

Key points of the UN GA resolution on the GGRF

- *Encourages* Member States and relevant international organizations to enhance **global cooperation** in providing technical assistance in geodesy for those countries in need
- *Urges* Member States to implement **open geodetic data sharing**
- *Invites* Member States to commit to **improve and maintain national geodetic infrastructure** as an essential means to enhance the GGRF
- *Invites* Member States to have **multilateral cooperation**



What is GGRF?

- An authoritative, reliable, highly accurate, and global spatial referencing infrastructure.
- The GGRF includes the celestial and terrestrial reference frame products and Earth Orientation Parameters (EOPs) that connect them, the infrastructure used to create it, and the data, analysis, and product generation systems.
- The GGRF also includes gravimetric observations, products and height systems which underpin measurements of elevation



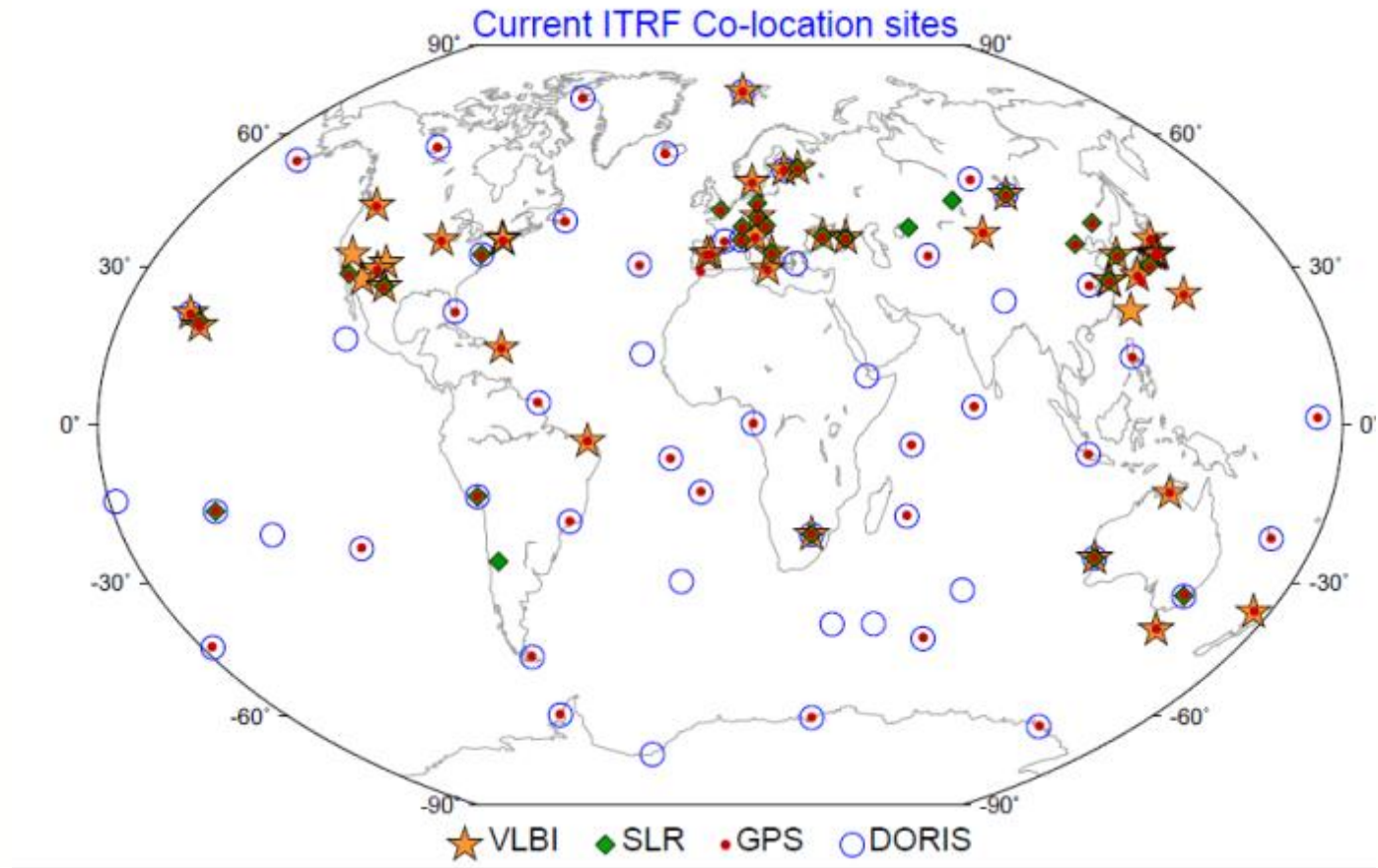
Geodetic Infrastructure

Current situation

- Significant investment in geodetic infrastructure by member States
- Coordination undertaken by the International association of Geodesy (IAG) and its technique services
- Geographical distribution of infrastructure is biased towards Northern
- Gaps in the networks of infrastructure exist, even in the North
- Many of the legacy infrastructure are aging and difficult to maintain, and some do not meet current and planned future specification requirements
- Operating costs for geodetic infrastructure are a risk for sustainable operation
- GNSS contributes to the GGRF in a variety of ways
- GNSS is the primary means of accessing the GGRF
- Coordination across nations, regions and globally is not always fully effective



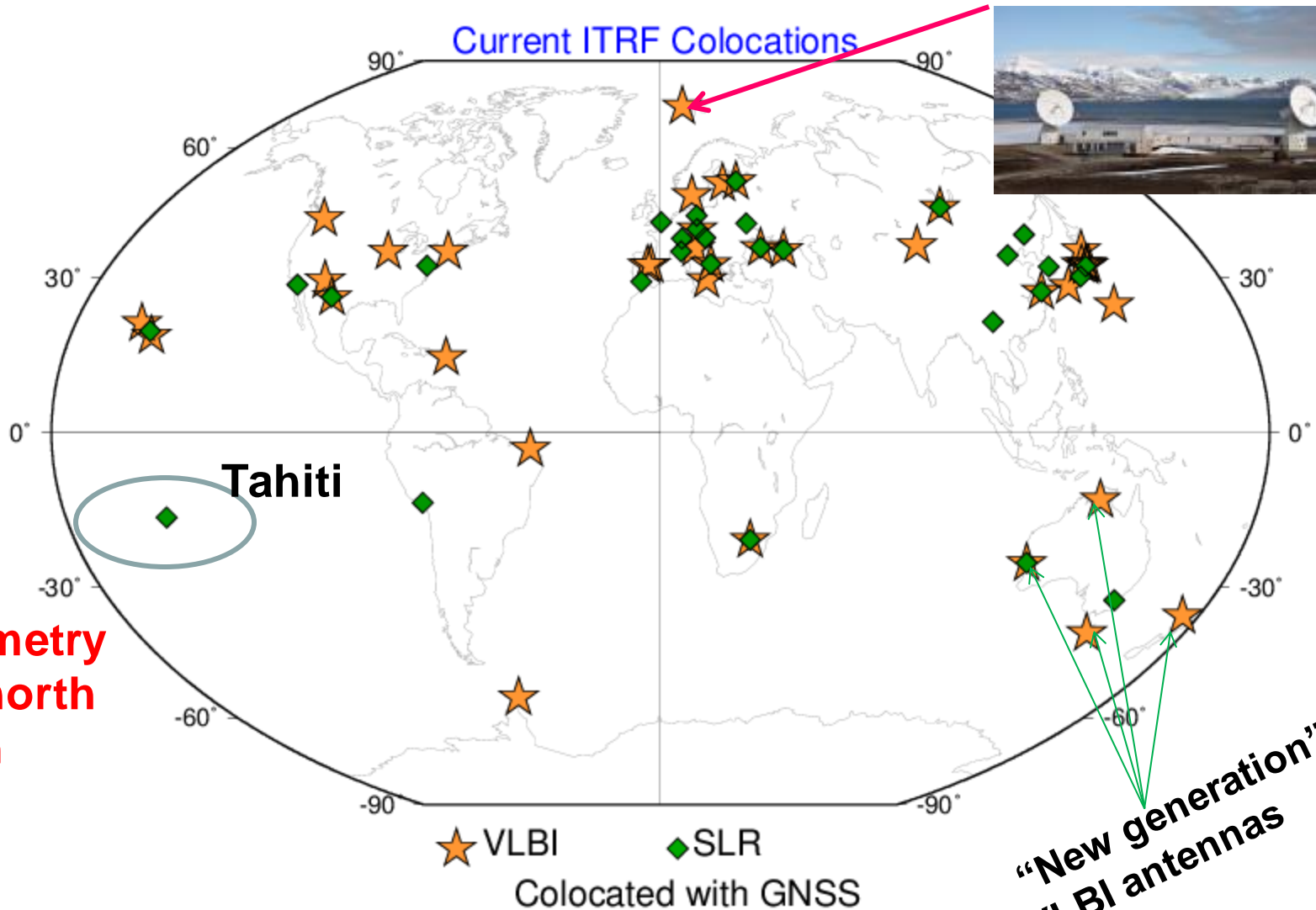
Current Distribution



Current colocations

New geodetic
Observatory at
Ny-Ålesund

~ 44 VLBI
~ 30 SLR



Poor geometry
between north
and south



“New generation”
VLBI antennas

Geodetic Infrastructure

Recommendations

- Member States establish sufficient geodetic infrastructure to allow efficient and accurate access to the GGRF. Member States who have the capacity to assist those countries with less capacity do so through bi-lateral and multi-lateral agreements or other arrangements
- Member States, working within a coordinated science plan developed by the IAG, commit to maintain current investments in the existing Core Observatories in order to ensure the continuation of the provision of services
- Member States make efforts to upgrade the current observing systems at geodetic observatories, in particular VLBI and SLR instruments to next generation technologies
- Member States support the IAG's continued efforts to quantify through simulation the global distribution and specification requirements for geodetic observatories
- Member States commit to fill the gaps where Core Observatories are needed in order to ensure an optimal geometry and coverage wherever they may exist



Access to the ITRF via GNSS

Key messages:

- **Data Sharing:**
GNSS data freely available to all users around the world
- **Backbone link of National Reference Frames to the global ITRF**
- **Note Gaps in Africa, East and South East Asia & South America**

