



**EUREF 2004 SYMPOSIUM  
BRATISLAVA, 2 – 6 JUNE**



**NATIONAL REPORT OF SPAIN**

**Instituto Geográfico Nacional**

# Spanish National GPS Reference Stations Network (ERGPS)



- ✓ 18 stations
- ✓ 10 EPN
- ✓ 2 st. will proposed EPN: COBA & MALA
- ✓ 7 ECGN proposed
- ✓ Public data access (ftp)
- ✓ Main activity: maintenance
- ✓ Future: + 3 st.

✓ Implementation EUREF-IP (6)



# Local Analysis Center: IGE



- ✓ Since Sept 2001
- ✓ BPE 4.2
- ✓ Linux SuSe
- ✓ 31 EPN (29 + 2)
- ✓ Main area:  
South-West
- ✓ Expanding to  
central Europe in  
2003 taking recent  
EPN stations



# IBERNET: Processing non-EPN stations

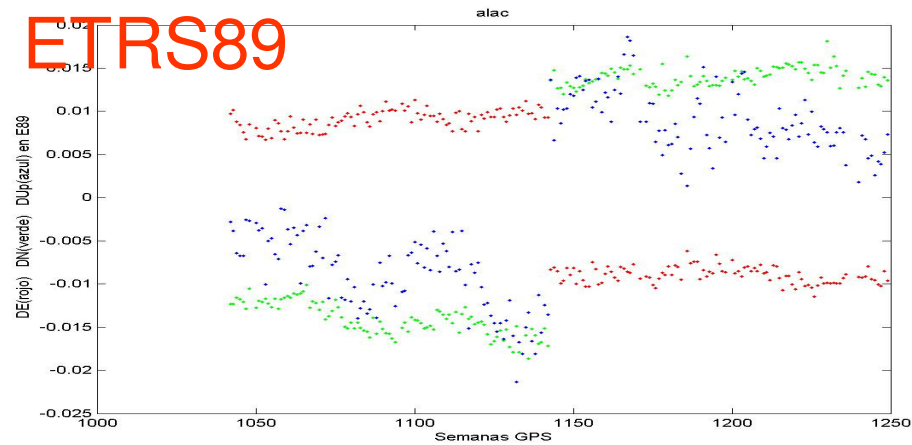


- ✓ 31 stations
- ✓ Iberia, Morocco, Balearic, Canary, Azores
- ✓ BPE 4.2
- ✓ Time series of non-EPN stations
  - ITRS
  - ETRS89
  - Standar
  - Improved

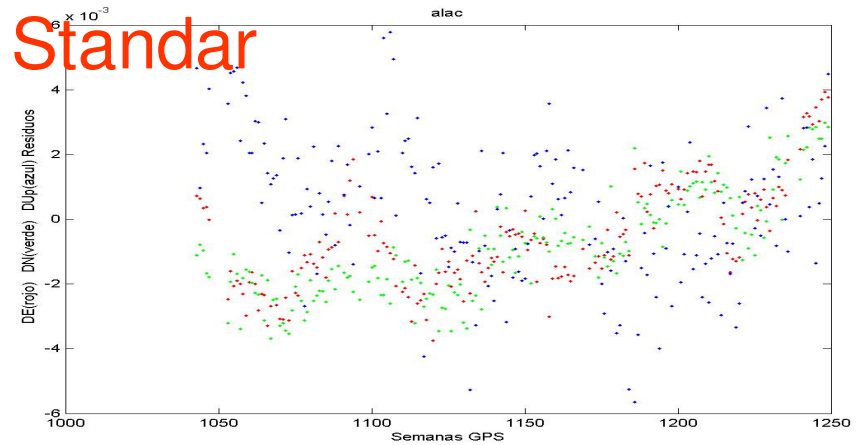
✓ Velocity field estimation and detection of jumps in coordinates

# IBERNET: Time series

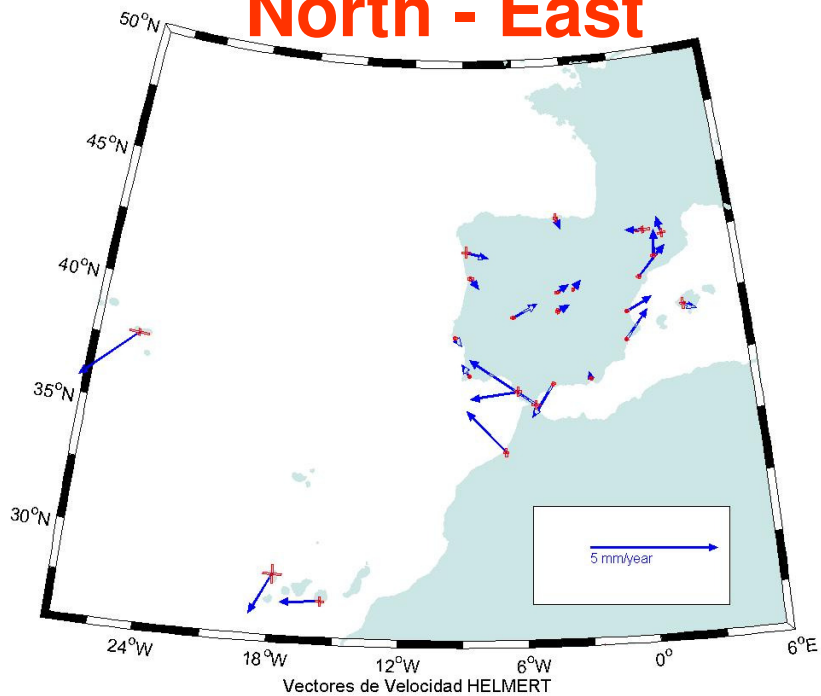
ETRS89



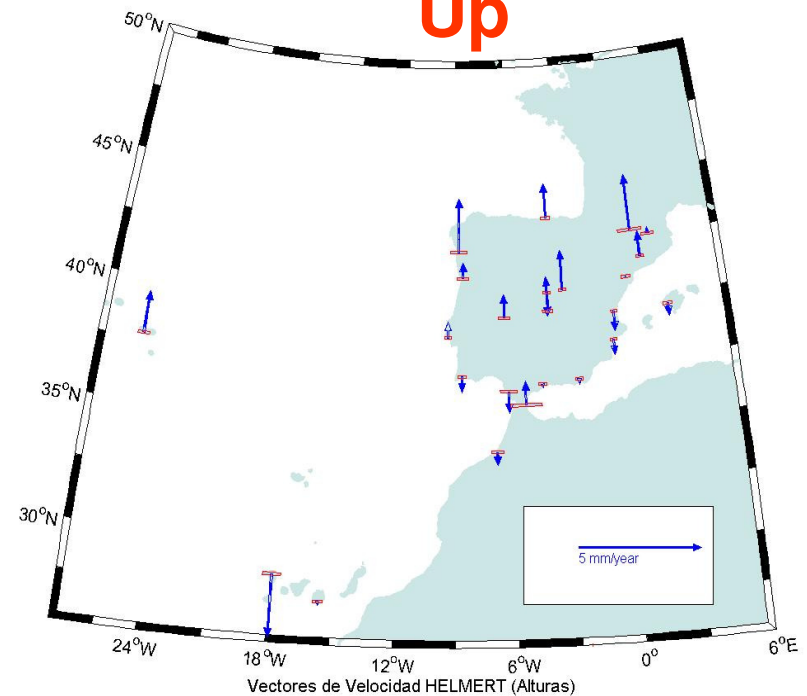
Standar



North - East



Up

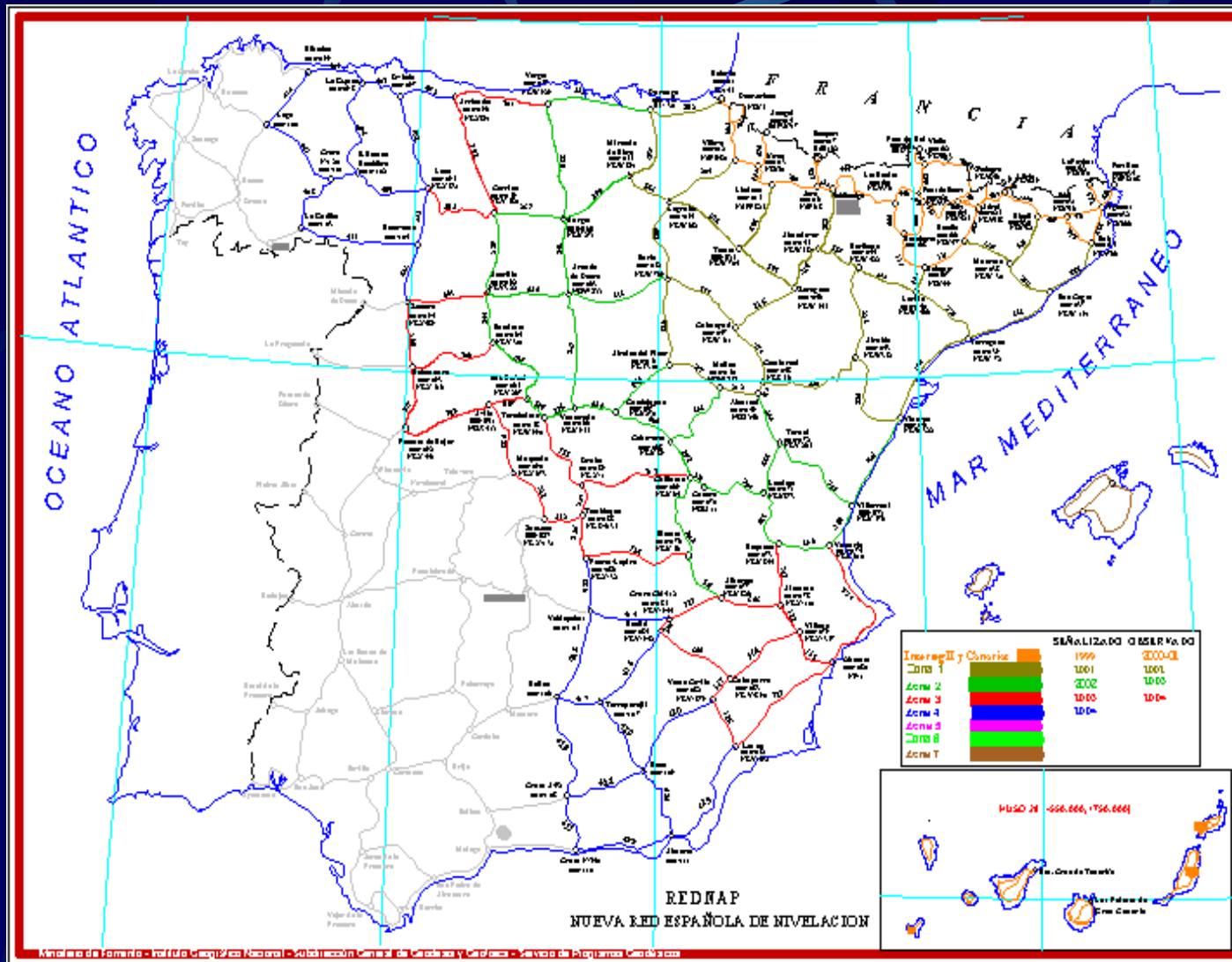


## EUREF-IP NTRIP Caster at IGN-E

- ✓ Dissemination of real-time GNSS data through Internet
- ✓ Broadcasting data streams belonging to the ERGPS net
- ✓ 2 RTK (Madrid and Cordoba)
- ✓ Several DGPS stations and progressive installation in the whole ERGPS network
- ✓ 15 virtual EGNOS DGPS streams in RTCM format covering the Iberian Peninsula
- ✓ Within the EUREF framework
- ✓ A cross monitoring between casters ensures control over the continuity of EUREF's services
- ✓ Continuity of the service two Linux servers has been installed (Secondary and Master) with RAID system



# REDNAP Project: status

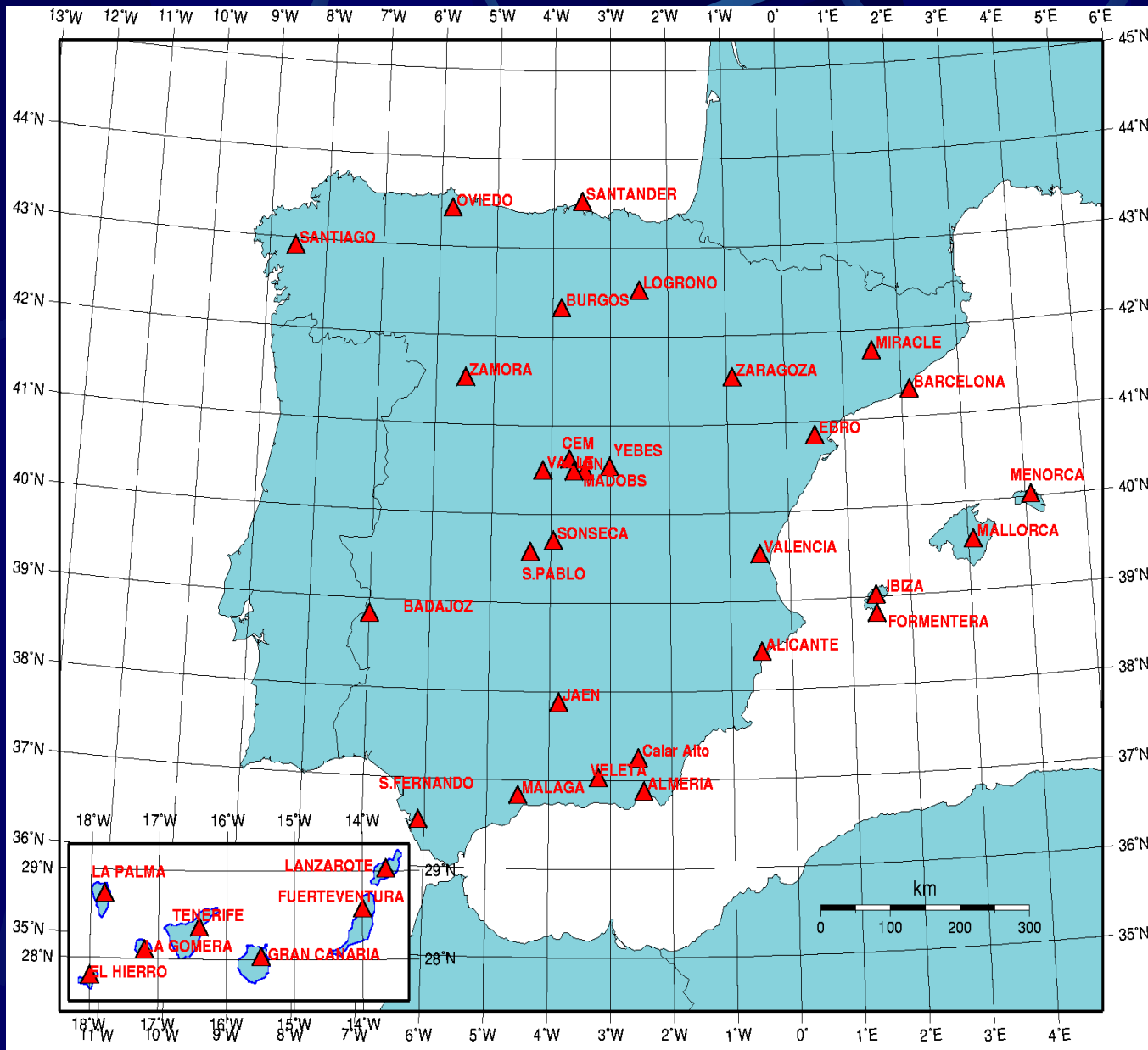


✓ New High Precision Levelling Network (18000 km)

✓ 2003: 2500 km (2500 points) monumented and observed:  
gravimetry + GPS  
+ Prec. Levelling

↓ ↓ ↓  
**High Prec. Geoid**

# Zero Order Absolute Gravity Network of Spain



- ✓ FG5 and A10 gravimeters
- ✓ Intercomparison in Toledo geophysical observatory
- ✓ 2003: 14 stations observed
- ✓ Observing ECGN stations
- ✓ Contribution to the European Unified Gravity Network