



The International GNSS Service --Progress Towards Real-time

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<http://igs.cb.jpl.nasa.gov/projects/rtwg/index.html>



Outline

- Vision and Goal
- Where We Are Today
- Current Activities
- Emphasis and Next Steps
- CORS – Things to consider



Vision for the Future

- The availability of IGS data and products in real-time via IP communication links (open internet)
- Enabling real-time Precise Point Positioning globally at the decimeter level or better
- Globally consistent (seamless / no RF issues)
- An enabler for a multi-disciplinary community



IGS Real-time Initiative

- Goal
 - To develop real-time infrastructure and processes
 - To deliver real-time data to analysis centers
 - To make available real-time data and products to real-time and nrt users



Where We Are Today

- Designed developed and implemented a prototype real-time network
- Defined message formats and an exchange protocol (UDP / Types / IODS)
- Developed software tools for transmission, reception and integration of real-time data
- Real-time data distribution trials have begun and real-time products are under investigation

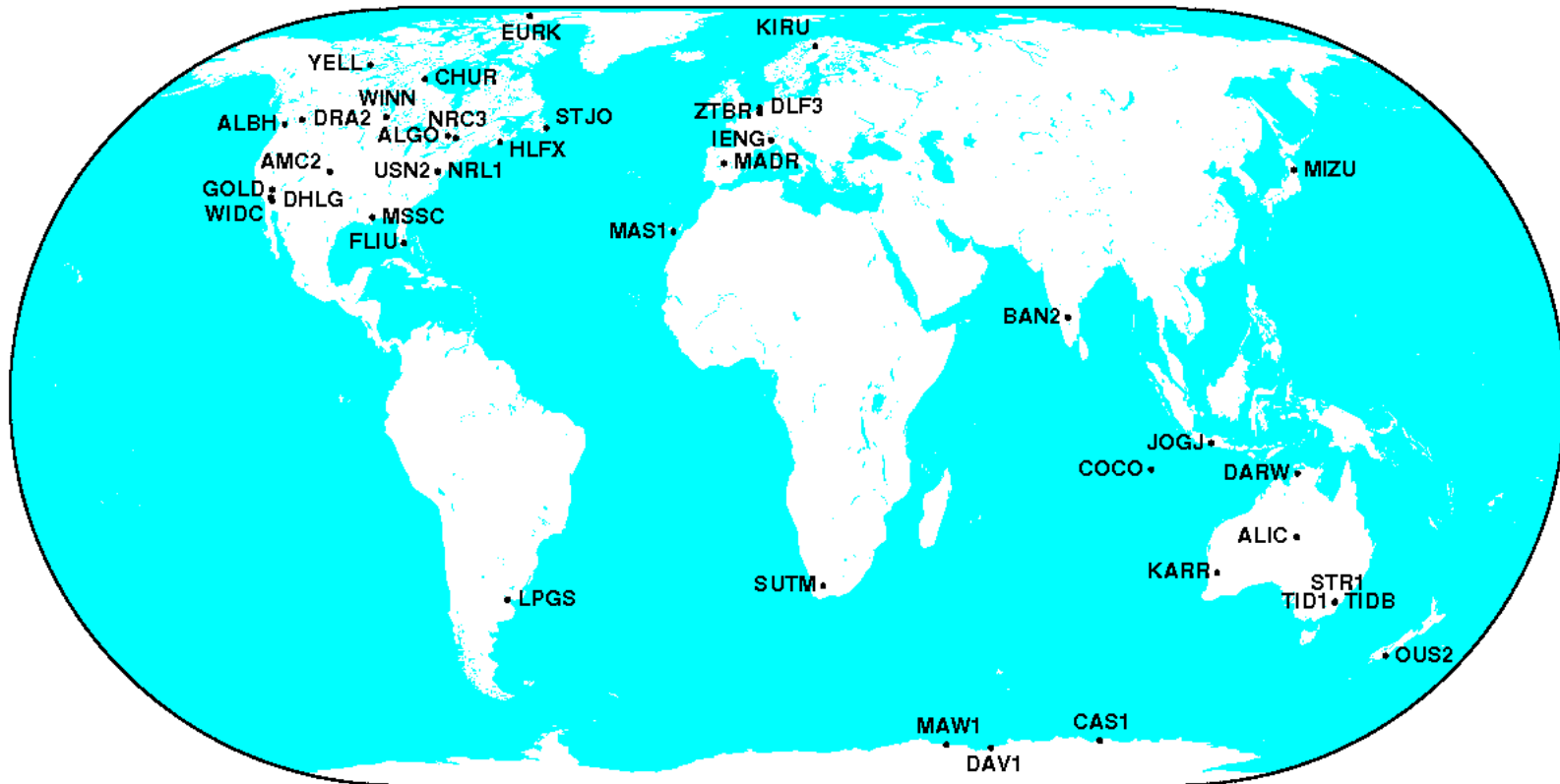


RTWG Software Tools

- UDPRelay: Routes data and products to analysis centres, archival centres and end users.
- Archiver (RTIGSA): Archives RT-IGS observation data.
 - Saves and forwards
- Multicast Receive (RTIGSMR): reads and decodes RTIGS data messages
 - Data source is an archiver or relay

Prototype Network

-- 36 Stations





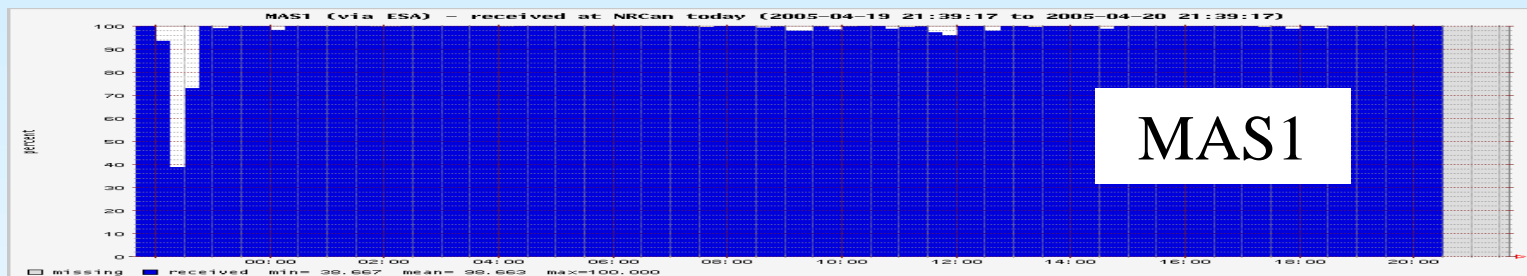
Data Distribution Trials

- udpRelay
 - JPL, GFZ, NRCCan, ESOC, GA, IEN, COSMIC
- RTIGSA
 - NRCCan, CDDIS, BKG, UCAT, NOAA --
Space Environment Center, TUV
- RTIGSMR
 - TUV (IGU – predicted quality assurance)

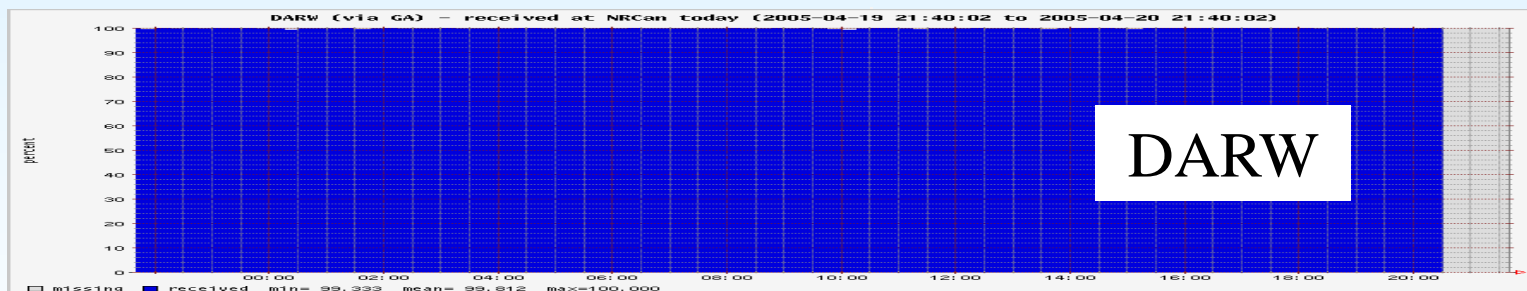


Performance Monitoring

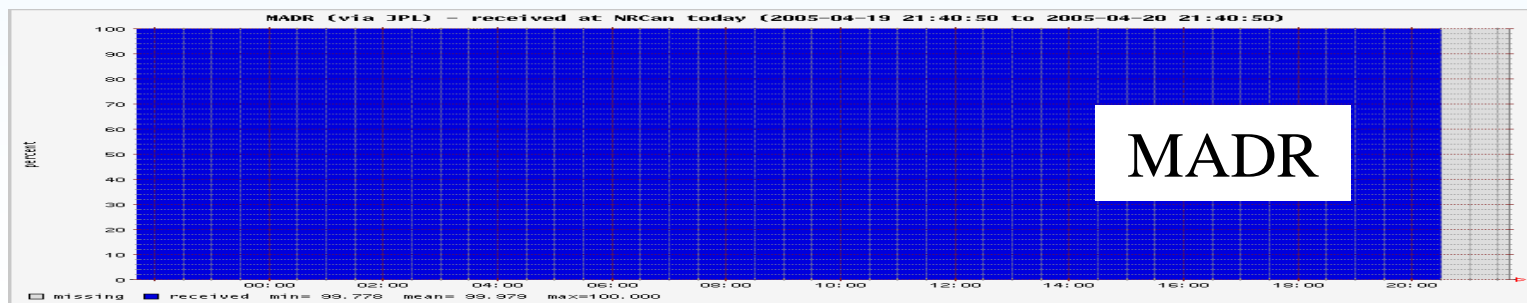
--Data Availability 24hours on 05/04/20



98.7%



99.8%

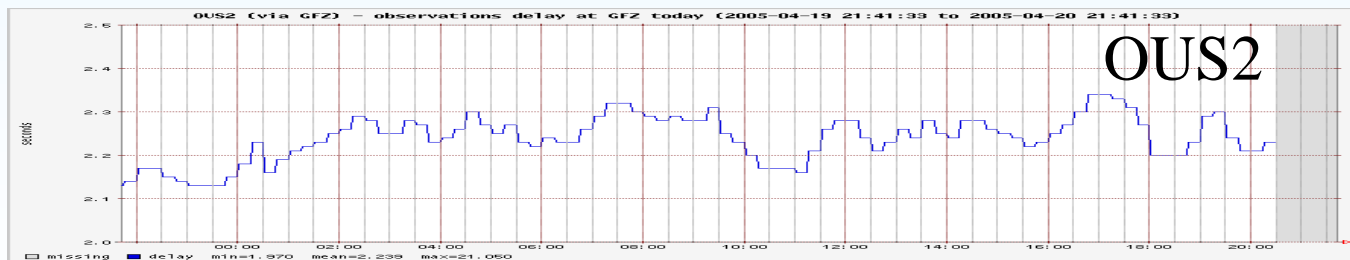
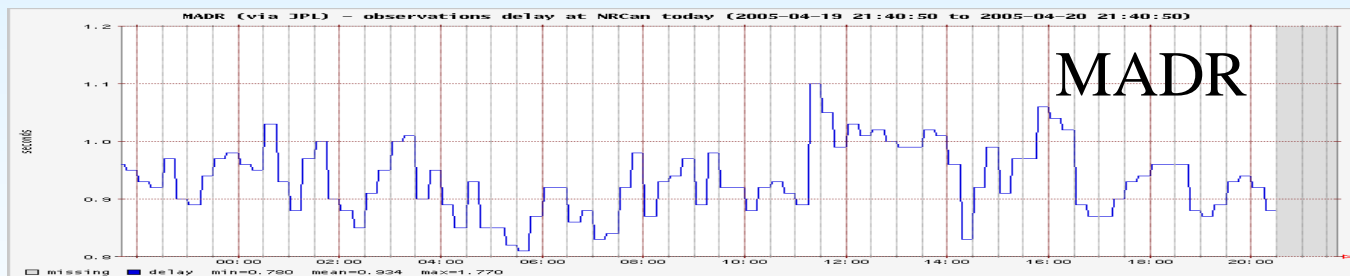
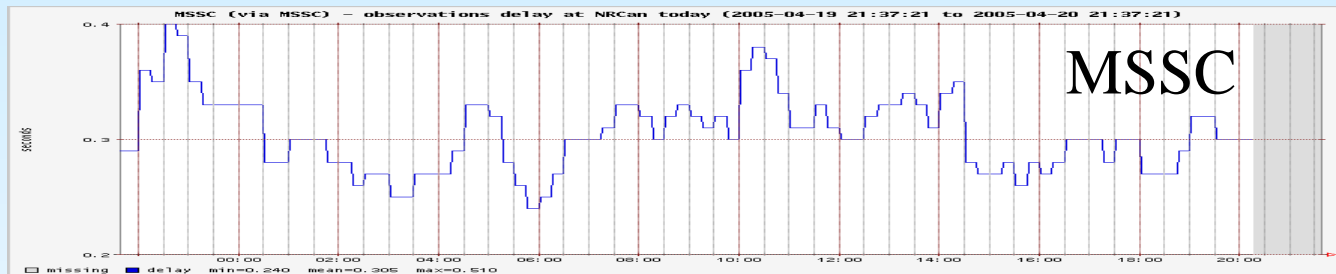


99.9%



Performance Monitoring

--Data Latency 24hours on 05/04/20





Emphasis/Next Steps

Phase 1 -- Data Pilot Project

- Increased reliability of data for nrt and rt applications
 - redundancy in data delivery
 - 100% availability of nrt data produced at remote stations
- Network Management
 - Increased characterization of network performance
- Grow the network



Recommendations to CORS

- Data formats
 - All observables must be provided
- Managing Change
 - Real-time users must be aware of a change in real-time