Data Center Support for GGOS

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- Data center infrastructure
- Available products
- Data centers and GGOS

IAG Services and Data Centers

- Data centers supporting the IAG services receive data from network sites on predetermined schedules
- Data available to analysis centers for generation of routine products
- ACs submit derived products to data centers for use by combination centers and general user community
- Example: CDDIS
  - CDDIS archives data, products, and supporting information from the IGS, ILRS, IVS, and IDS
  - ACs retrieve data, generate products, push products to CDDIS
  - ACCs retrieve products and generate official products for service
  - Combination centers retrieve official products to generate higher level products and models
 - CDDIS extracts metadata from data and products

Example: IGS Data and Products

Data Set	Processing Level	Frequency
Pseudorange and phase observations (ground stations)	Data	Daily, hourly, and sub-hourly
Broadcast ephemerides	Data	Daily, hourly, and sub-hourly
Meteorological data	Data	Daily, hourly, and sub-hourly
Pseudorange and phase observations (ground stations, real-time)	*Data*	*Real-time*
Pseudorange and phase observations (satellite)	Data	Daily
Station positions	Derived Product	Weekly
Station velocities	Derived Product	Weekly
Station and satellite clock solutions (final)	Derived Product	Weekly
Station and satellite clock solutions (rapid)	Derived Product	Daily
Satellite clock solutions (ultra-rapid observed))	Derived Product	Sub-daily
Satellite clock solutions (ultra-rapid predicted)	Derived Product	Sub-daily
Station and satellite clock solutions (real-time)	*Derived Product*	*Real-time*
Satellite orbits (final)	Derived Product	Weekly
Satellite orbits (rapid)	Derived Product	Daily
Satellite orbits (ultra-rapid observed)	Derived Product	Sub-daily
Satellite orbits (ultra-rapid predicted)	Derived Product	Sub-daily
Satellite orbits (real-time)	*Derived Product*	*Real-time*
EOP (final polar motion and rates, length-of-day)	Derived Product	Weekly
EOP (rapid polar motion and rates, length-of-day)	Derived Product	Daily
EOP (ultra-rapid observed polar motion and rates, length-of-day)	Derived Product	Sub-daily
EOP (ultra-rapid predicted polar motion and rates, length-of-day)	Derived Product	Sub-daily
Zenith troposphere path delay estimates (final)	Derived Product	Weekly
Zenith troposphere path delay estimates (ultra-rapid)	Derived Product	Sub-daily
Ionosphere TEC (final)	Derived Product	Weekly
Ionosphere TEC (rapid)	Derived Product	Daily
Ionosphere TEC (predicted)	Derived Product	Sub-daily

Data/Product Flow for Services
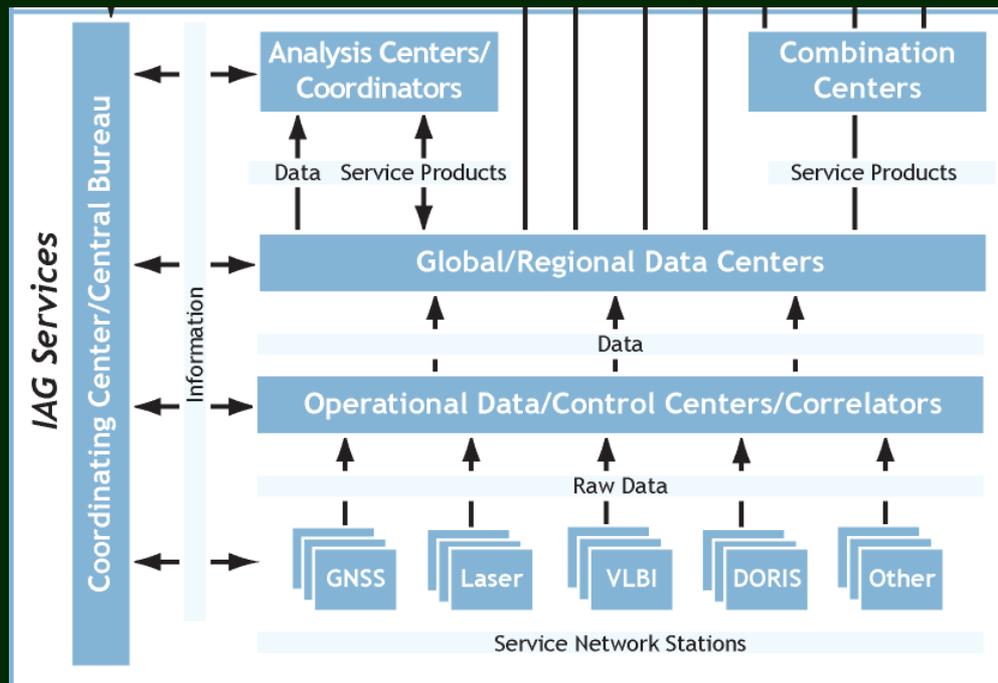
Data Support for GGOS

- The IAG services use dedicated data centers to archive discipline-specific data and products

- These data centers are the main source for each service's analysis centers, combination centers, and global research communities

- Examples:
  - IGS: CDDIS, IGN, KASI, SIO
  - ILRS: CDDIS, EDC
  - IVS: BKG, CDDIS, GeoDAF, INAF, NICT, Paris Obs.
  - IDS: CDDIS, IGN

- In support of GGOS the service's data centers will retain archive of data and products

- The data centers will provide metadata for their holdings to the GGOS portal

- Users will search portal metadata to find and retrieve data and products located at the data centers

What is Needed?

- New products
  - Need to identify
  - Then, identify data centers to support (through services)
- User discovery
  - GGOS Data and Information Working Group will identify and adopt standards, e.g., metadata
  - Services, through their data centers, will implement these standards and automatically provide metadata to portal
  - Users will search for products through portal
  - Applications will be available for data mining, visualization, etc.