IGS Reprocessing

Goals and Results from ESA/ESOC

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The IGS ...

... helping to better understand our world.
The IGS orbits are broken ...
“... although we have a mess of problems, we have great capacity - intellect and resources - to do something about them.”

Henry Ford II

- ‘04 - ‘05 : Absolute Antenna PCVs
- 2006 : Agreed products and models
- ‘07- ‘08 : Test period validated, ITRFO8 contribution agreed
Goal 
... generation of a consistent set of IGS products

Objectives 
... GPS orbits, clocks, ERP, SNX 
... ITRF ‘08 contribution 
... to be completed by ‘09
IGS repro1 contribution to ITRF08

11 Analysis Centers
856 Stations processed
515 Stations contributed:

(Remi Ferland, NRCan)
IGS repro1 SINEX Analysis

(Newcastle Combination, D. Booker, D. Lavallée, P. Clarke)
The new ESOC IGS software ...

- NAPEOS: Navigation Package for Earth Observation Satellites
- Used in ESA LEO POD
- Fortran 90/95
- Multi-platform
Our reprocessing workhorse ...

Intel QuadCore 2.4 GHz PC
Ubuntu / ifort / 8Gb / 1 Tb
150 stations/day in 50 min..
8 yrs in ~25 days !!
Using more stations ...
... more satellites ...
... ambiguities resolved ...
... better accuracy ...
... and better consistency.
Uncovering the **real** clock story ...

Cesium-to-internal undocumented jumps

Allan Dev (300s)

New Hmaser
Finally ...

... IGS repro1 making good progress
... a challenge and opportunity
... ITRF ‘08 benefits from IGS repro1
... IGS repro1 official in early 2010
... new models for repro2 (2010/2011)

Thanks!