



Infrastructure, Data Centers, Formats and Network: A Summary

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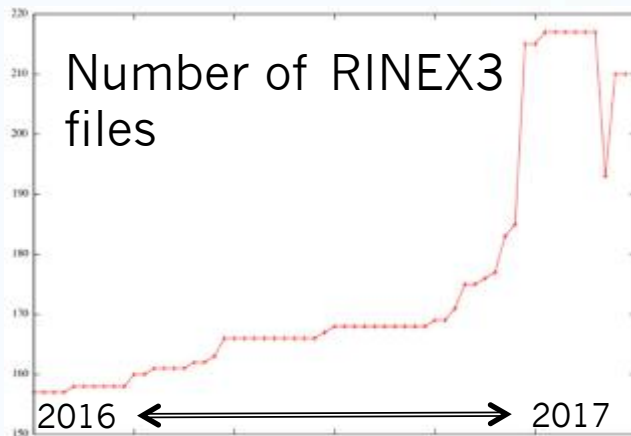
D. Maggert, UNAVCO



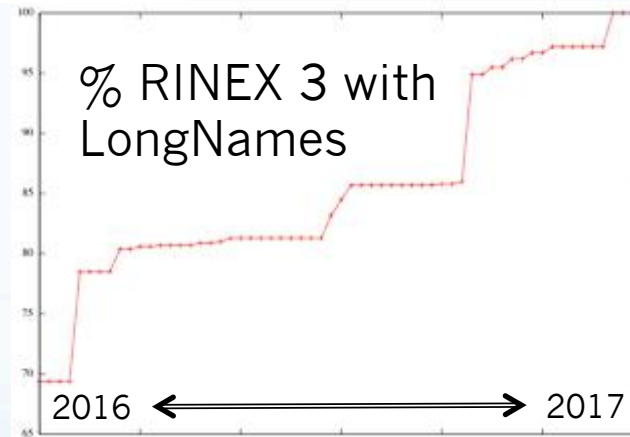
Outline

- Infrastructure/Network
- Data Centers
- Formats
- Supporting “Pathways to Increased Precision”
- Splinter Meeting Agenda

RINEX 3 Transition

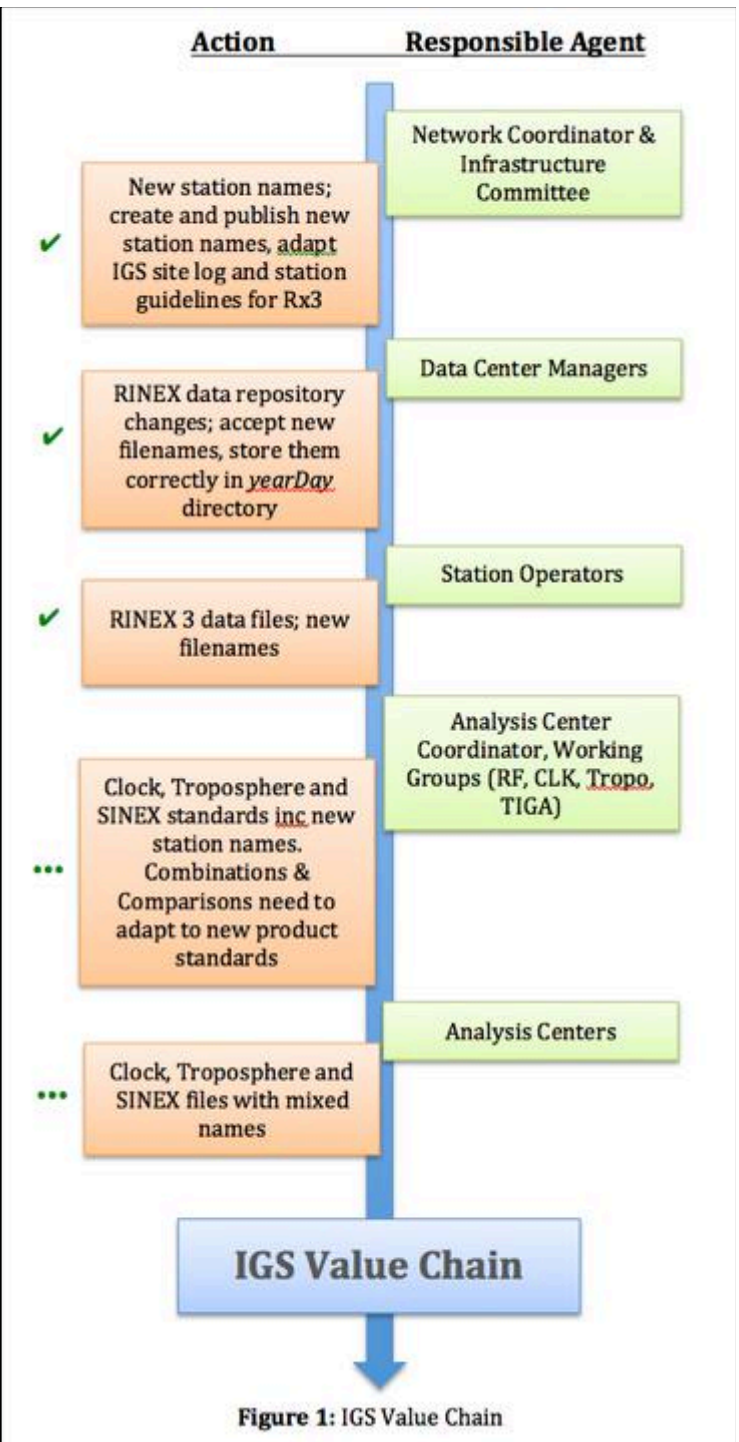


@CDDIS



Infrastructure + DCWG + RINEX Splinter Meeting:
Tue 13:30-15:00

IGS Workshop, 2-7 July 2017, Paris

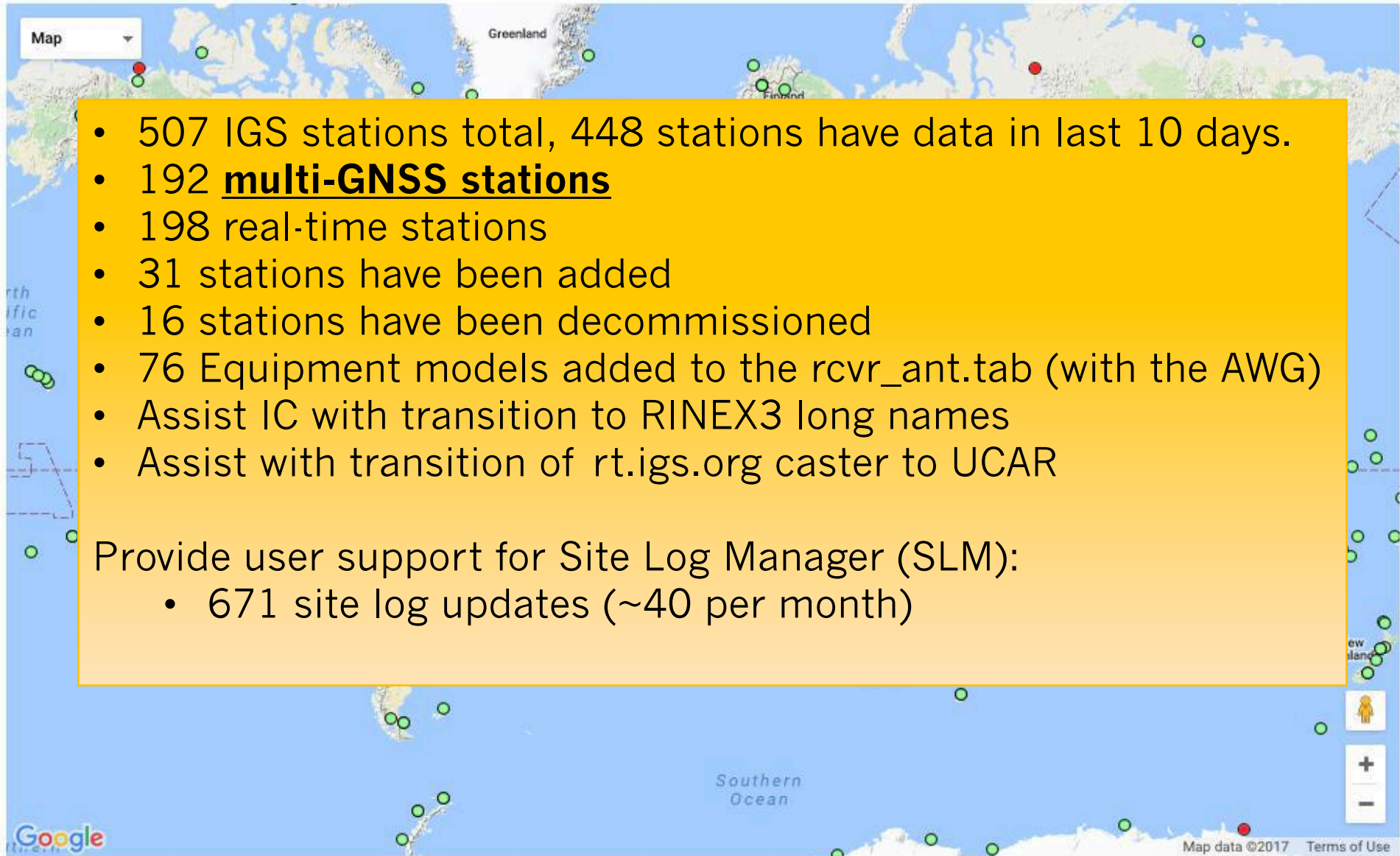


IGS Network



Information

Network

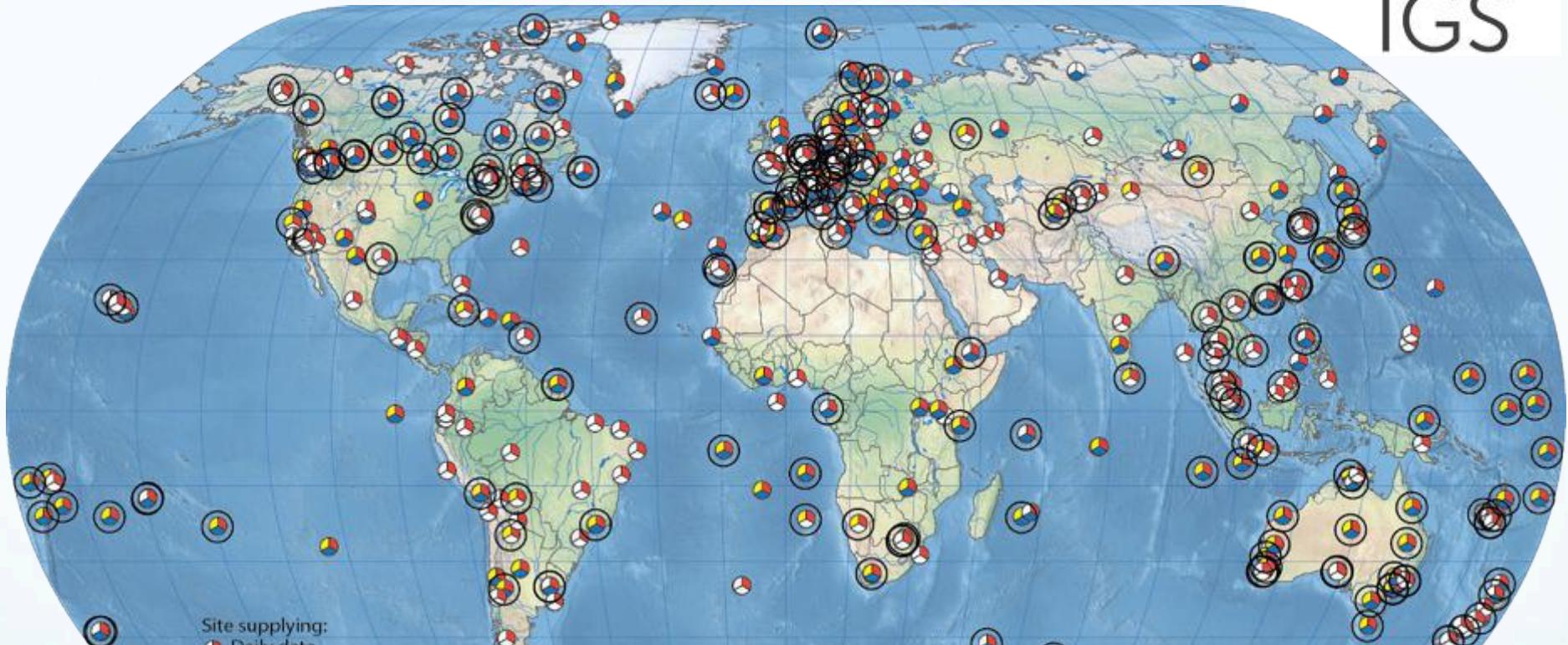


RINEX V2/V3 data @ DCs



- Since January 2016, RINEX V3 data (daily, hourly, high-rate) using V3 filenames are archived in main GNSS directories. e.g., <ftp://cddis.nasa.gov/gnss/data/daily> (and ../hourly, ../highrate)
- GNSS data directories contain data in:
 - RINEX V2 format with files using 8.3.Z naming convention
 - RINEX V3 format with files using “long”.gz, V3 naming convention
 - IGS GNSS data in both RINEX V2 and V3 formats available in same subdirectories
- Not all providers submit data in RINEX V3 format or for all types (daily, hourly, high-rate)
- CDDIS maintains daily “status files” and reports to reflect both RINEX V2 and V3 data holdings
- CDDIS implemented contributed s/w (thanks Nacho!) to generate RINEX V3 daily, combined, mixed GNSS broadcast ephemeris file (e.g., **BRDC00IGS** file)
- Missing QC utility for RINEX V3

Stations at CDDIS



Data Type	Total Unique	Total RINEX V2	Total RINEX V3	Both V2 + V3	Only RINEX V2	Only RINEX V3
Daily	560	522	219	181	341	38
Hourly	327	<u>318</u>	<u>112</u>	103	215	9
High-rate	234	<u>217</u>	<u>37</u>	20	197	17

Next actions for DCs



- Previous action: DCs will generate/integrate RINEX V3 filenames for sites supplying data in V3 format using 8.3 filenames :
 - Very few V3 sites remained in 8.3 at CDDIS in 2017 (more at IGN)
 - Need to confirm method for doing this (e.g., use RX3name, gfzrnx)
 - Integrate V3 data prior to 2016 in MGEX campaign directories into main GNSS directory structure
- Coordinate submission of IGS product files using “long” filename structure as previously proposed:
 - Currently used by DCB product
 - CODE submits to CDDIS (not archived, however)
- Generating high-rate data from real-time streams:
 - CDDIS testing now
 - Acceptable to IGS IC/users?
 - RINEX V3 using correct source indicator in RINEX V3 filename (_R_, _S_)
- Moving away from **Z** compression for all IGS files (data and products) once and for all!



RINEX 3.03 Status Report

- RINEX 3 is well supported within the IGS and by receiver manufacturers – Thanks !
- RINEX 3.03 update 1 has been released since January, 2017 and there have been no reported issues
 - Started discussion within the RINEX WG about adding GPS CNAV support to the standard. Two options are being discussed within the working group
 - When new BeiDou ICD is released, we may have to update the RINEX version number
 - Plan to reorganize the RINEX 3.03 document before the next release

RTCM SC104 Status Report



- RTCM-Multiple Signal Messages (RTCM-MSM) type 7, high precision messages (as in RINEX V3) are now supported by all major equipment suppliers.
 - Not all tracked signals are encoded by some receiver vendors; however, they have plans to support all signals in new firmware releases
- RTCM-State Space Representation (RTCM-SSR) messages only officially support GPS and GLONASS. Draft messages are available for all constellations and are being used by the IGS. Issues relating to interoperability testing of messages (phase bias messages) that enable PPP ambiguity resolution have delayed the approval of the currently drafted messages
- New RTCM interoperability working group has been formed to help stream-line the message approval process
- New RTCM GPS CNAV message has been proposed and will match the RINEX CNAV content





Supporting Increased Precision

- IGS Infrastructure elements are committed to support increased precision
- This needs feedback to the infrastructure that **YOU** use ... so errors can be corrected and praise can be shared
- New needs; formats, antennas, receivers, signals, should be communicated by WGs to the AWG, DC, IC, RINEX WC, please do not “go it alone” ...

Splinter Meeting Agenda

- Infrastructure topics
 - Outstanding Actions / New Actions (?)
 - Station Usage, Non-processed stations
 - Clock_Rinex v3.04 (Michael Coleman)
- Data Center topics (Carey Noll)
 - Data files from streams (high-rate only!)
 - RINEX 3 QC Visualisation (Philipp Mitterschiffthaler) – 5 min
 - XML project (Fran Boler) – 15 min
- Data Format topics (Ken MacLeod)
 - RINEX 3 / RTCM developments
 - CNAV proposals

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