Role of the Infrastructure in the IGS

- Infrastructure consists of:
  - Network + Coordinator
  - Data Centres* + Coordinator
  - Infrastructure Committee + Coordinator

- All roles and components are dependent on each other

- Coordination with other components of the IGS

* Pat Michael (NASA): Highlights from CDDIS
IGS Infrastructure Committee

- Forum of professionals:
  - Network/station operators
  - Data Centre/GNSS-IT professionals
  - Ex-officio members (chairs and coordinators from other IGS Working Groups)

- Develop policies, standards, guidelines and recommendations

- Maintain and improve the GNSS data and information systems upon which IGS product quality and responsiveness rely

- Ensure the overall effectiveness of the Service
IGS Infrastructure Committee

- Work on an ongoing basis with the Governing Board and Station Operators, Data Centres, Analysis Centres, Pilot Projects, Working Groups and the Central Bureau to define ways to improve access to high-quality GNSS data and information

- Task Teams/External Working Groups:
  - Coordinate station proposals between different networks (e.g., APREF, EPN, SIRGAS)
  - SLM (IGS Site Log Manager)
  - Data Centre Security
  - GGOS DOI (Global Geodetic Observing System - Digital Object Identifier)

- Quarterly meetings
IGS Network

- Registered stations (as of August 24, 2021)
- Overall agencies including local/supporting partners
- Responsible agencies (mainly from research, federal surveying)
- 70% of the network covered by 20 agencies
- 6 agencies (JPL, GA, CNES, NRCan, GFZ, BKG) contribute with 20+ stations (205 stations, 41% of the network)
IGS Network

- **RINEX v.3 available (329/442)**
- **RINEX v.2 available (113/442)**
- **No data for more than one month (63/505)**

**Status:** 2021-08-24

- **Online Stations:** 88%
- **Offline Stations:** 12%
IGS Network

RINEX v.3 availability since 2012

- RINEX v.2
- RINEX v.3
## Antenna Models (Overall)

<table>
<thead>
<tr>
<th>Overall</th>
<th>54 models</th>
<th>15 vendors</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;= 20</td>
<td>10 models</td>
<td>6 vendors</td>
</tr>
</tbody>
</table>

**Status:** 2021-08-24
Receiver Models (Overall)

Overall 46 models 13 vendors
>= 20 7 models 4 vendors

Status: 2021-08-24
IGS Network (GRE)

- RINEX v.3 available (313/332)
- RINEX v.2 available (19/332)
- No data for more than one month (24/356)

Status: 2021-08-24

70% GRE Stations
88% [GR] Only Stations
5% 1% 30%

THE IGS INFRASTRUCTURE
IGS Network (GREC)

Some stations additionally track QZSS (136) and NavIC (67)
Antenna Models (GREC)

**Overall**
- 35 models
- 11 vendors

**> = 20**
- 5 models
- 4 vendors

Status: 2021-08-24
Receiver Models (GREC)

<table>
<thead>
<tr>
<th>Overall</th>
<th>Models</th>
<th>Vendors</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;20</td>
<td>18</td>
<td>8</td>
</tr>
<tr>
<td>&gt;= 20</td>
<td>6</td>
<td>4</td>
</tr>
</tbody>
</table>

Status: 2021-08-24
IGS Network (Real-Time)

Status: 2021-08-24

RT Stations

41%

Non-RT Stations

59%
Activities in the IC

- Initiate coordinate solutions for all IGS stations (GFZ added ~40 stations not included in the IGS Finals before)
- Increase number of Multi-GNSS and Real-Time stations by active outreach
- Provide support to station operators in the less represented regions to build capacity and capability → ensure that the IGS network has a consistent global coverage
- Working on new/updated guidelines:
  - CORS Guidelines (currently known as “IGS Site Guidelines”, 2015) + Steps for Becoming an IGS Station
  - Data Centre/Real-Time Broadcaster Guidelines
  - Analysis Centre Guidelines

Fit into goals of the IGS 2021+ Strategic Plan

GOAL 1 Achieve Multi-GNSS Technical Excellence
Increase organizational capability by identifying barriers to multi-GNSS success throughout the IGS, supporting solutions to key challenges, and reinforcing the importance of continuous technical evolution.

GOAL 2 Strengthen Outreach and Engagement
Advocate for open access geodetic and GNSS data and products that facilitate collaborations, standardization, and inclusivity.

GOAL 3 Build Sustainability and Resilience
Foster a resilient, sustainable, and effective organization to support an expanding and evolving IGS community.

15 | THE IGS INFRASTRUCTURE
Activities in the IC

- **Web service implementations @ IGS CB:**
  - Site Log Manager (SLM)* → new development implementing GeodesyML
  - Station monitoring and time series plots (formerly hosted by IGN)

- **Web service/software implementations @ GFZ:**
  - Satellite Meta Information System (based on MGEX metadata file + antenna PCO, notice advisories from satellite operators)
  - Station Meta Information System (implementing GeodesyML)
    - Systems will replace SEMISYS in the long-term (https://semisys.gfz-potsdam.de)
    - Open source
    - Access via REST API/GUI
    - Available by the start of 2022
  - QC add-on for GFZRNX

* Robert Khachikyan (Raytheon): Updates to the Site-Log Manager
LOOKING FORWARD TO SEE YOU IN BOULDER 2022

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GFZ GNSS Website
https://gnss.gfz-potsdam.de

IGS IC Mailing List
https://lists.igs.org/mailman/listinfo/igs-ic

IGS Website
https://igs.org