EUMETNET GPS Water Vapour Programme

E-GVAP

A way to improve short range weather forecasting

Purpose of E-GVAP

- Enable and coordinate collection and distribution of European near real time ground based GPS water vapour measurements to EUMETNET members for operational meteorology.
- Work to gradually increase quality, amount, and geographical coverage of GPS water vapour data.
- Assist meteorological services in utilising GPS water vapour data.

Why more water vapour measurements?

- The current water vapour measurements are very coarse in time and space (mainly from radiosondes).
- Water vapour is crucial in forecasting precipitation and important to atmospheric dynamics.
- Water vapour plays a key role in the transfer of energy to and in the atmosphere.
- Water vapour is the most important and most variable greenhouse gas.

COST 716 NRT demonstration project

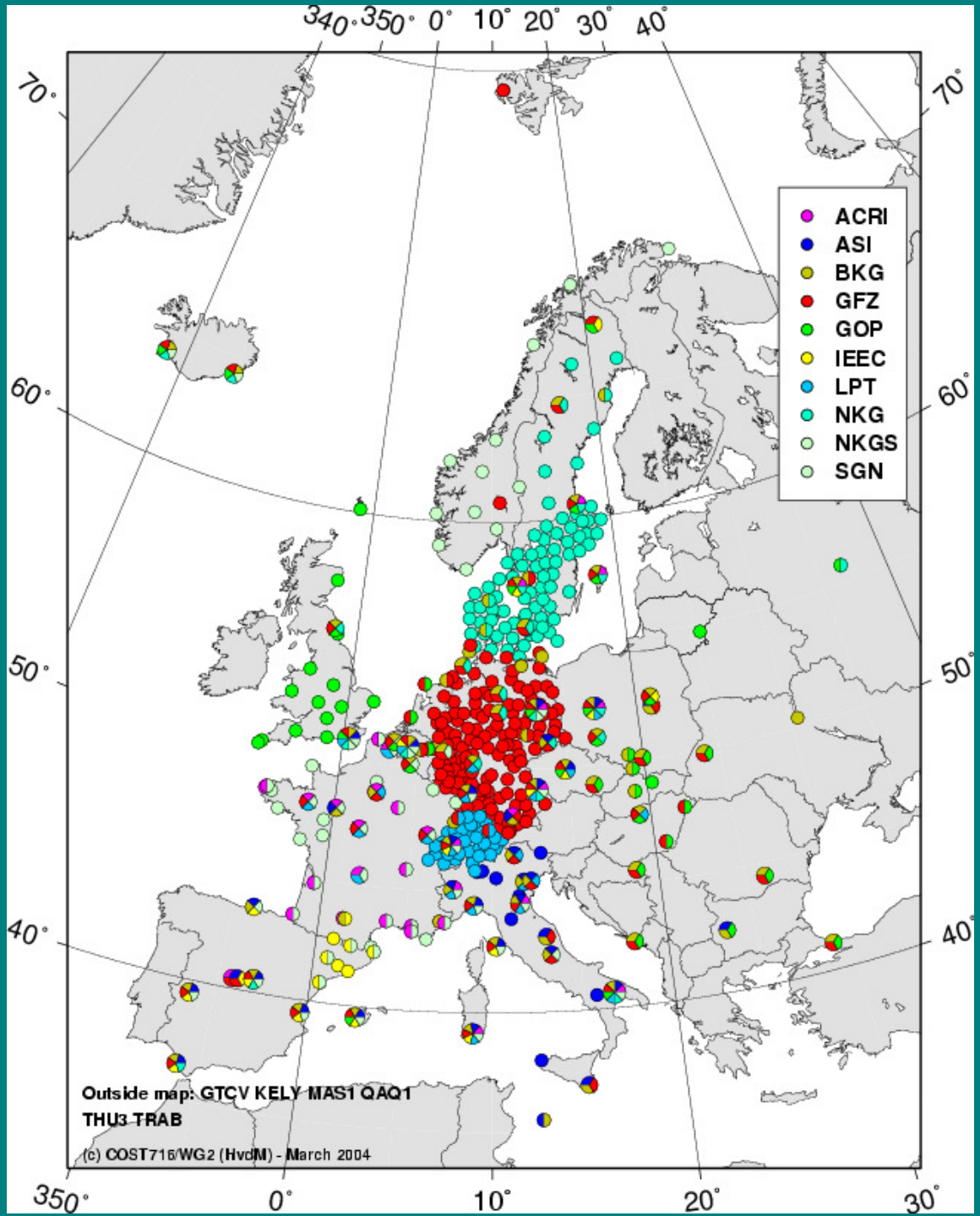
Started March 2001.

Status March 2004:

- 428 stations
- 10 operational GPS processing centres:

GFZ, GOPE, IEEC, ASI, LPT, NKG, NKGS, ACRI, SGN, BKG

http://www.knmi.nl/samenw/cost716.html



NRT GPS data providers

GPS data providers in COST 716:

- International GPS Service (IGS)
- EUREF Permanent GPS Network (EPN)
- National Mapping Agencies
- National Meteorological Services
- Universities and research networks
- Private companies

GPS data collection is handled by the analysis centres, these centres will often have access to unique sources of data which are otherwise not available to the public.

The way ahead…

- Operational EUMETNET project proposed at COST final workshop. Tackles the challenge of coordination between voluntary organisations (IGS, EUREF,..), private companies, and operational meteorology.
- Geodetic interface to the EUMETNET project*); consult EUREF
- GPS meteorology research continued in EU project TOUGH (2003-2006)

**) the mandate is a little broader: the complete meteorological community*

E-GVAP objectives (1)

- Prepare and coordinate future operational processing of GPS water vapour on both European and national scales.
- Transfer from research funding to operational service as far as possible in liaison with the geodetic community.
- Establish a data hub for GPS ZTD, and a quality monitoring facility with feedback to data GPS data processing centres and data providers.

E-GVAP objectives (2)

- In collaboration with geodetic community establish a long term policy for processing operational GPS water vapour measurements.
- Coordinate national/regional processing efforts to ensure availability and homogeneity of data from the whole of Europe.
- Help improve meteorological collaboration with operators of national GPS sensor networks,
  - e.g. sharing facilities for reducing operational costs
  - e.g. providing feedback of meteorological data

E-GVAP objectives (3)

- Review data processing strategies to improve data quality.
- Assist members in utilizing GPS humidity data by writing of documentation and reporting on the use of GPS water vapour data in NWP, now-casting, and verification.

E-GVAP status

- E-GVAP accepted by EUMETNET council
  - For: Belgium, Denmark, Netherlands, UK, Norway, Finland, Iceland, Ireland, Spain, Sweden, Switzerland
  - Closed wallets: Germany, Austria, Hungary
  - Neutral: Italy, Portugal; Not determinable: France
  - Against: none
- Programme partners
  - DMI project coordination
  - KNMI Validation (web-site)
  - Met.Office Database + GTS/BUFR
- Start April 1st, 2005

E-GVAP programme setup

- Responsible member (Manager).
  Setup and running of programme, reporting, connections to other bodies (WMO, user community, ..): DMI
- Operational liason group.
  Collaboration between E-GVAP and geodetic community, together with manager.
- Expert groups (2)
  - Expert team on data processing.
    Improving data quality and homogeneity, through better processing.
  - Expert team on using GPS water vapour data.
    Assisting members in using GPS water vapour data
- Data-hub and data validation center
  Uk. Met Office and KNMI (Cont' of COST-716)

E-GVAP programme economy

Project manager per year (0.75 y)	64k€
Liaison group meetings	15k€
Expert Team meetings	10k€
Contract to support hub/central processing	30k€
Project Travel	10k€
Total per year	129k€
Total over four years	516k€

Resumé: Purpose of E-GVAP

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