IGS 2nd Reprocessing at GFZ

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Content

• Reprocessing activity at GFZ
• Two solutions from GFZ: GF2 & GT2
• Orbit combination 2000.0~2008.0
• Validation of GF2 & GT2
• Summary
GFZ contribution to IGS Repro1

Two solutions: GF1 & GT1

(Uhlemann et al. 2010, IGS workshop)
GFZ contribution to IGS Repro2

- Two solutions GF2 & GT2
  - GF2: 317 stations (white dots)
  - GT2: 794 stations (white+green dots)

- Products
  - GF2: 15 min. GPS SP3, 5 min. clk, daily SNX & ERP
  - GT2: 15 min. GPS SP3 & daily SNX
Processing Schemes

IGS REPRO2
- IGS Stations
- IGS like Data Analysis
  - SINEX & EOP
  - NEQ
  - Orbit & Clock Products

TIGA REPRO2
- TIGA only stations
- PPP Data Clean
  - Number of Subclusters
    - Cluster 1
    - Cluster 2
    - Cluster ...
  - IGS like Data Analysis
    - NEQ 1
    - NEQ 2
    - NEQ ...
  - Connect all clusters
    - SINEX & EOP
    - Orbit Products
    - NEQ

GF2 Products
GT2 Products
Repro2 orbit quality

Mean RMS of transformed GF2 orbits w.r.t. the REPRO1 / IGS Final orbits

Mean RMS values of GF2 orbit overlaps (4 hours)
Repro2 products availability

Statuts: June 04 2014
Repro2 products availability

Orbit combination: GFZ_COMB2

Statuts: June 04 2014
Repro2 orbit validation

Final Orbits (AC solutions compared to IG1)

(Gendt et al. 2010, IGS workshop)
Repro2 orbit validation

Final Orbits (AC solution)

Weighted RMS [mm]

IG1
CO2
CF2
EM2
ES2
GF2
MI2
ACs .vs. GFZ_COMB2

(Gendt et al. 2010, IGS workshop)
X Translation (ACs vs. GFZ_COMB2)

Y Translation (ACs vs. GFZ_COMB2)

Z Translation (ACs vs. GFZ_COMB2)
• Good internal consistency among ACs
• Good consistency w.r.t. IG1
• Seasonal signal in Z, 180° shift between MI2, GF2 & ES2
• Scale trend in IG1, EM2, ES2 and GF2
• ~ 0.5 ppb bias in IG1 scale caused by Albedo effect
Repro2 clock validation

![Graph showing Repro2 clock validation over the years 2000 to 2008. The graph compares different clock solutions with GFZ_COMB2. The y-axis represents SDEV in picoseconds (ps), and the x-axis represents the years from 2000 to 2008. The graph includes data from IG1, EM2, ES2, GF2, GF1, and MI2. The data shows varying levels of deviation from GFZ_COMB2 across the years.]
- GF2&GT2: same software and processing, different network,
- Significant annual signal in translations of GFZ repro. solutions
• GF2 and GT2 have significant improvement compared with GF1,
• Slight scale trend??
Conclusions

- Two GFZ product sets available at CDDIS (named gf2 & gt2)
- Products are aligned to coordinate and transformation (IGb08)
- Significant improvement in quality and homogeneity of delivered products w.r.t. GF1
- GFZ_COMB2 test shows good internal consistency among ACs
- Seasonal effects in translation Z, especially GF2, ES2 and IG1
Thank you for your attention