IDS REPORT

GGOS-BNO

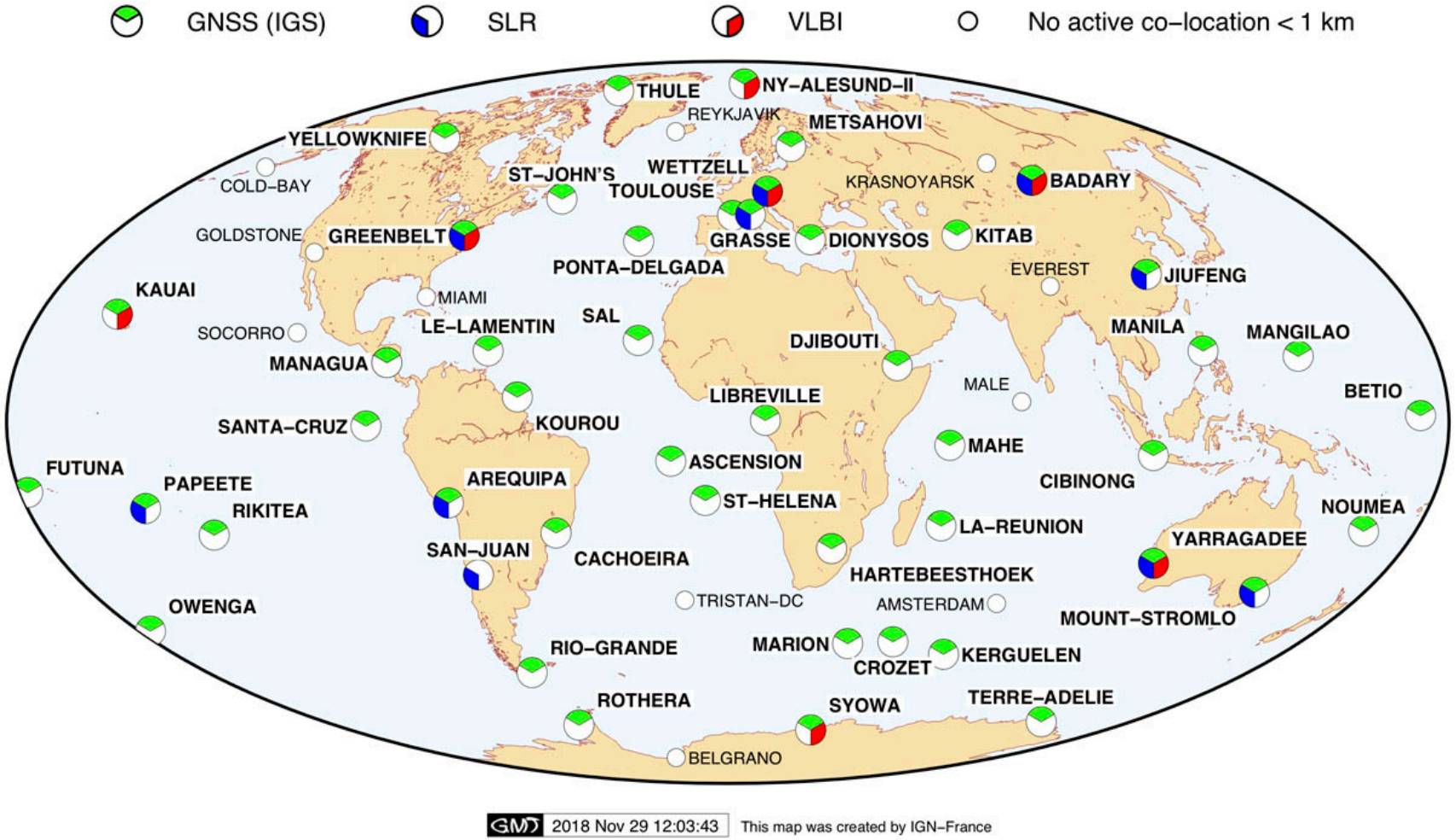
Washington D.C., 10 December 2018

San Juan, Argentina

Prepared by JEROME SAUNIER, IGN (IDS representative to GGOS-BNO)

NETWORK STATUS

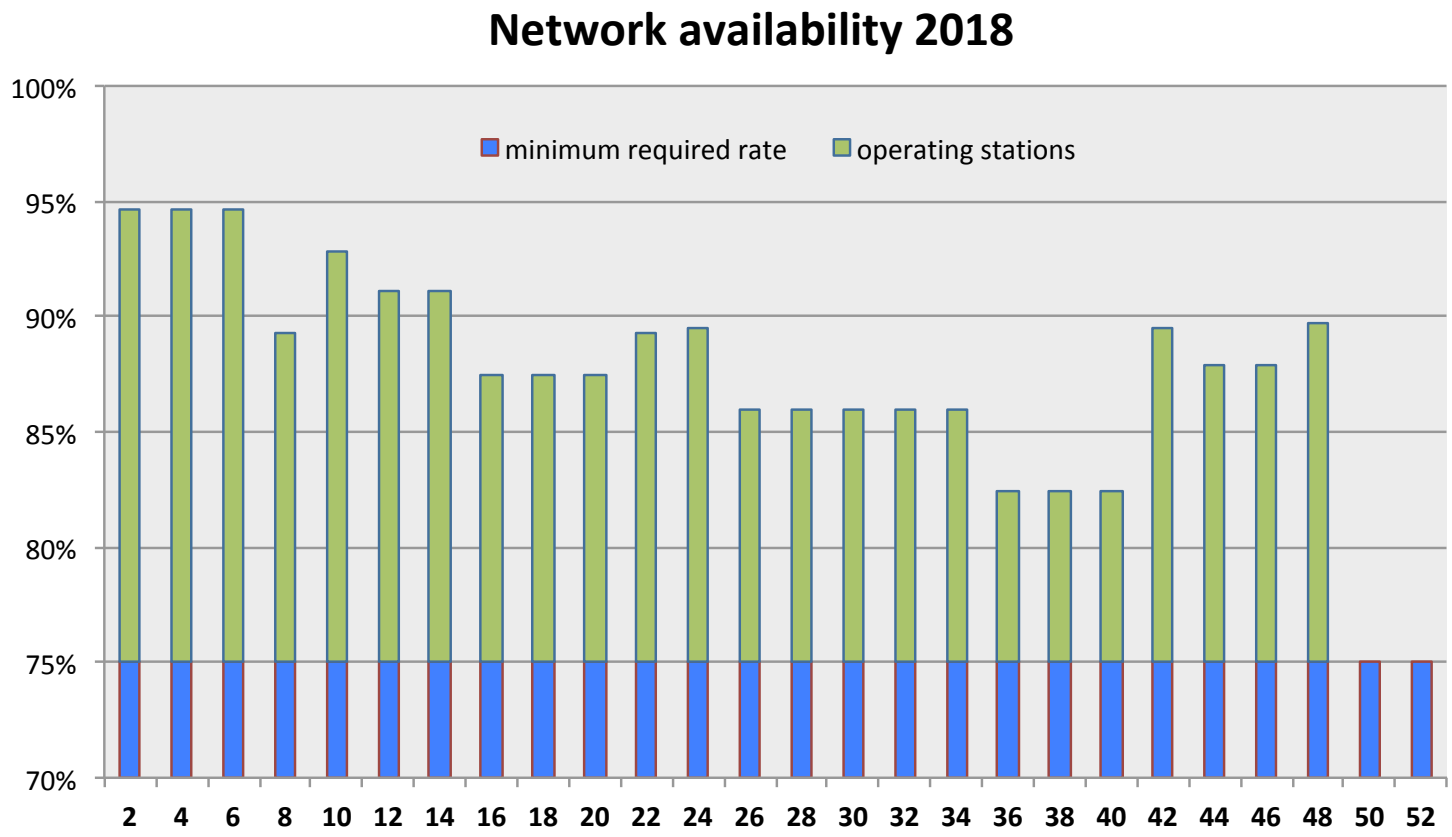
48 co-locations out of 59 DORIS sites



NETWORK STATUS

Reliable service of the permanent tracking stations

The Russian stations were shutdown for indefinite period (regulations)



NETWORK EVOLUTION

Recent network events

- Apr. 2018: new station at Mangilao, Guam Island, USA (to near IGS station, GUUG)
- Aug. 2018: restarting at Rio Grande, Argentina after a two-years outage
- Sep. 2018: new station at San Juan, Argentina (to near ILRS station, 7406)
- Oct. 2018: relocation at Ny-Alesund, Norway (within the new geodetic Earth observatory)
- Nov. 2018: restarting at Mahé, Seychelles after a three-years outage

Planned maintenance and evolution (short-term)

- Restarting at Santa-Cruz, Ecuador
- Relocation at Easter Island, Chile
- 4th generation beacon deployment from mid-2019

Network future plans (long-term)

- New site at Changchun, China (co-location GNSS + SLR): awaiting for government agreement
- New site at Katherine, Australia (co-location GNSS + VLBI): awaiting for the VLBI upgrade
- Relocation at Reykjavik, Iceland: reconnaissance planned in spring 2019
- New site at Papenoo, French Polynesia (4 techniques): ongoing budget negotiations

EQUIPMENT DEVELOPMENT

Antenna C type

- Consolidated specifications: standard uncertainty of the 2GHz phase center position is 1 mm (vs. 5 mm before)
- Deployment started from Sept. 2014: today 16 stations equipped

4th generation beacon

- Up-to-date electronic components: to be operational up to 2033
- Signal amplifier at the foot of the antenna: longer distance between beacon and antenna (up to 50 m vs. 15 m before)
- Deployment will start in mid-2019

Combined DORIS-GNSS on-board receiver

- Ongoing study at CNES in order to produce a prototype

Foot of the antenna

Antenna cables: 50 m long

4th generation beacon

DORIS / VLBI RF COMPATIBILITY

Successive RF compatibility campaigns:

- Greenbelt, MD USA (2014) / Wettzell, Germany (2015-2016) / Papenoo, French Polynesia (2017)

Requirements for the installation at co-located sites:

- Minimum distance between DORIS and VLBI antennas shall be 300 m
- RF barrier (natural or artificial) between both antennas is highly recommended
- Strive for having DORIS above VLBI because DORIS signal is lower at low elevation
- RF compatibility tests in real conditions are in any case required (reflection/environment…)

Recent DORIS installation at Ny-Alesund II:

- Fully complies with the above requirements
- Twin telescopes are not yet fully operational
- First RF compatibility tests were conclusive

DORIS STATIONS POSITIONS

DPOD2014

- **DORIS extension of the ITRF for Precise Orbit Determination**
- **Based on the latest DORIS position and velocity cumulative solution (from 1993)**
- **New release dpod2014_03 is available in SINEX and text format as of November 20th**
- **In press:** Moreaux, G.; Willis, P.; Lemoine, F.G.; Zelensky, N.P.; Couhert, A.; Ait Lakbir, H.; Ferrage, P., 2018. DPOD2014: a new DORIS extension of ITRF2014 for Precise Orbit Determination, ADVANCES IN SPACE RESEARCH, DOI: 10.1016/j.asr.2018.08.043

Successive antenna locations on the same site

- **All available (since 1992) tie vectors are compiled in a text file: ftp://doris.ign.fr/pub/doris/cb_mirror/stations/DORIS_int_ties.txt or CDDIS server**

DORIS ties vectors at co-located sites

- **All available tie vectors with instruments identification, co-location dates, site survey date and precision**
- **File available on ftp://doris.ign.fr/pub/doris/cb_mirror/stations/DORIS_ext_ties.txt or CDDIS server**

IDS NEWS

IDS communication

- **IDS Activity Report 2017 is available on-line:** https://ids-doris.org/documents/report/IDS_Report_2017.pdf
- **IDS Newsletter #5 (Sept. 2018) is available on-line:** https://ids-doris.org/ids/reports-mails/newsletter.html

IDS meetings

- **IDS Retreat (13-14 June 2018): 5 themes being discussed: POD / atmosphere and new products / technology evolution / reference frame / IDS science and organization => development of a strategic plan for the IDS (first meeting on September 18th 2018**
- **IDS Workshop (24-26 Sept. 2018): 4 sessions : network and constellation / processing and plans for the next ITRF / POD / research activities and new applications:** https://ids-doris.org/ids/reports-mails/meeting-presentations.html#ids-workshop-2018
- **Next Analysis Working Group meeting in Spring 2019**

IDS elections

- **Renewal of 2 positions for 2019-2022: Analysis Coordinator and Member-at-large**
- **Ending December 15th: vote of the IDS Associate Members**

THANK YOU FOR YOUR ATTENTION

Sentinel-3