

Navigation

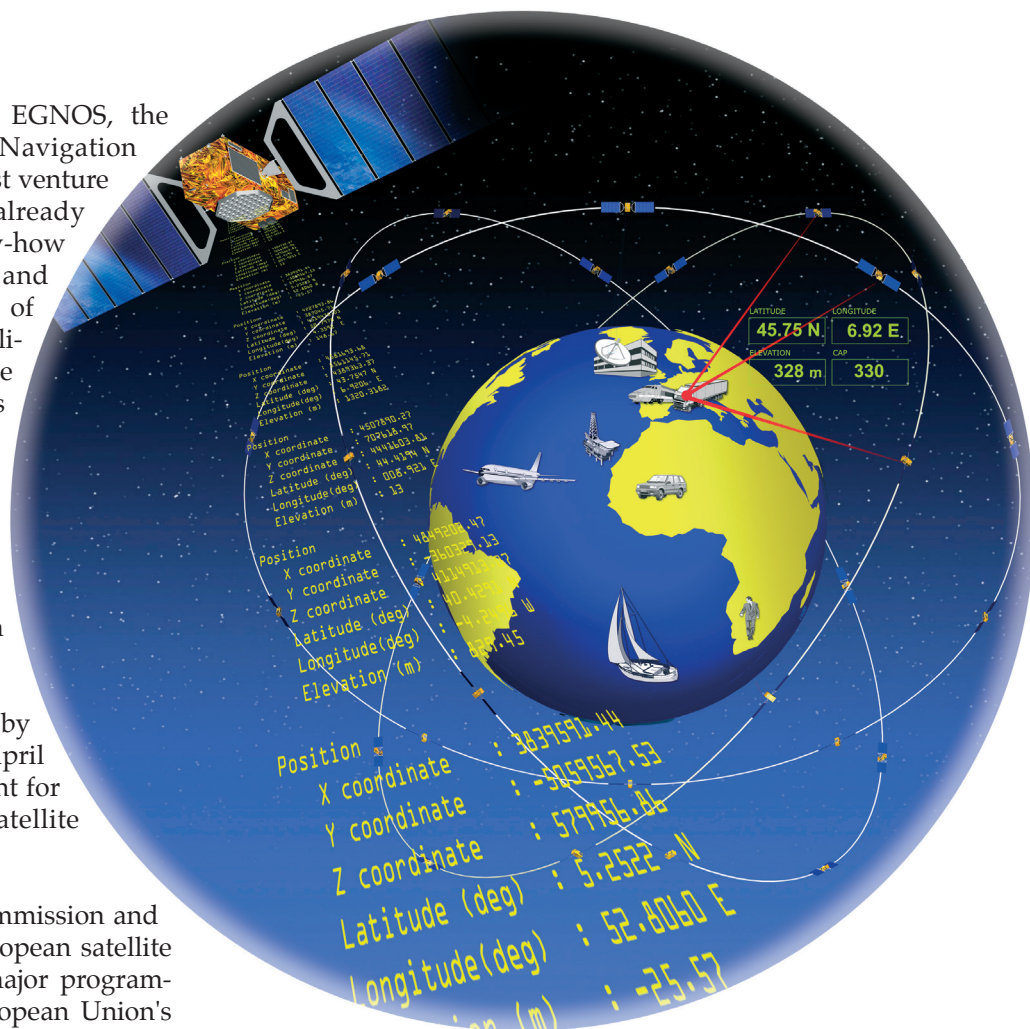
Paving the way for Galileo, EGNOS, the European Geostationary Navigation Overlay Service, is Europe's first venture into satellite navigation. It already demonstrates European know-how in navigation technology and begins to create a community of users with several concrete applications. While awaiting the EGNOS Operational Readiness Review in April 2004, the EGNOS Systems Test Bed (ESTB) is playing an increasingly important role in supporting European industry in its efforts to prepare applications and services based upon satellite navigation.

The signals in space provided by the ESTB, and EGNOS after April 2004, will remain very important for preparing Europe for the satellite navigation market.

Galileo, the joint European Commission and ESA initiative to provide a European satellite navigation system, passed a major programmatic milestone when the European Union's Transport Ministers agreed to allocate its 50% share of the funds needed to develop and validate the system. The establishment of the Galileo Joint Undertaking, which is intended to become the hub of the joint ESA/EC management structure, is still awaiting a formal approval from participating ESA Member States which, in 2001, had already subscribed to ESA's 50% share. This delayed the start of the Galileo Development and Validation Phase, but ESA and Industry still managed to accomplish most of the work plan, thus maintaining industrial continuity.

The GNSS-1 / EGNOS Programme

Activities associated with the implementation of the EGNOS Advanced Operational



The Galileo system concept

Capability (AOC) were primarily marked by the successful completion of the System Design Review during the first half of the year. Thereafter, the project team and industry pressed ahead to enable early intermediate deliveries of subsystems, so that system integration could get started despite delays in some subsystems. Difficulties with technical qualification and preparation of hosting sites for EGNOS were overcome by identifying alternative sites and it was possible to start deploying system hardware towards the end of the year.

The EGNOS Test Bed (ESTB) continued in 2002 to deliver its signal-in-space with high



The EGNOS integration area

reliability and towards the end of the year a dual-broadcast capability was added, using both the Inmarsat AOR-E and IOR satellites. The ESTB supported users via its helpdesk functions and disseminated its correction signals via the Internet application SISNET. The latter enables EGNOS-like performances with a simple GPS-only receiver plus Internet access. For future applications of both EGNOS and Galileo, this is a very interesting initiative.

To support wider EGNOS coverage or application of its technology beyond the European coverage area, flight trials were undertaken in the Mediterranean region and Africa.

The GNSS-1/EGNOS programme will be concluded by mid-2004, after which the initial operations phase will commence. In preparation for this, the additional contributors to the programme, the EGNOS Operations and Infrastructure Group (EOIG), were invited in 2002 via their joint enterprise, the European Satellite Services Provider (ESSP), to submit a proposal for the EGNOS Systems Operations as well as for EGNOS Service Provision. This proposal was being evaluated at the end of the year.

The GNSS-2 / Galileosat Programme

Consolidation of the Definition Phase-B2 came very close to completion towards the end of the year, thereby finalising system and

segment requirements as well as the supporting preliminary system design and security aspects.

The project team had to cope with the deferred coming into force of the Galileosat Declaration, but were able to complete most of the activities related to preliminary segment designs for Galileo with a consolidated review at the end of the year, preparing for the essential next step: the Development and Validation Phase.

Version 1 of the Galileo Systems Test Bed (GSTB V1) progressed according to schedule, however, and reached the design-consolidation stage in a review undertaken towards the end of the year. It was also possible to proceed as planned with the next incarnation of the GSTB, namely Version 2, for which all industrial proposals for payload equipment were evaluated.

Pre-development and experimental activities for the system, payload and ground segment continued from the previous year, providing valuable support for the consolidation of system and segment design issues. Moreover, these activities allowed industry at all levels – including Small and Medium-sized Enterprises (SMEs) – to be actively involved in this phase of the programme and to acquire know-how in preparation for the future procurement phase for the Galileo Development and Validation Phase.

The Galileo Interim Support Structure (GISS) continued to support the coordination and coherence of activities related to legal issues, and programmatic aspects related to requirements for the Galileo mission and system. The GISS has a broad mandate within which, for the purposes of coordination, it also provided an overview of applications development and demonstrations undertaken or planned within the programmes of the EC, ESA or elsewhere in Europe.

As far as preparation of future Galileo applications and services is concerned, 2002 was a very active year during which several studies and pilot projects were undertaken in the framework of ESA's ARTES-5, ARTES-9 and Galileosat programmes and within the EC's 5th Framework Programme.