

# **IGS Current and Future Challenges**

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# “Current” Challenge

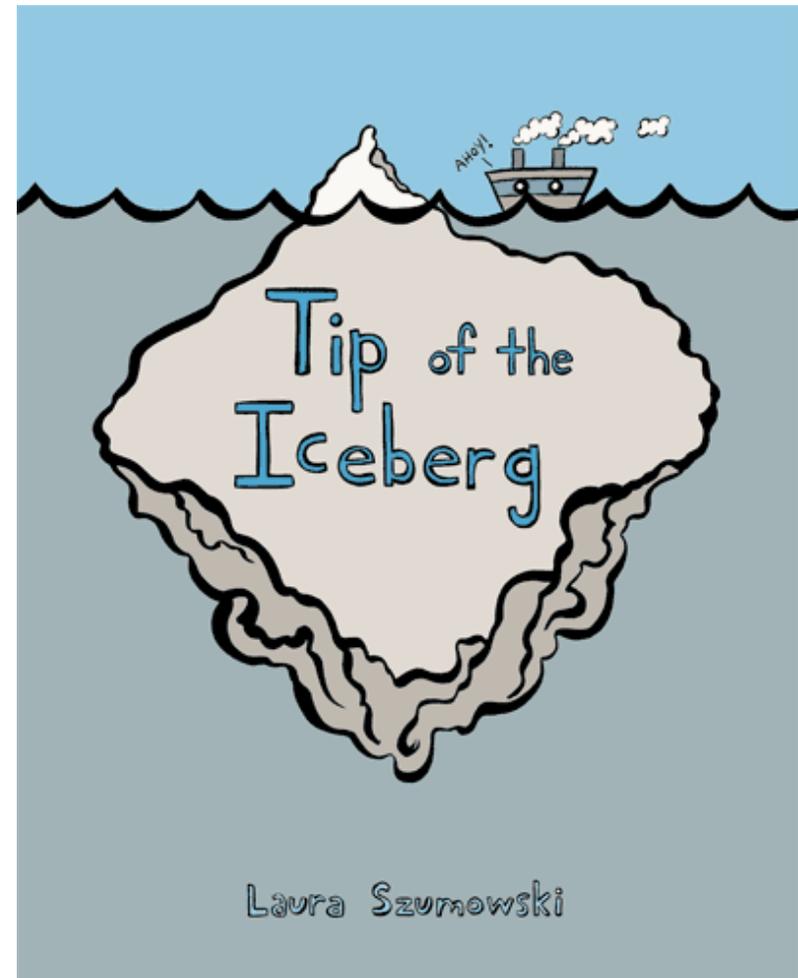


- We have lost our ACC!
- The ACC is a key element of the IGS
- IGS can not function without an ACC
  - Generates the IGS products
  - Monitors the quality of the ACs
  - Drives innovation



# “Current” Challenge

- Is the ACC issue just the tip of the ice berg?
- IGS has been looking for new ACC since many years
  - ACC software needs renewal
- No AC willing/capable to take over the effort for this IGS KEY function
- There seem to be more issues at NGS
- Do other ACs also have issues?
  - Personnel, Competence, Funding?



# Main Challenges



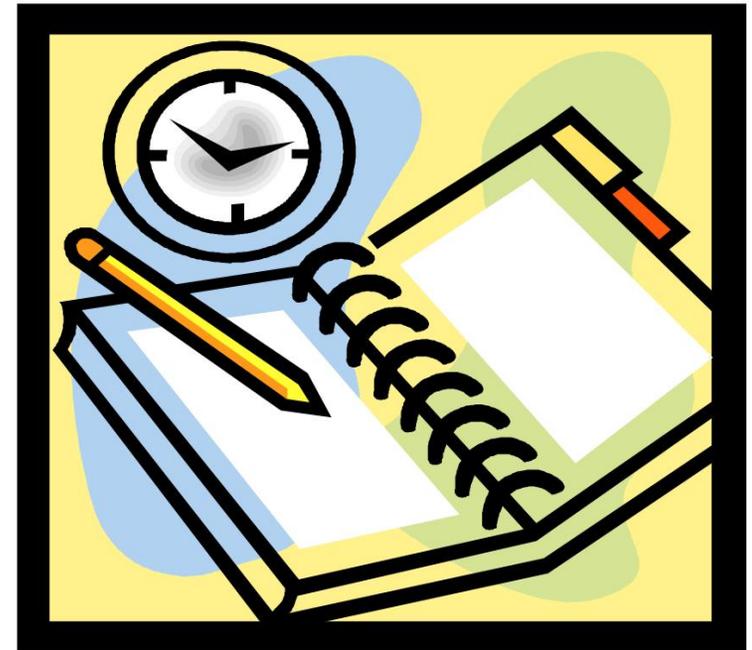
- GPS + GLONASS combined products
  - Available from ACs but not from the IGS
  - Experimental IGV product
  - No change in the last 2 years
- Real-time products
  - Pilot project doing well
  - Includes experimental GPS+GLONASS product
  - Lots of progress in the last 2 years
- New GNSS signals and systems
  - C2/L2C, C5/L5 ...
  - Galileo, QZSS, BeiDou...
  - MGEX tracking network for all GNSS systems and signals developing very rapidly
  - A lot of MGEX data analysis is being done



# A look at this weeks schedule



- PS01: 9 ACs poster (but only 6 of 10 ACs)
- PS02: 5 Antenna Calibration
- PS03: 6 Bias and Calibration
- PS04: 2 Data Centers
- PS05: 17 Troposphere !!!
- PS06: 3 Clocks (EFTF also this week!)
- PS07: 8 Ionosphere
- PS08: 12 Infrastructure (!)
- PS09: 9 IGS impact
- PS10: 3 Orbit
- PS11: 12 MGEX (!!)
- PS12: 11 Real Time (!)
- PS13: 8 Reference Frame and Repro
- PS14: 5 TIGA



# A look at this weeks schedule



- Most workshop contributions for Troposphere!
  - Quite surprising
- Second place Infrastructure and MGEX
  - Good as this is where the main challenges are
- Then Real-Time
  - Also good and expected
- If we assume that the poster contributions reflect what the IGS community is working on
  - Are we putting our recourses on the right topics

# Multi-Signal and Multi-GNSS



- New signals
  - GPS C2/L2C, C5/L5
  - GLONASS CDMA signals
- New systems
  - Galileo, QZSS, BeiDou
- What are we doing with them?!
- Many issues
  - Data format
  - Tracking stations
  - Biases



- MGEX is addressing these issues but resources are finite!

- New signals and systems
  - Affect RINEX and Real-Time data formats
  - But a very important question is also:
    - Which signals must be in the data files
    - People are looking towards the IGS for guidance
    - So far little to none is given (L2C, L5, Galileo)
- Changes in data formats (e.g. RINEX) may cause other changes down the road
  - E.g. to which signals do the clocks refer
    - Currently P1/P2 but this will change
    - Biases!!
- The RINEX working group is working on the format issues
- We need to study and address the signal (and bias) issues

- Resources!!
  - ACC “hot topic”
  - How is the funding situation at the different ACs?
- Real-Time products
  - Seems under control
- New signals and new GNSS systems
  - Lots to be done with finite resources
- Data format standardization
  - Very slow process and progress
  - Resource issue?
- Is the IGS trying to do too much?

**The IGS has done well for 20 years, can we do it for 20 more?**

- Understand who “benefits” most from the IGS products
  - Commercial Sector (Surveyors, Trimble, FUGRO, Google...)
  - National Geodetic Entities (NGS, NRCAN, IGN, BKG, LTP...)
  - Space agencies (JPL, ESA, JAXA...)
  - GNSS Operators (GPS, GLONASS, Galileo, BeiDou...)
  - Science (Geodesy, Geodynamics, Atmosphere, ...)
- Understand who “benefits” most from ITRF
  - Space agencies (JPL, ESA, JAXA...)
  - National Geodetic Entities (NGS, NRCAN, IGN, BKG, LTP...)
  - Commercial Sector (Surveyors, Trimble, Veripos, Google...)
  - GNSS Operators (GPS, GLONASS, Galileo, BeiDou...)
  - Science (Geodesy, Geodynamics, Atmosphere, ...)

**We have to convert these benefits into resources**

**THANK YOU**

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