IDS
Network Status and Projection
GGOS Bureau for Networks and Observations
Technical University of Vienna, 20 April 2016

Doppler Orbitography
and Radiopositioning
Integrated by Satellite

JEROME SAUNIER, IGN - FRANCE
CURRENT DORIS NETWORK (APR. 2016: 60 STATIONS)
44 CO-LOCATIONS WITH GNSS; 10 WITH SLR; 7 WITH VLBI
OVER 85% OF OPERATING GROUND NETWORK STATIONS

CONTINUOUS SERVICE REQUIRED FOR ALTIMETRY MISSIONS
RECENT NETWORK EVENTS

- Jul. 2015: station decommissioning at Santiago, Chile (site refurbishment)
- Aug. 2015: station decommissioning at Easter Island, Chile (site closure)
- Mar. 2016: station re-location at Owenga, Chatham Island, New-Zealand (site refurbishment)
- Apr. 2016: new station installing to near IGS « MANA » at Managua, Nicaragua

Two new DORIS sites: Le-Lamentin (2013) and Managua (2016) in place of Miami (possible decommissioning due to interferences with mobile-TV relays)

Two stations located on the Caribbean Plate
CONTINUOUS EFFORTS TO CO-LOCATE DORIS WITH OTHER TECHNIQUES

In this aim, take advantage of any opportunity to move close other techniques

SHORT TERM (NEXT 6 MONTHS):

- Kitab, UZ: major renovation (station re-location to get better visibility)
- Mariana Islands, US: reconnaissance with a view to installing new station
- San Juan, AR: new station installing in place of Santiago (3 techniques site)
- Wettzell, DE: new station installing (new 4 techniques site)

LONGER TERM:

- Katherine, AS: new station installing in place of Port-Moresby (3 techniques site)
- Easter Island, Chile: relocating to near IGS station, ISPA.
- Ny-Ålesund, Spitzberg, Norway: relocating (new 4 techniques site)
- Under consideration: new station installing in Sejong, Korea and Changchun, China
NETWORK EVOLUTION

- PROJECTS 2016-2020 (PLANNED OR UNDER CONSIDERATION)

[Map showing locations with markers indicating decommissioned sites, site relocations, and new sites.]
DORIS / VLBI COMPATIBILITY

- RFI IN THE S-BAND: DORIS EMITS A 2036MHZ FREQUENCY OF 40DBM
- VLBI SYSTEM RECEIVE WEAK SIGNALS OF THE ORDER OF -110DBM
- CRITICAL LEVEL OF THE POWER RECEIVED AT THE INPUT OF LNA

- GREENBELT = 1ST SITE WHERE RF INTERFERENCES HAVE BEEN MANAGED:
  - Favourable local topography: no inter-visibility between DORIS and VLBI
  - VLBI antenna is less sensible

- WETTZELL = NEXT OBJECTIVE; COMPATIBILITY UNDER EXAMINATION:
  - Many constraints: 3 VLBI antennae, small parcel of land
  - Many tests have been carried out since May 2015

- FIND THE COMPROMISE DISTANCE:
  - Enabling proper operation of the two instruments
  - Enabling the required degree of precision of tie vectors

- USE EXISTING SHIELDS OR RF BLOCKERS AND ABSORBERS TO MITIGATE RFI
FIRST REPORTS AND RESULTS

- See EGU Session G2.2 Poster « Towards a four technique GGOS site: VLBI-DORIS compatibility tests at Wettzell » by T. Klügel et al.

BASIC PRINCIPLES FOR ANY SITE LAYOUT:

- No direct visibility between DORIS and any VLBI antenna (using local topography and RF blockers structures)
- Maximum distance between DORIS and VLBI (ideally 300-400 m)
- Difference in height between DORIS and VLBI: the radiated emission from DORIS is lower at low elevation
- Ground installation of the DORIS antenna (better for shield erection and local ties)

IDS Workshop: Oct. 31 and Nov. 1, La Rochelle (France), in conjunction with Ocean Surface Topography Science Team Meeting

For more information: see URL: http://ids-doris.org

or

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