

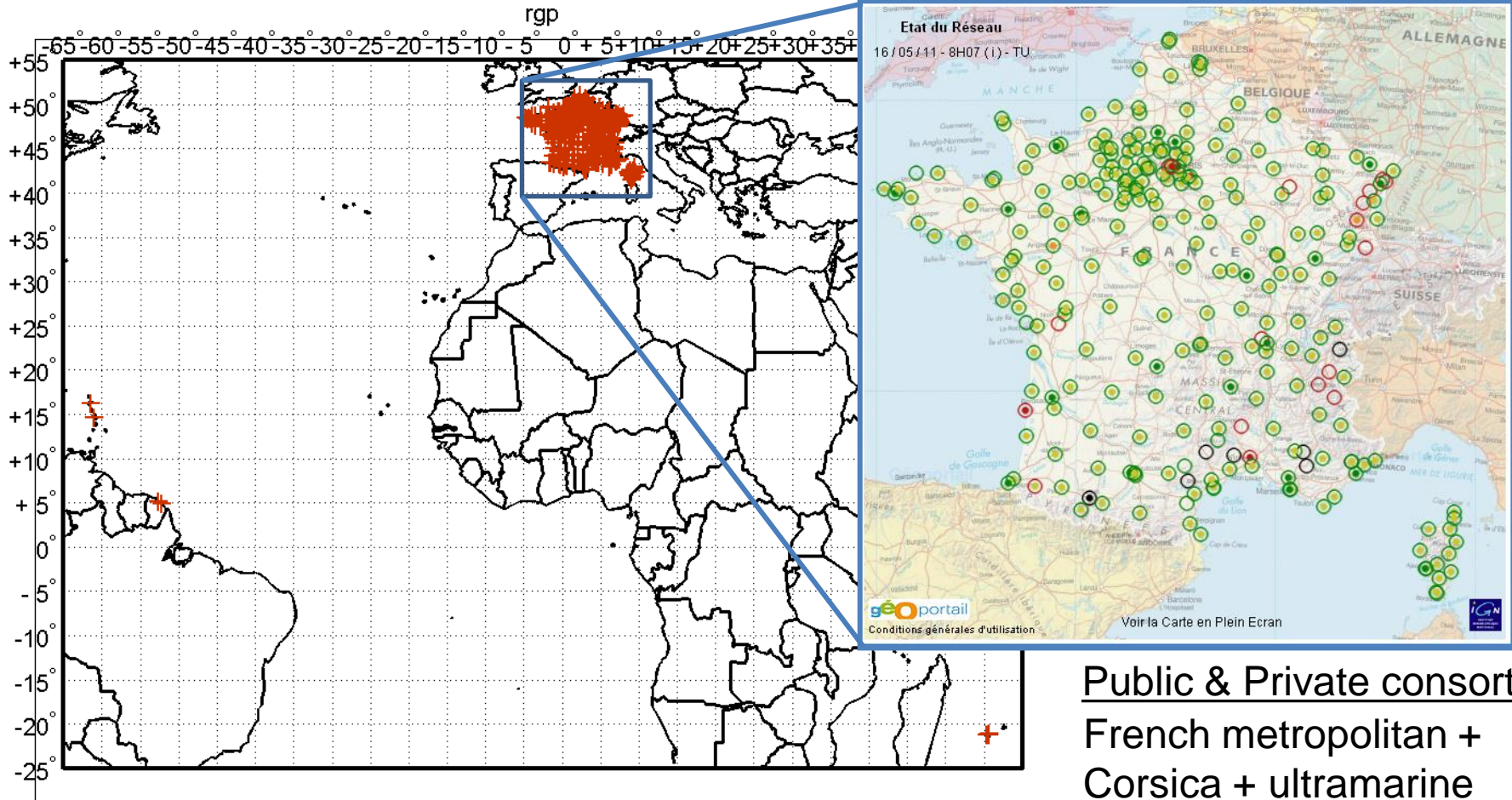
Overview of GNSS & GNSS-Met situation in France

O. Bock (IGN) & J.-F. Mahfouf (Météo-France)

Outline

- Operational Services
 - GNSS networks & data analysis centers
 - NWP centers
- Research projects
 - HYMEX, REMEMBER, VEGA, AMMA...

RGP = Reseau GNSS Permanent



Data:

350 stations, rinex data archived at rgp.ign.fr

Products:

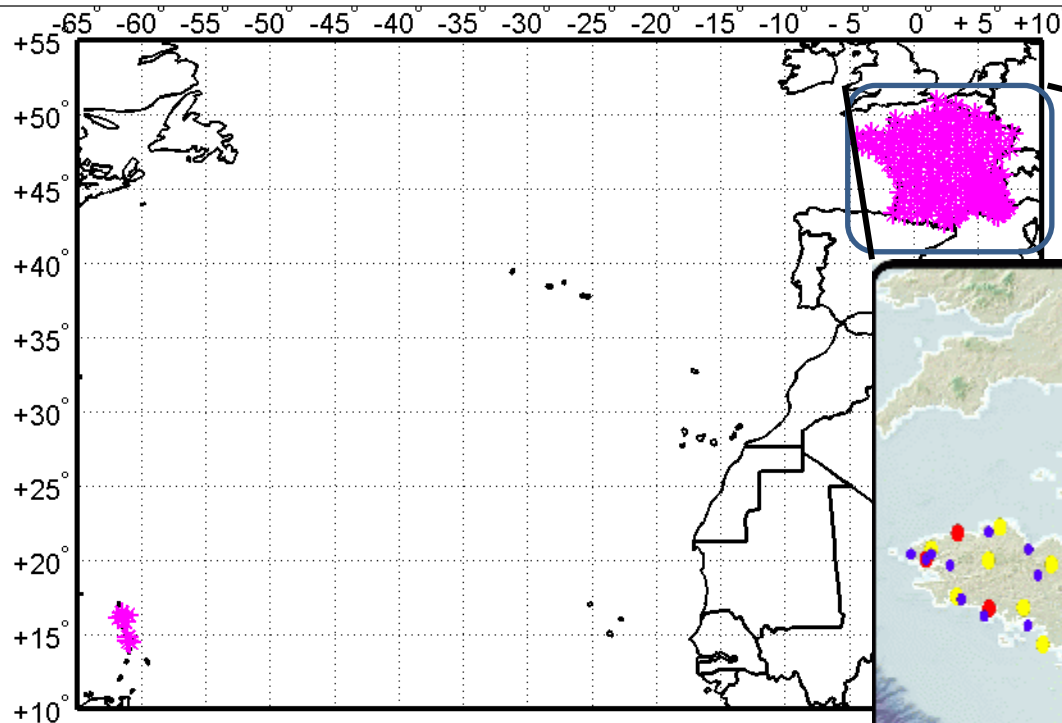
EGVAP AC & EUREF AC (Bernese software)

Public & Private consortium

French metropolitan +
Corsica + ultramarine
regions (Guyana,
Martinique, Guadeloupe,
Réunion, St-Pierre et
Miquelon, Mayotte)

RENAG = REseau NATIONAL GPS permanent

renag



Public & Private consortium

RGP + 180 stations, rinex data archived
at <http://webrenag.unice.fr/>

QC & solutions available on request (GAMIT
software)

SONEL (Univ. La Rochelle)

SONEL

Home | Observations | **GPS**

Which GPS stations? 756 STATIONS ARE DISPLAY

Map | What GPS data? | How to get access to the GPS observations | Which GPS solutions?

Options

2000 km / 1000 mi

Google 58°44'02.5"N, 115°16'38.4"E

Conditions d'utilisation

Active station | No data for 30 days | Decommissioned | No observations in SONEL (Survey)

Display

- Active station (430)
- No data for 30 days (137)
- Decommissioned (89)
- No observations in SONEL (Survey) (100)
- All GPS data available (RF stations included)

Data centers

- BAFG
- BIGF
- BKG (EPN, IGS)
- Canary GNSS Centre
- CDDIS (IGS)
- CEA
- CRS
- DGFI
- EJERCITO
- ENSG
- ENSG-Geomatics
- ENSG-Geomatics

Programs & Networks

- AMMA
- COCOnet
- ESEAS
- EUREF
- GCOS
- GLOSS
- GLOSS ALT
- GLOSS LTT
- GNET
- IGS
- IGS-EPN

UPDATE

DEFAULT

CANCEL

GLOSS STATIONS

Data:

Rinex (includes many sites from research projects) at [http://www.sonel.org/-GPS-](http://www.sonel.org/-GPS-Products)

Products:

Position solutions

DORIS = Doppler Orbitography and Radiopositionning Integrated by Satellite



Network:

~60 sites operated since 1990 by CNES & IGN

Data & products:

Satellite orbits, station positions & ZTD, <http://ids-doris.org/>

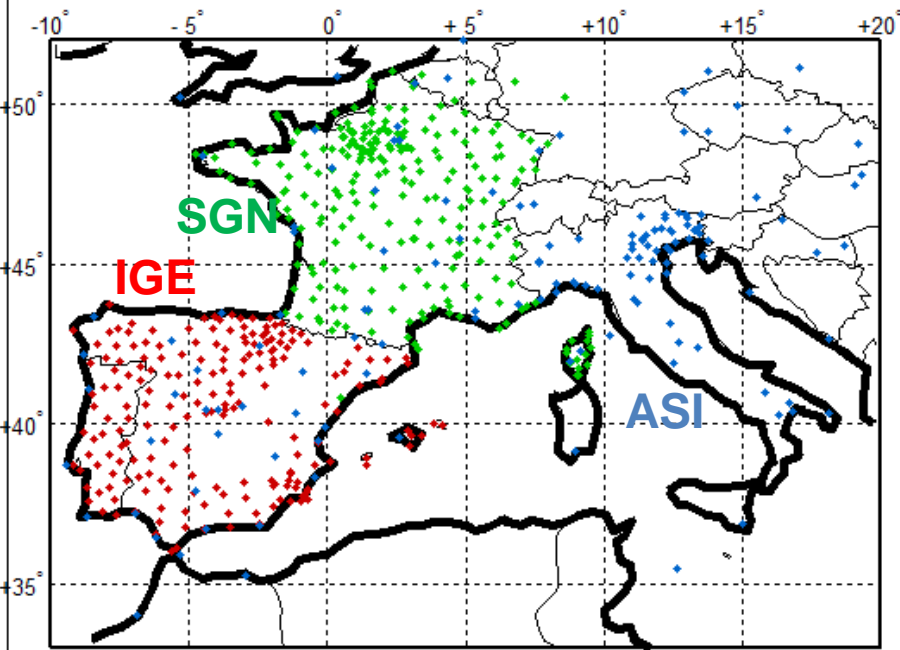
GNSS in research projects

- **HYMEX** (Hydrological cycle in the Mediterranean Experiment, INSU-CNRS funded, PI: V. Ducrocq)
 - Assimilate repro GPS IWV in AROME West-Med reanalysis
 - Heavy Precip Event studies using GPS IWV during SOP1 (fall 2012)
- **REMEMBER** (REgional climate system ModElS in the Mediterranean for BEtter water-related Risk prevention in the context of global change, ANR funded, PI : Ph. Drobinski)
 - Evaluation of regional climate models simulations Med-CORDEX vs. GPS and satellite IWV
- **VEGA** (Water vapour, GNSS & climate, LEFE funded, PI: O. Bock)
 - Set up a long time series of validated GNSS & DORIS IWV data for climate research at global scale
 - Intercompare GNSS IWV to other techniques (e.g. Raman lidar)
 - Evaluate water cycle & moist processes in climate models (EU/Med, polar regions, Africa)
- **AMMA** (West African Monsoon) & **Humidity in Sahara**
 - Run GPS stations & study moisture fluxes btw WAM, Sahara, Med, AO

EGVAP

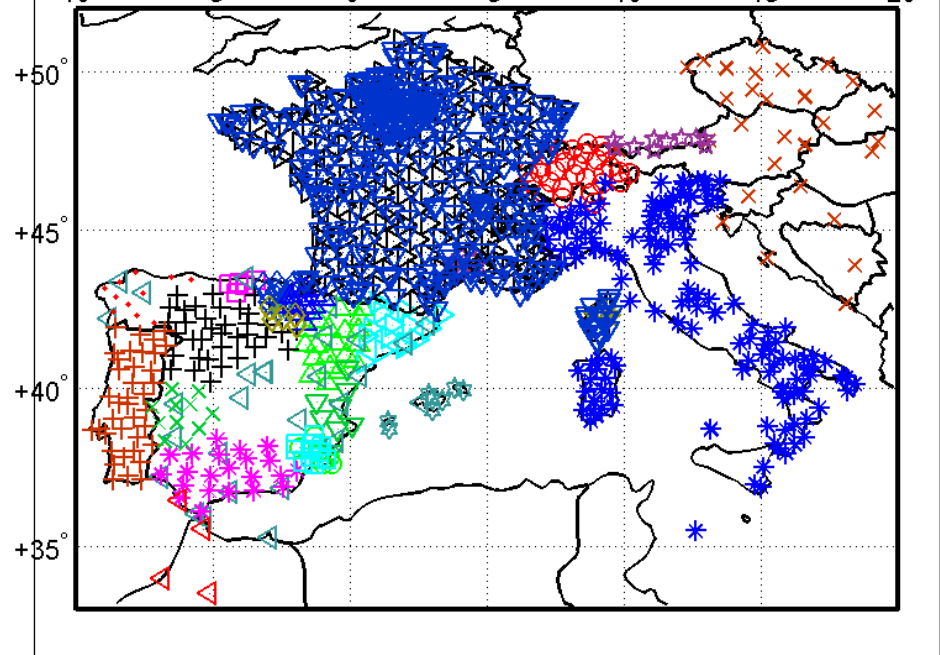
REPRO LAREG

- ◆ EGVAP/IGE
- ◆ EGVAP/SGN
- ◆ EGVAP/ASI
- ◆ EGVAP/ASI1



773 stations
(3 Analysis Centres)

- agnes
- △ arag
- * asip
- cantabria
- ▷ cat
- + cyl
- × epn
- ▽ erva
- ◇ esk
- ☆ hymex_de
- ☆ hymex_fr
- ◁ ige
- logica
- mur
- △ nav
- * rap
- regam
- ▷ renag
- + renep
- × rep
- ▽ rgp
- ◇ rio
- ☆ sapos
- ☆ sitibsa
- ◁ unavco



1046 stations (25 networks)
GIPSY s/w LAREG & ASI proc.
Period 1 Sep 2012 – 31 Mar 2013