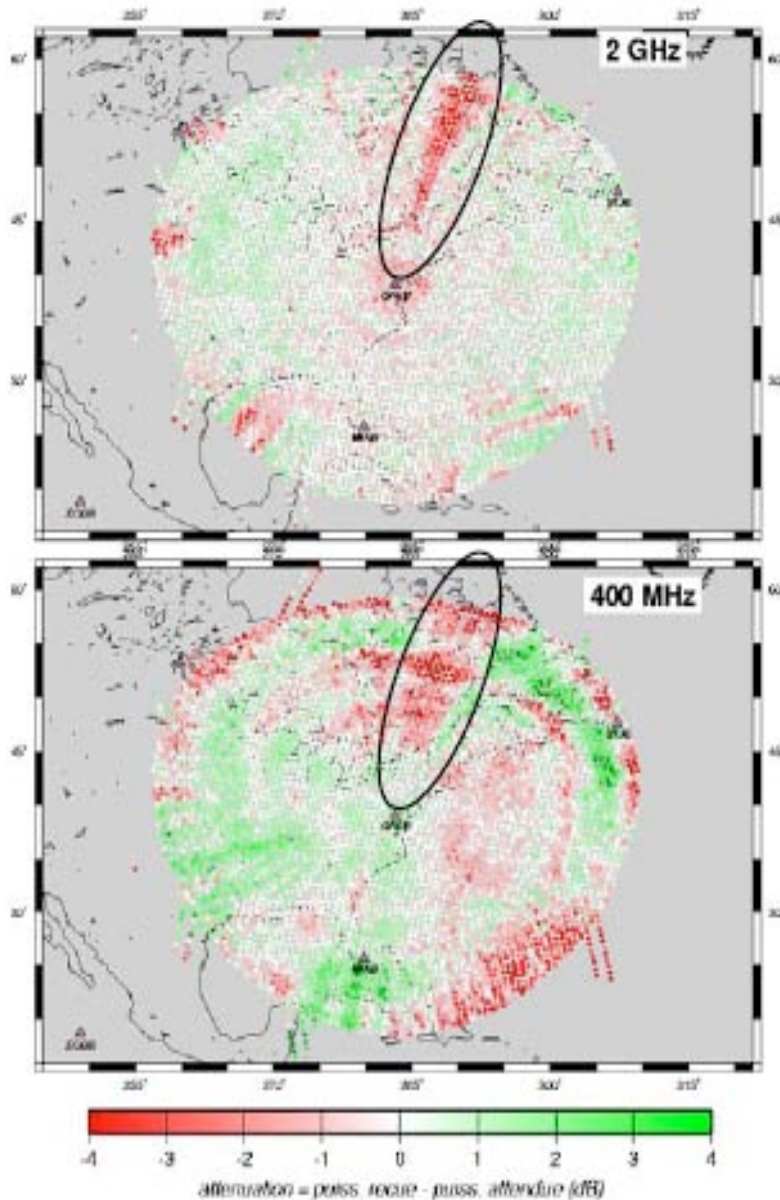
DORIS

Image © 2009 DigitalGlobe

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Power Attenuation for ENVISAT 01/01/2008 to 15/09/2008



Main sources of disturbances :

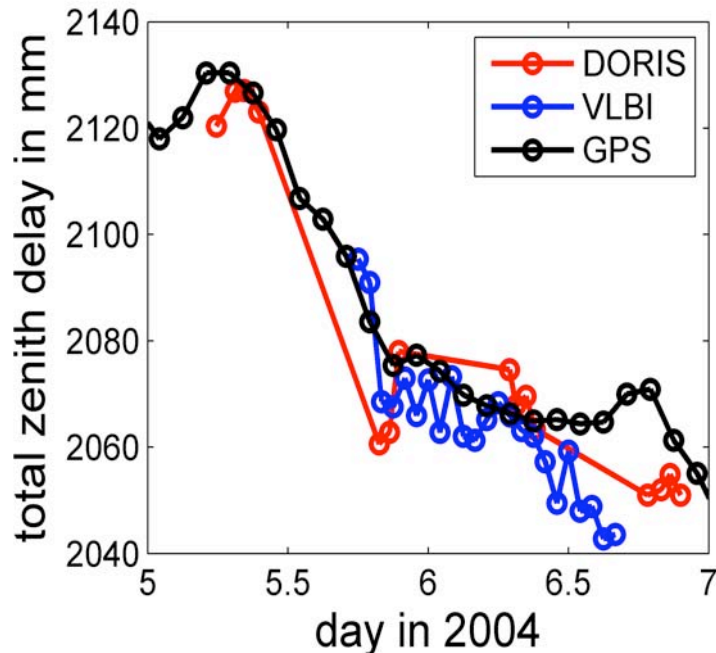
1. Metallic pole
2. Tree
3. Wood pillar
4. Building roof

From Ph. Yaya, et. al., IDS Workshop,
NICE, 12-14 Nov., 2008.

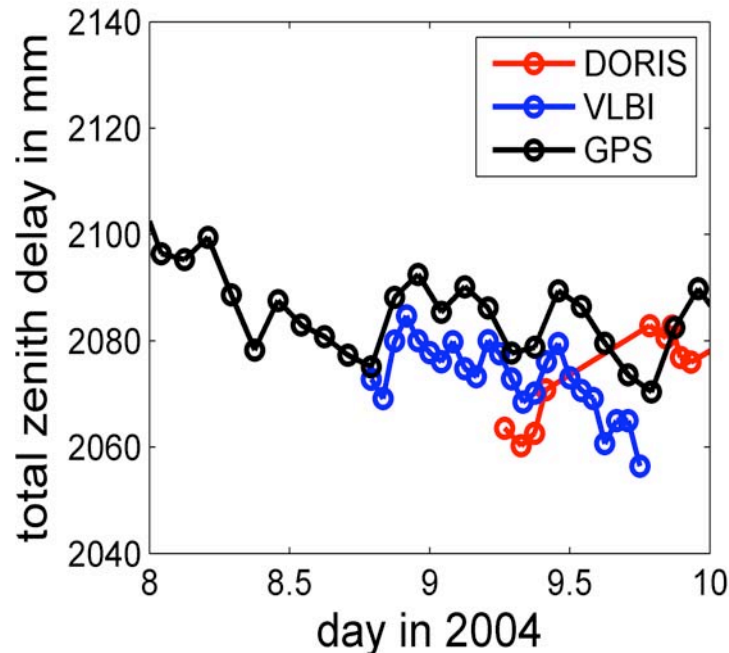
Troposphere comparisons

- DORIS, like VLBI & GPS must estimate troposphere corrections.
- Corrections are estimated pass-by-pass (typically 10-15 min, ~2X per satellite & DORIS station, and per day).

Hartebeesthoek



Kokee Park



Preliminary (example) comparisons from VLBI & GPS (Johannes Boehm) and DORIS (Pascal Willis).

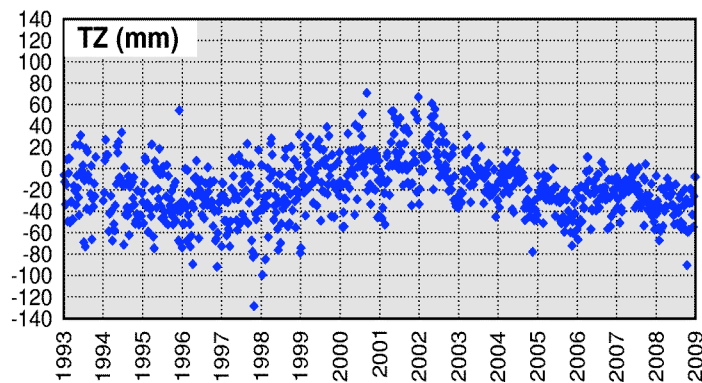
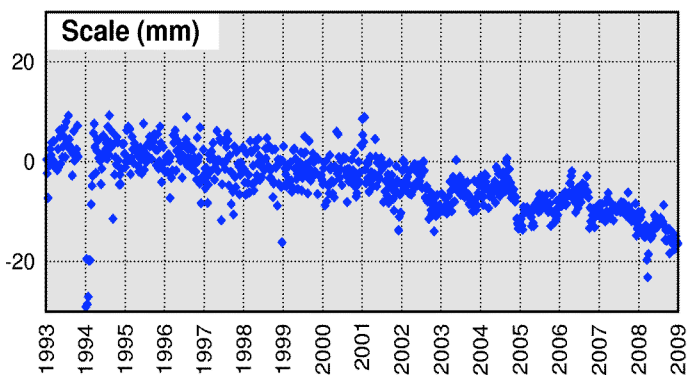
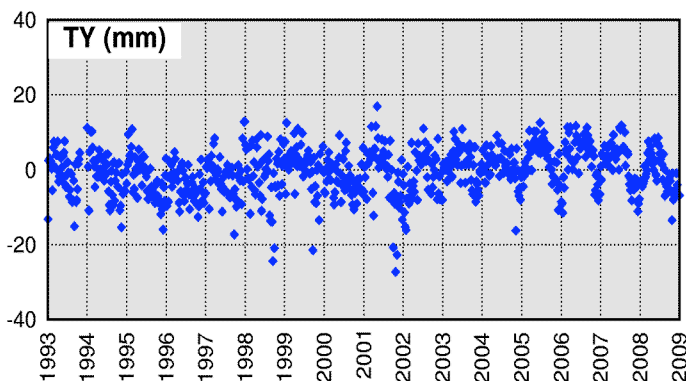
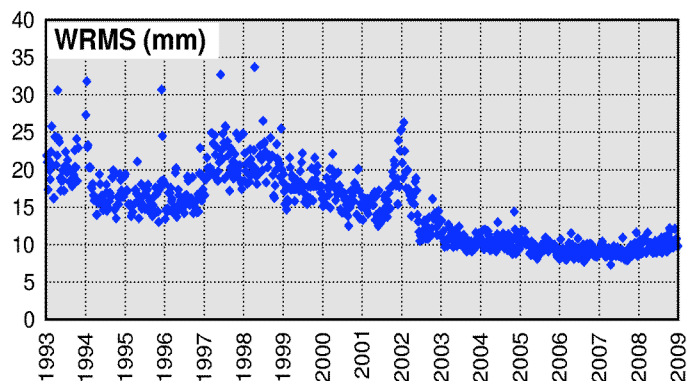
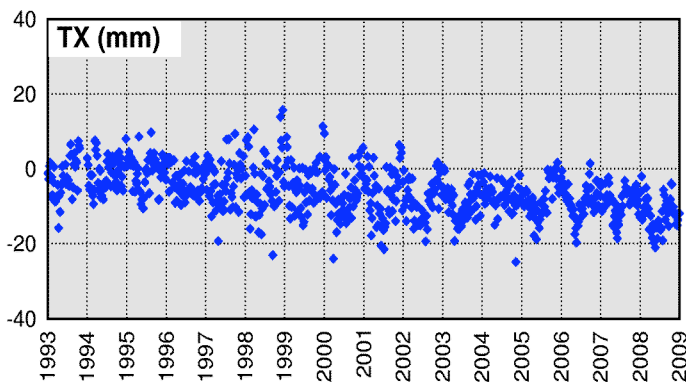
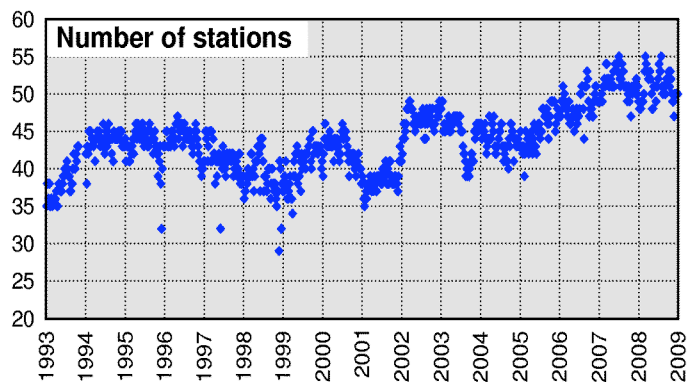




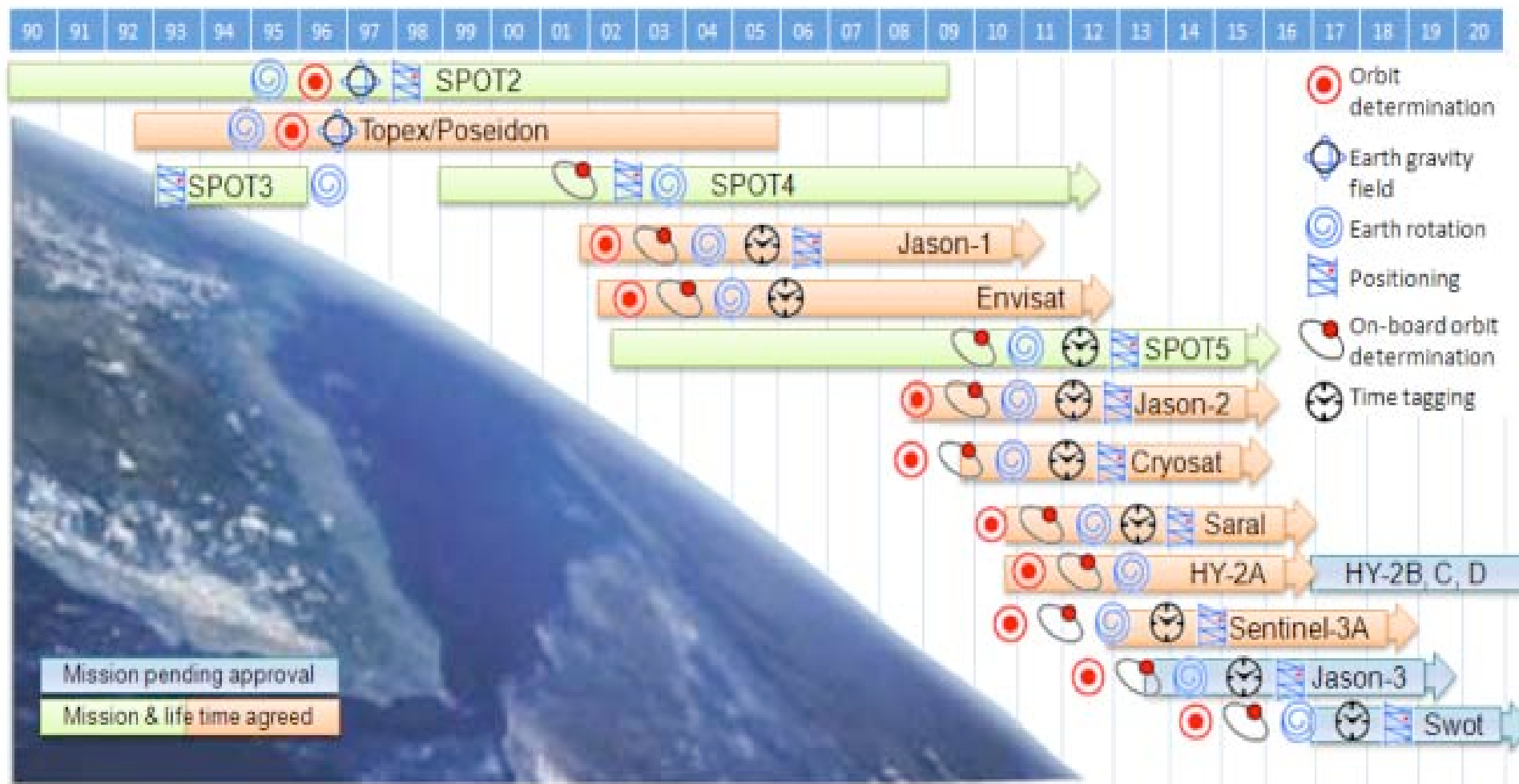
ITRF2008: Prelim. IDS Combination Results

Cumulative combination of IDS combined series vs ITRF2005

◆ comb



IDS Tomorrow: Satellite Status



- From Tavernier et al. (2006) & Altamimi et al. (2006), a minimum of four satellites necessary for quality geodetic positioning;
- At least five satellites are assured through mid to end of the next decade.



New DORIS Special Issue

- **Advances in Space Research.**
- **Guest editor Pascal Willis (email: willis@ipgp.jussieu.fr).**
- **Submissions open March-June 2009.**
- **Submissions through Elsevier website**
<http://ees.elsevier.com/asr/default.asp>
- **Topics: DORIS Analysis issues, AC submissions to ITRF2008, comparisons and analysis with other techniques; Jason-2/Jason-1 Tandem mission analyses & calibrations;**
- **VLBI Community is invited to participate.**
- **Contact the editor for any questions.**
- **See DORISMAIL 0587 (March 1, 2009) for more information.**



Summary & Future Challenges

- **Continue to advance the DORIS technique, with the aid of our analysis centers; Troposphere modelling, site multipath issues, spacecraft modelling, ionosphere corrections are all issues we will focus on in detail after completion of the ITRF2008 submission.**
- **We are very interested in continuing interactions with other techniques and IAG services.**
- **The IDS is grateful that the IVS hosts its beacons at a number of its sites, and we hope that perhaps these colocations can be increased in the future. (A limited number of beacons are available for scientific studies, and proposals should be made through the IDS GB).**
- **We should begin to plan now the configuration of the new next generation geodetic network (SLR, VLBI, GPS, DORIS), and how all the elements might fit together. (e.g. How do we plan for next generation station in Hawaii - should the NGSLR & VLBI2010 be built on Haleakala, or on Kauai at Kokee Park? What will happen at Fairbanks?)**

Thank you for your attention!

