

DORIS NETWORK STATUS

MAY 2017

JEROME SAUNIER, IGN - FRANCE



■ SINCE 1 JANUARY 2017

- Merging of all units in charge of networks monitoring and operational maintenance
- MCO unit (Maintenance in Operational Conditions) = DORIS + REGINA + SVOM + TcR +...

■ POOLING OF RESOURCES

- Interface with CNES shipping department
- Synergy to solve problems

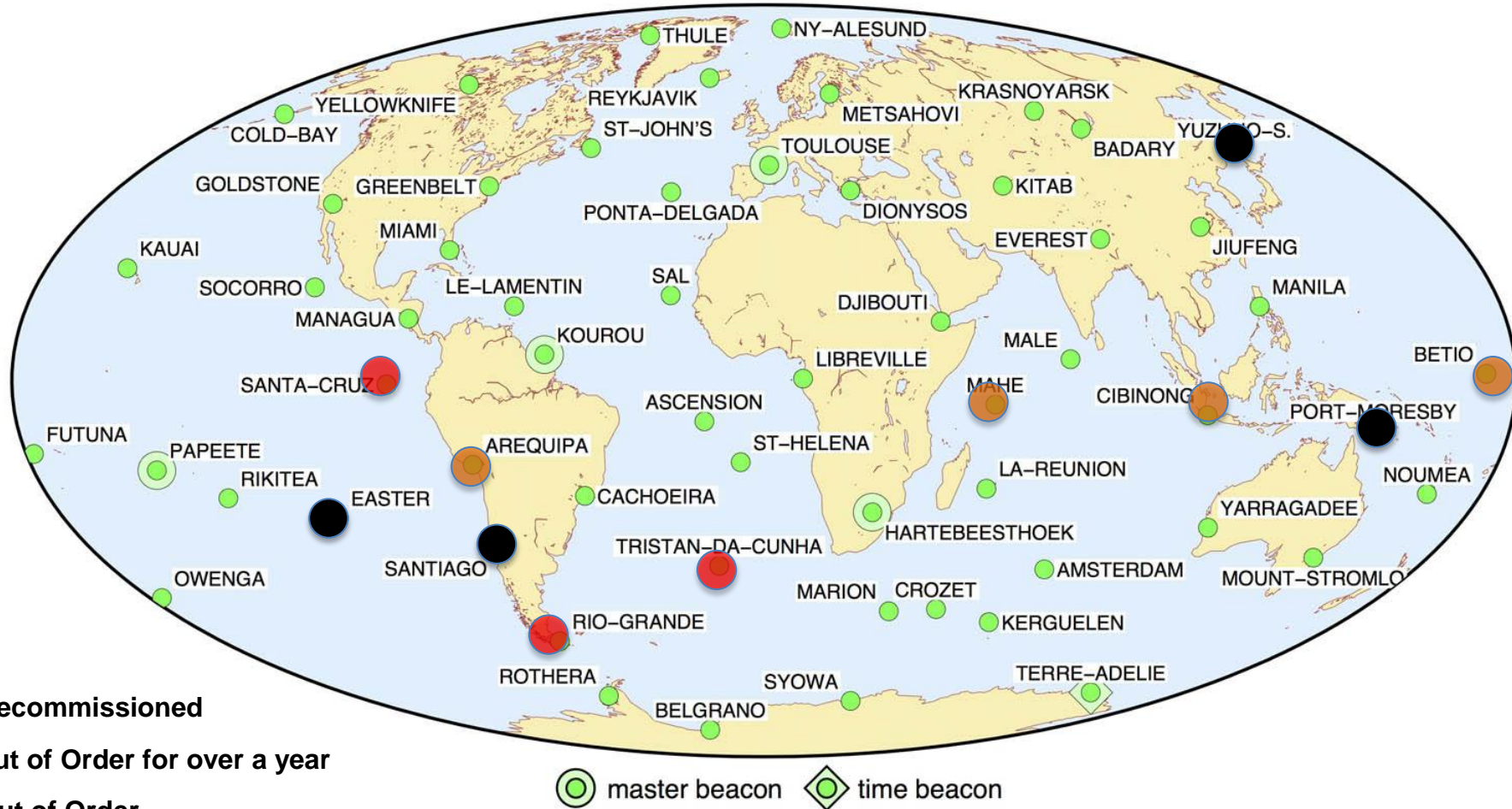
■ IN RETURN (FOR THE TIME BEING)

- New personnel, new organization, common but more rigid rules and procedures
- Delays in processing files (equipment expedition, custom clearances, invoices payment, proceedings)

OPERATIONNAL STATUS



59 permanent stations of which: 11 beacons are out of order (4 decommissioned)



Decommissioned (pending replacement):

Yuzhno-Sakhalinsk (11/2005), Santiago (05/2013), Port-Moresby (06/2013), Easter (08/2015)

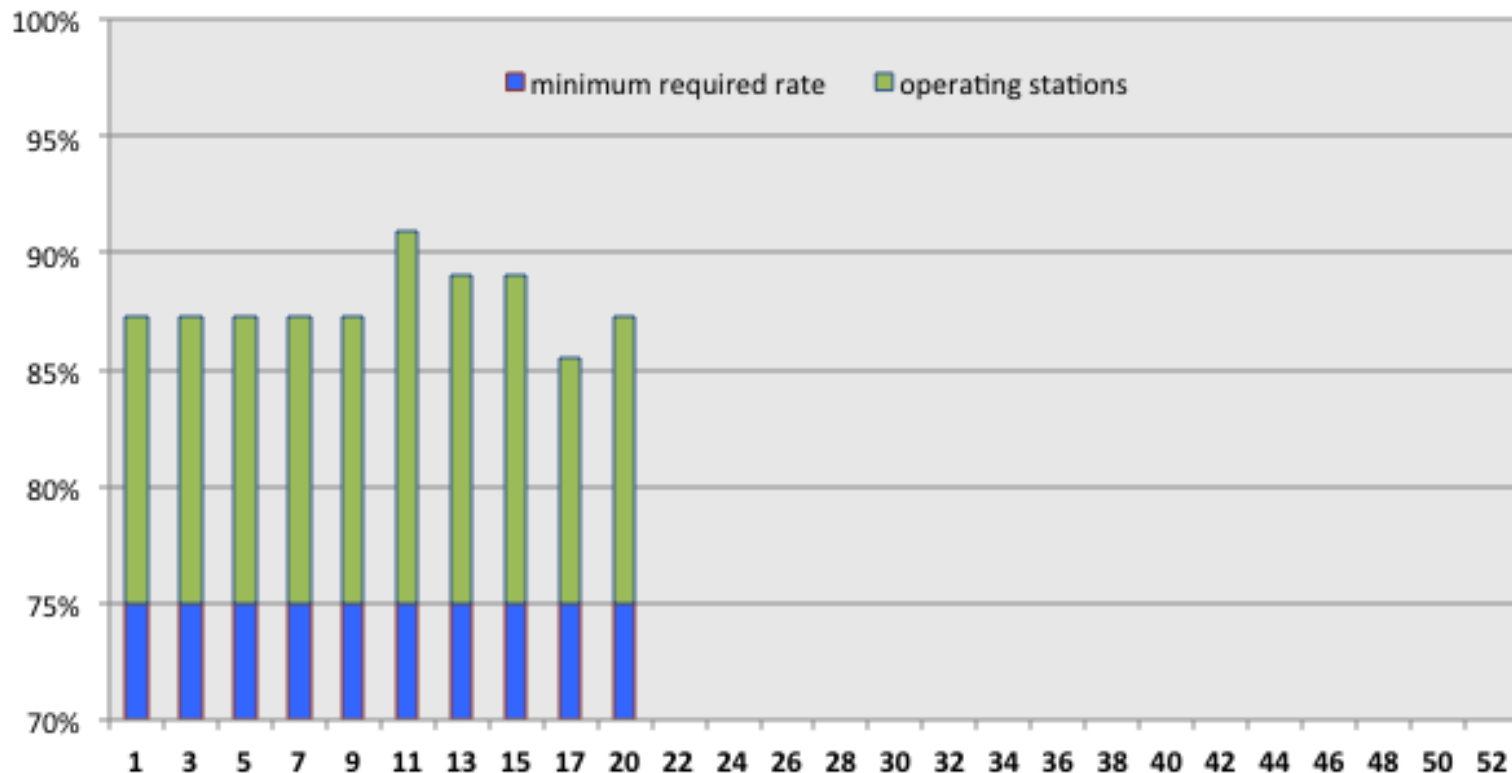
GM 2017 May 17 16:39:53

NETWORK AVAILABILITY



- 4 MAINTENANCE OPERATIONS SINCE THE BEGINNING OF 2017
- MAINTAINED OVER 85% OF OPERATING STATIONS SINCE 2012

Network availability 2017



From CNES, DNO/SA/IS data

NETWORK EVENTS SINCE NOVEMBER



2017	Station		Event
Apr.	MIAB	<i>Miami</i>	<i>Service interruption: power supply outage (18/04 – 05/05)</i>
Mar.	SOFC	Socorro	<i>Restarting: equipment replacement (antenna + beacon)</i>
	RIMB	<i>Rikitea</i>	<i>Beacon replacement</i>
	-	Papenoo	Reconnaissance and RF compatibility tests
Feb.	PAUB	Papeete	Local tie survey

NETWORK EVOLUTION



■ SCHEDULED IN 2017

- Santiago, CHL: station re-location in **Argentina, San Juan** (SLR+GNSS)
- **Easter Island**, CHL: station **re-location** 5km away, at the airport

■ PLANNED IN 2018

- Port-Moresby, PNG: station re-location in **northern Australia**
- **Ny-Ålesund**, NOR: station re-location 3 km away (**co-location GNSS+SLR+VLBI**)

■ UNDER CONSIDERATION

- Northern Asia: **new site** in place of Yuzhno in **Manchuria (CHN)**
- **Reykjavik**, ISL: station **re-location** to get better performance
- Papenoo, **French Polynesia: new 4 techniques** site project

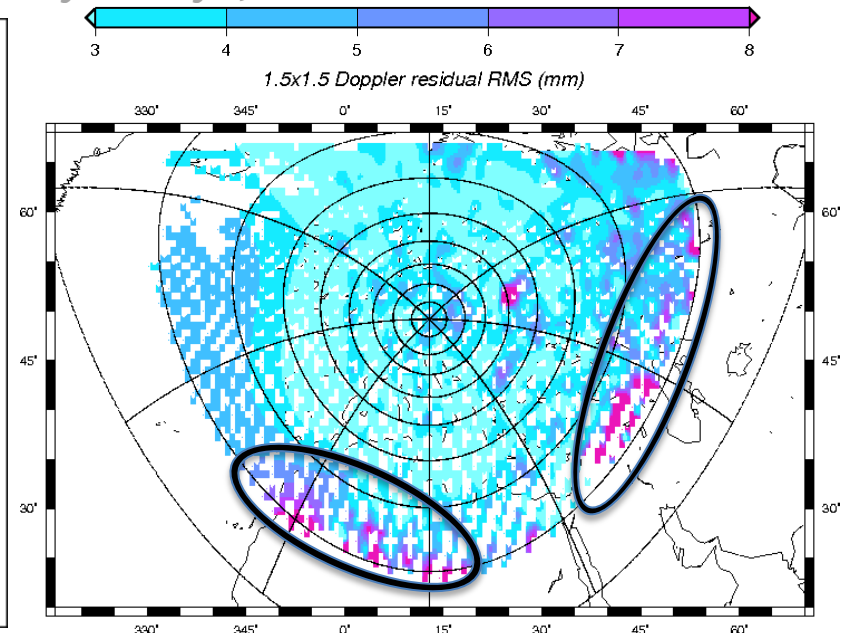
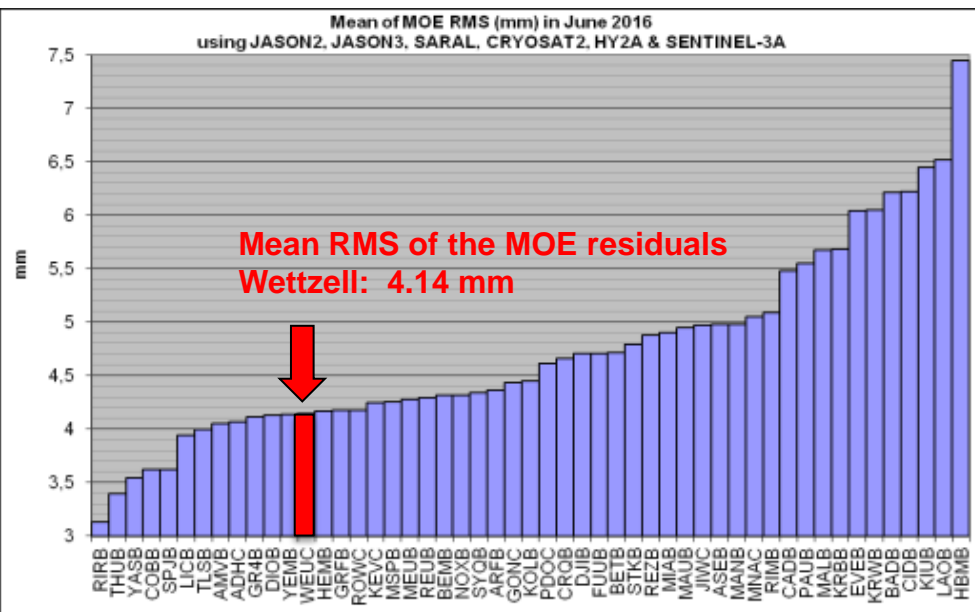
■ 4TH GENERATION DORIS GROUND BEACON

- Deployment could start from 2019. Will allow to install the antenna up to 50m from the beacon

IDS STATIONS: WETTZELL(GE)

- COMMISSIONED IN SEPTEMBER 2016
 - Shifted frequency transmissions
- GOOD PERFORMANCE: 13TH IN THE NETWORK RANKING
 - Mean residuals RMS in the orbit adjustment processing: 4.14 mm
 - Good distribution of the MOE residuals (small degradations below 20° in S. and E. direction)

Analysis carried out by P. Yaya, CLS

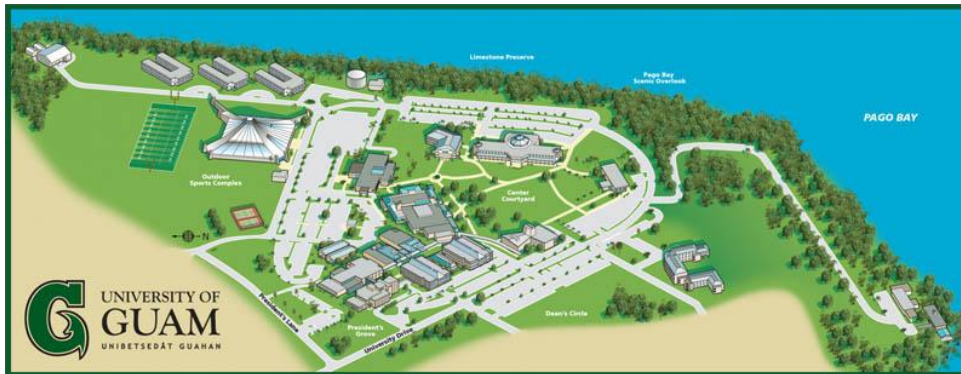


- EVGA 2017 MEETING: BKG ORAL PRESENTATION

➤ “VLBI-DORIS Interference Investigation at Wettzell”, Klügel and Schüler et al.

IDS STATIONS: GUAM ISLAND (US)

- Host agency: University of Guam (UoG)
- Co-location with IGS “GUUG” (15m)
- Agreement in principle from the UoG President (following on the IDS letter)
- Tripartite agreement CNES/IGN/UoG in the process of signing
- **Installation planned in 2017**



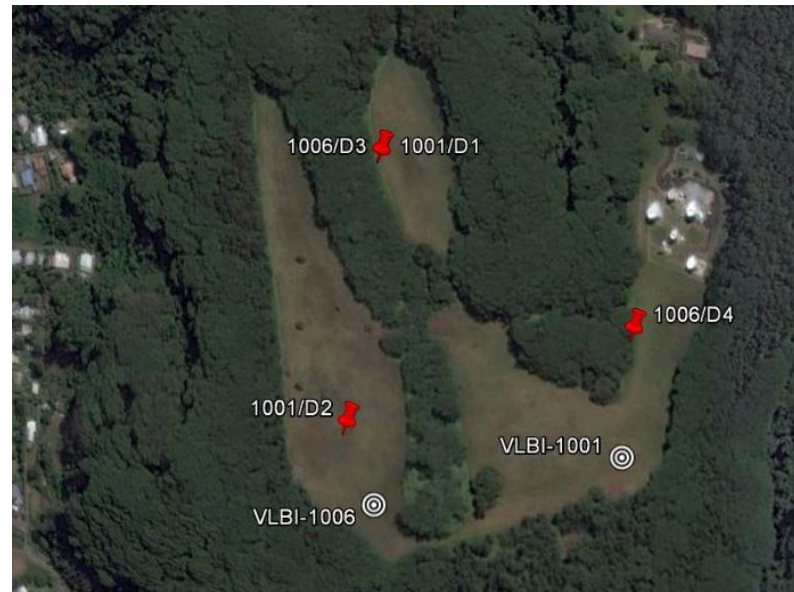
IDS STATIONS: PAPENOO (FR)?

■ POTENTIAL GGOS CORE SITE

- GRGS follows up the project: budget under consideration
- Various contributors: CNES, NASA, Observatoire de la Côte d'Azur, Obs. de Paris, IGN...

■ MARCH 2017: RECONNAISSANCE AND TESTS RESULTS

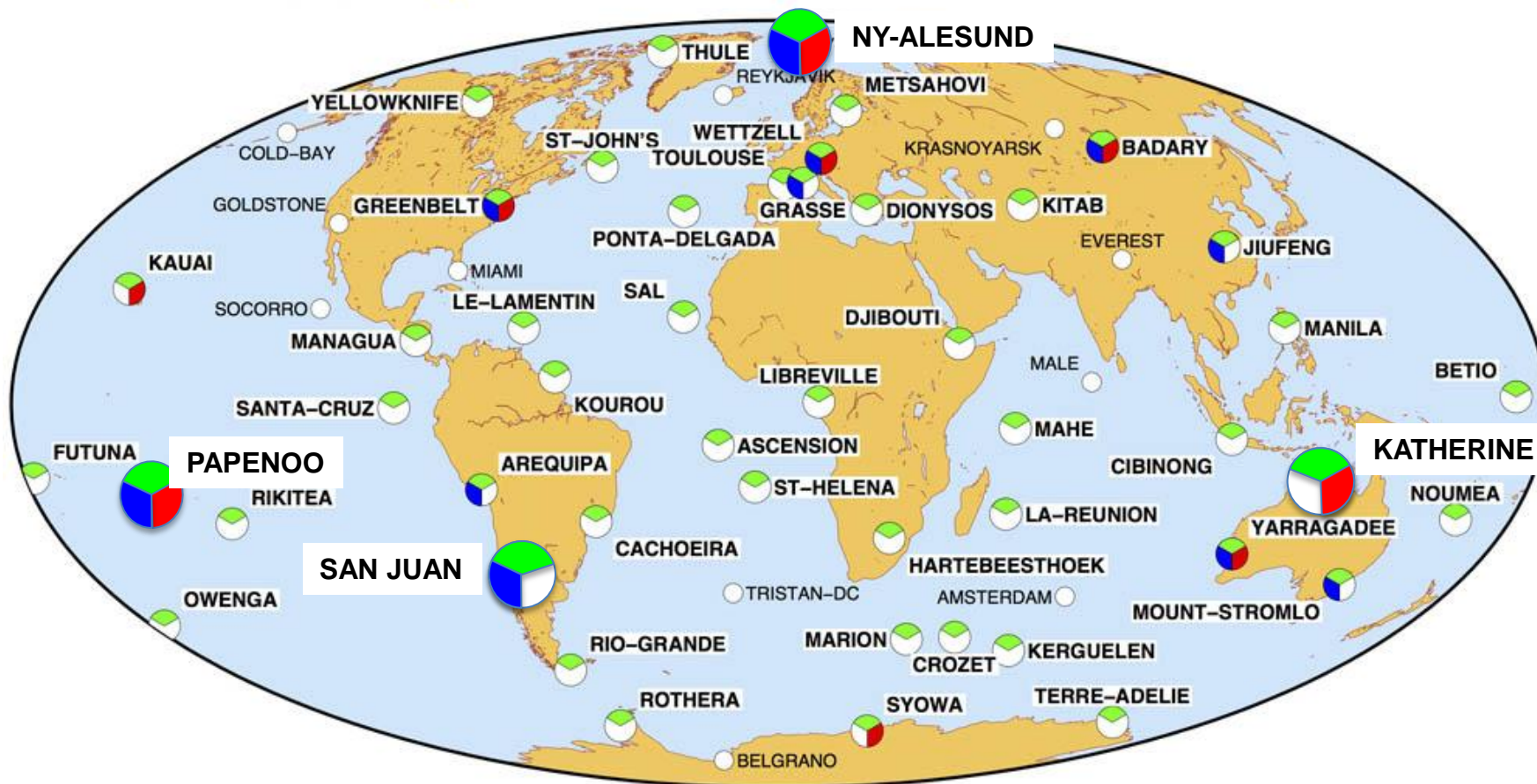
- Complying with the GGOS requirements
- No impact on the Galileo TTCF-6 station located 800m away
- DORIS-VLBI compatibility: -60 dBm from DORIS can be accepted; that is to say at least 300m between the two instruments; natural barrier or RF shield can provide up to -20 dBm attenuation
- Site layout: 3 scenarios



CO-LOCATIONS

DORIS STATIONS CO-LOCATED WITH OTHER IERS TECHNIQUES

 GNSS (IGS)  SLR  VLBI  No active co-location < 1 km



 2017 May 19 11:43:30 This map was created by IGN-France

=> 3/4 stations co-located with GNSS; 10 with SLR; 7 with VLBI

- **GGOS BN&O POSTER AT EGU (G2.1 SESSION):**
 - <https://space-geodesy.nasa.gov/docs/2017/GGOSEGU201704v4c.pdf>
- **MEETING APRIL 26, 2017 VIENNA, AUSTRIA**
 - http://ggosdays.com/en/meetings/2017/bno_vienna_2017/
- **IMPLEMENTATION PLAN FOR 2017-2018**
 - Focus primarily on the geodetic networks: document information, provide guidance, make recommendations, help the multi-technique community to work and plan together...
 - But the role of implementation falls with the IAG Services and their supporting agencies
- **COMMITTEE ON SATELLITE MISSIONS**
 - DORIS added to the inventory of current and near-future satellites missions
- **COMMITTEE ON DATA AND INFORMATION**
 - Provide metadata (sitelogs) into XML format to automate updates
- **NEXT MEETING: GGOS DAYS IN KOREA (SEPTEMBER 2017)**