PROJECT

INTEG

EGNOS TRANSITION into GALILEO

Funding: European (5th RTD Framework Programme)
Duration: Dec 1999 - Dec 2000
Status: Complete with results

Background & policy context:
The Single European Sky initiative aims at creating a new system of more efficient air traffic management. Galileo and EGNOS, Europe's satellite navigation systems, play an important role in this initiative, making it possible to use satellite positioning in crucial 'safety-of-life' transport applications, including aviation.

Objectives:
EGNOS objectives are deliver services based on GPS and Glonass signals, providing augmentation signals re-transmitted by geostationary satellites and a network of ground stations.

Methodology:
Finalisation of stable EGNOS+ Mission and System requirements, optimisation of the EGNOS+ architecture in accordance with the possible future evolutions of GALILEO architecture (GALA follow on study), detailing the different steps of the technical and operational transition plan from EGNOS AOC to EGNOS+.

Related Projects:
EGNOS, GENESIS

Parent Programmes:
FP5-GROWTH KA4 (AERONAUTICS) - New Perspectives in Aeronautics

Institute type: Public institution
Institute name: European Commission, Directorate-General for Research (DG Research)
Funding type: Public (EU)

Partners:
Germany:
AIRSYS ATM GESELLSCHAFT FÜR AIR TRAFFIC MANAGEMENT SYSTEME MBH; ASTRIUM

Italy:
FINMECCANICA S.PA.

Spain:
GMV

United Kingdom:
Thales Avionics Ltd; NATSSpectrum

Organisation: ALCATEL Space Industries
Key Results:

INTEG has covered both integration into GALILEO services (real cost & benefits of EGNOS integration) continuation of GPS augmentation services when GPS evolution. EGNOS integration in GALILEO ensures a service continuity and improvement for GALILEO users and applications, including consistency with international aeronautical standards. EGNOS integration into GALILEO is technically and operationally defined, realistic and beneficial to GALILEO system and user can provide further benefits.

Technical Implications

The most important technical applications:

- Constellation diversity at user level: GPS - GALILEO - GLONASS;
- Improves alarm limit / availability through multiple pseudo-ranges;
- Improves continuity through full back-up between GPS (GLO) and GALILEO;
- Integrity Monitoring and Broadcast robustness;
- Diversity within GPS-GLONASS and GALILEO integrity determination functions;
- Diversity within integrity uplink & broadcast (GEO payloads and MEOs);
- Ion. grid over GNSS-1 service areas in case of fall-back into single frequency mode (e.g. due to interference).

Policy implications

In its resolution 1999/C 222/01 (19 July 1999), the Council of the European Union formally invited the Commission to define the optimal integration of the European Geostationary Navigation Overlay Service system (EGNOS system) into Galileo in close consultation with the EGNOS Operators and Infrastructure Group (EOIG), with a view to ensuring continuity, integrity and reinforcement of capability including the technology and infrastructure developed in EGNOS.

With the support of the EOIG, this high level objective has been derived into comprehensive mission requirements, which are to be applied to both EGNOS and Galileo.

EGNOS shall ensure, during EGNOS to Galileo transition, and then within Galileo, its initial mission as specified by its own applicable mission requirement, (including backward compatibility for GNSS-1 users and interoperability in Europe with WAAS and MSAS SBAS systems).

STRIA Roadmaps:  Network and traffic management systems
Transport policies:  Digitalisation