



DAYS
2021

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Maintenance requirements

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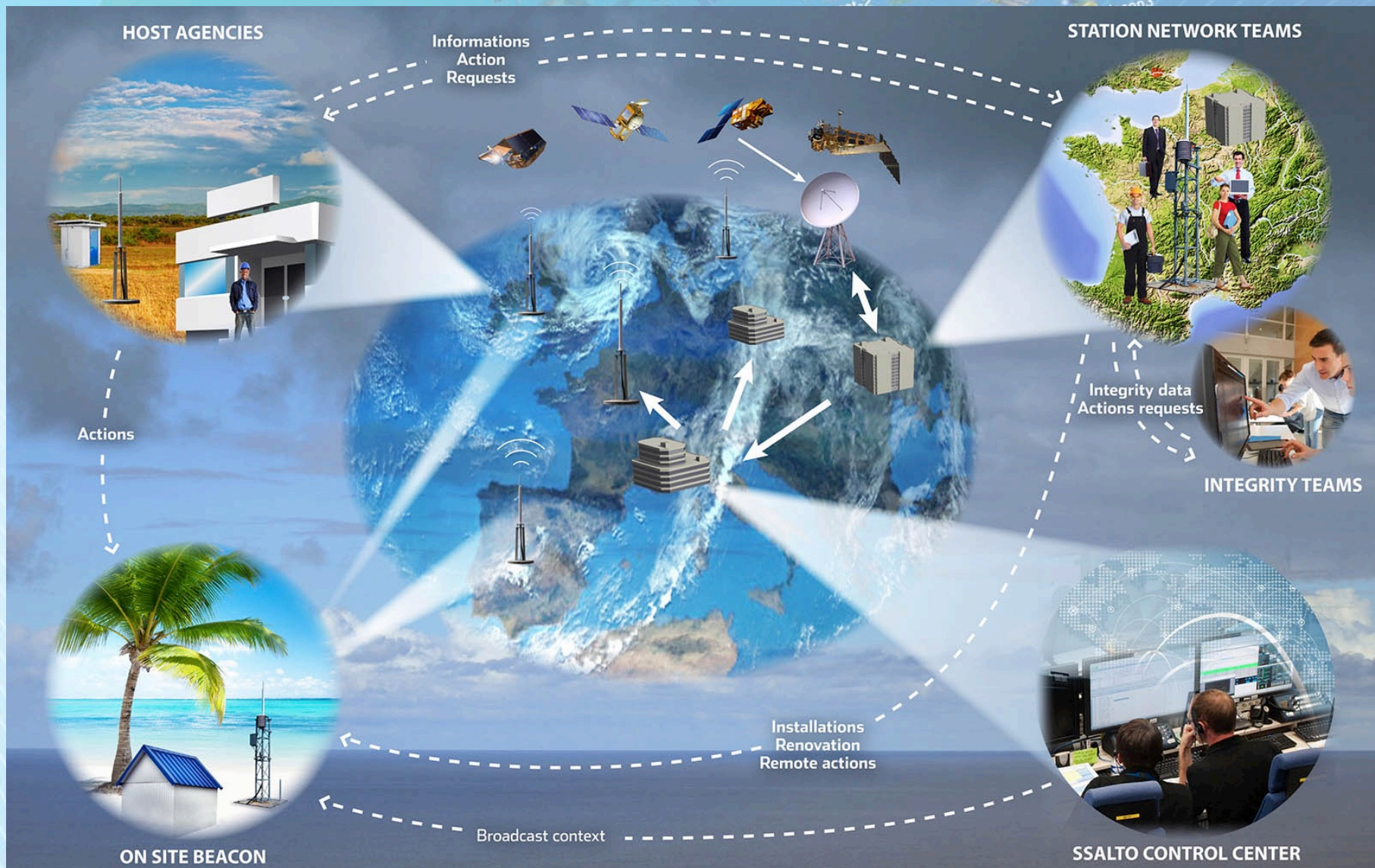
Session 3 – Presentation 12

Centralized maintenance organization

- **Collaboration protocol between CNES & IGN**
 - Clearly defined roles and responsibilities:
 - CNES: operational maintenance / IGN: progressive maintenance
 - Regular coordinating meetings
- **Tripartite agreement with local partners (host agencies)**
 - Mutual responsibilities of the parties for the maintenance
 - Services performed by the Host Agency
 - General provisions

=> Maintenance / EX. I_75: A written agreement between host agency, IGN and CNES is necessary for each DORIS site
- **Permanent monitoring of stations operation and performance**
 - Daily monitoring (Signal Integrity Team) + Regular meetings with decision makers
 - Performance assessment of the stations => see *P. Yaya (CLS) presentation 8*

Functional scheme



Operational maintenance

- **Continuity of service**

- Ensure quality of service: **continuously operating stations 24h/7d**
- Keep in touch with a caretaker of the station

=> **Maintenance / EX. I_250**: responsiveness of the local host agency is required

- **Remote control system**

- Full monitoring from the Control Center (CNES, Toulouse, France)
- Distance settings

- **Routine tasks for the host agency**

- Basic checks (visual inspection)
- Basic adjustments (time setting, restart)
- Return of defective equipment / take delivery of spare equipment
- Assistance for customs clearance
- Basic equipment replacement following CNES or IGN instructions

Progressive maintenance

- On-site measurements

- Antenna replacement: check of the monument stability, determination of antenna reference point position
- Local tie surveys at co-location sites

- Renovation

- Antenna support change: improving the monument stability
- Antenna relocation: improving the RF signal propagation
- Site refurbishment (host agency needs)

- New site

- Station move to improve its performance
- Local difficulties: site closure, administrative problems (frequency clearance, customs...), host agency withdrawal...

Communication

- **Keeping in touch**

- Contacts in each team (CNES, IGN, Host Agency) needs to be defined
- Language of work: English

- **Means**

- Usually conversations through email (because of the time zones)
- Occasionally through direct calls
- More recently: collaboration platforms as MTeams, Zoom...

- **Teams change**

- Each party shall notify the other teams of any change of responsible and regularly ensure that the connection between the teams is not broken
- Using preferably generic email addresses:
 - doris@ign.fr;
 - science.ground.stations.networks@cnes.fr;
 - contact@host-agency.cc;

Maintenance requirements

- On-site presence

⇒ **Maintenance / EX. I_30:** The presence on site (or less than 30 minutes away from the site) of personnel qualified to carry out standard maintenance operations is indispensable, at least on business days and during local business hours.

- Equipment dispatch

⇒ **Maintenance / EX. I_40:** The dispatch of equipment must be possible at least every two months, with a customs clearance time shorter than two months

- Environment change

⇒ **Maintenance / EX. I_165:** No construction project conflicting with requirements I_150 and I_160 (antenna environment). The host agency must notify CNES and IGN of any planned installation or change all around the antenna

Key points

- The stations maintenance relies on 3 teams:
CNES – IGN - Local Host Agency
- Duties are clearly distributed through a **tripartite agreement**
- Operational maintenance is significantly reduced through the **remote control system** used by the CNES team
- **Maintaining a permanent contact** between all teams is essential
- Long customs clearance time are crippling
- Host agencies must **inform** CNES and IGN in advance of **any change** in the station environment