



Euro Med GNSS I Project

Status Report and Workplan for future activities

Index

1	INTRODUCTION	3
2	PROJECT BACKGROUND	3
3	OBJECTIVES.....	3
4	PROJECT IMPLEMENTATION	4
5	ACTIVITY STATUS.....	5
5.1	Activity A - GNSS Regional plan	5
5.2	Activity B – Training and Awareness.....	6
5.3	Activity C – GNSS Service Demonstrations.....	7
5.4	Activity D – GNSS Signal in Space Provision	7
6	FINANCIAL STATUS.....	10
7	WORK PLAN FOR PROJECT ACTIVITIES WITHIN THE NEXT YEAR.....	11
7.1	Activity A - GNSS Regional plan	11
7.2	Activity B – Training and Awareness.....	11
7.3	Activity C – GNSS Service Demonstrations.....	12
7.4	Activity D – GNSS Signal in Space Provision	13

1 INTRODUCTION

This document is drawn up in the context of the European Commission/Galileo Joint Undertaking Agreement on the Euro-Mediterranean Satellite Navigation (GNSS) I Project and serves as the progress report of activities for the first reporting period.

It provides

- a brief overview of the Project
- a status report on its Activities to date; and
- a work plan of the Activities for the future

2 PROJECT BACKGROUND

On the 26th October 2004 a contract was signed between the European Commission (EC) DG-AIDCO and the Galileo Joint Undertaking (GJU) for the implementation of the Euro-Mediterranean Satellite Navigation (GNSS) Project (EuroMed GNSS).

Following the 5th Euro-Mediterranean Conference of Ministers for Foreign Affairs held in Valencia in April 2002 an Action Plan was adopted for the development of the Euro-Mediterranean partnership in which satellite radio-navigation, maritime transport and air transport are priority components. It is in this context that the EC launched the EuroMed GNSS I Project as part of an international cooperation of programmes and a means to make EGNOS and Galileo part of a global multimodal navigation and transport system.

3 OBJECTIVES

The principle aim of the EuroMed GNSS I Project is to pave the way for the involvement of the MEDA Partners in EGNOS and Galileo activities.

More specifically, the project aims at:

- Raising the awareness of local decision makers, service providers and product manufacturers on the potential of EGNOS and GALILEO for the Mediterranean region;
- Establishing elements for a Mediterranean GNSS policy in order to encourage a common approach to radio navigation, positioning and timing means across all potential sectors of utilisation;
- Identifying the benefits of EGNOS and GALILEO vis-à-vis the specific needs of the region;

- Increasing safety of related operations in the Mediterranean region;
- Enhancing performance and promoting integration of Euro-Mediterranean navigation systems in various modes;
- Promoting interoperability of navigation, positioning and timing systems in adjacent regions;
- Fostering the emergence of national MEDA projects regarding the development of GALILEO services, initially through EGNOS

In practice, the project focuses on the extension of EGNOS system and services in the region capitalising on existing neighbouring infrastructure and with a view to preparing the ground for the introduction of full GALILEO services.

4 PROJECT IMPLEMENTATION

The EuroMed GNSS I Project is implemented through the following four Activities:

- Activity A – GNSS Regional Plan
 - o Production of a GNSS service implementation roadmap identifying the necessary enablers and sequence of steps for the progressive introduction of GNSS services in the Meda region over the next 5-10 years
- Activity B – Training and Awareness
 - o Implementation of training and awareness related activities in the region in order to gather inputs and establish contacts for Activity A and promote the objectives of the project
- Activity C – GNSS Service Demonstration
 - o Detailed definition and implementation of a proposed set of demonstrations to show the potential for the development of GNSS applications and services in the region
- Activity D – GNSS Signal in Space Provision
 - o Development and deployment of the necessary enabling components to ensure the GNSS Signal in Space provision (based on EGNOS) for the training and demonstration tasks and helping to identify enablers and obstacles to develop an action roadmap for the Regional Plan

The Project has a total budget of €4.5 million and the initial duration was 3 years.

The GJU signed a bilateral agreement with the European Space Agency (ESA) in October 2005 to implement Activity D and partly Activity B at a total value of €2 million for a total duration of 18 months.

Activity A, partly Activity B and Activity C is implemented through a dedicated project known as METIS (MediTerranean Introduction of GNSS Services) at a total value of €2.5 million for a duration of 30 months.

For the implementation of Activities A, partly B and C, the GJU, acting as implementing authority, issued a Call for Proposal respecting the rules applicable for the open procedures. After evaluation of the received proposals by an internal evaluation board, the GJU entered into negotiations with the bidder having submitted the best evaluated proposal. Negotiation were successfully concluded with signature of the contract and the project kick-off held at the GEMCO (Galileo EuroMed Cooperation Office) office in Cairo in July 2006.

The METIS Consortium includes over 56 organisations representing 10 Meda¹ countries and 5 EU Member States². At least 50% of the work is assigned to the MEDA partners.

5 ACTIVITY STATUS

This section outlines the status of the aforementioned activities.

5.1 Activity A - GNSS Regional plan

Under METIS project

This activity started with the METIS project kick-off in Cairo on the 12th July 2006.

The approach for an analysis of the current status and evolution plans of the MEDA navigation infrastructure has been agreed and a questionnaire in this

¹ Morocco, Algeria, Tunisia (Maghreb), Egypt, Israel, Jordan, the Palestinian Authority, Lebanon, Syria (Mashrek) and Turkey.

² Italy, Belgium, France, Greece and Spain

respect has been distributed to focal points. Upon review of this feedback an additional questionnaire will be circulated focusing on assessing the current use of GNSS versus the user needs of the region. These sub-activities both directly contribute to the Regional Plan in the development of an action list to address the enablers of each domain.

5.2 Activity B – Training and Awareness

Under METIS project

This activity began with the METIS project kick-off on July 12th 2006.

A list of almost 100 key GNSS stakeholders and actors has been produced and questionnaires to these people are currently under distribution in order to clearly establish the objectives, means, content and schedule of the training sessions and awareness activities. Materials are being gathered and are presently under selection for the training sessions. Al Akhawayn University in Ifrane (AUI), Morocco, has overall responsibility for the training activities.

A first version of the Awareness Plan has been received from the Consortium proposing the methodology and strategy of these activities, providing practical guidelines for the coordination of the different METIS activities and events organisation.

A project website was launched (<http://www.aui.ma/GNSS/metis/>) at the end of July 2006 and this will continue to be updated throughout the project.

The Galileo EuroMed Cooperation Office (GEMCO) will play a key role in both the training and awareness activities.

Under ESA activity

ESA is supporting the implementation of the Training Plan through a series of awareness sessions to be made to GNSS technical staff in the Meda region. ESA has provided awareness sessions to the NANSC Staff in Cairo, Alexandria and Abu Simbel to date.

5.3 Activity C – GNSS Service Demonstrations

Under METIS project

The Service Demonstrations are to encompass various transport and non-transport domains. Ten demonstrations are planned in all; four wide scale demos to be performed at the sub-regional level, and 6 others, to be performed at a local level. The wide area demos have already been agreed:

- Approach with Vertical Guidance (APV) aviation demo;
- A dangerous goods transportation monitoring system;
- A freight multimodal transportation demo;
- Mediterranean Data Collection Network (continuous and real-time EGNOS status reporting).

The local area demos are under selection. An initial ranking has been made from a possible list of eighteen, and this will be finalized in November. These will be selected on a priority of their ability to illustrate the benefits of EGNOS/Galileo over GPS, demonstrating the operational and economical advantages and ensuring a wide geographic spread over the region and of the different application domains.

5.4 Activity D – GNSS Signal in Space Provision

Under ESA activity

The objective is to arrive at the required stage for the necessary enabling components of Signal in Space (SIS) provision, in order to allow for the demonstrations to take place. This is to be based on the installation of a number of demo Regional Integrity Monitoring Station (RIMS) throughout the region.

The tables and chart below indicate the performance and area where the SIS would be provided as a result following initial simulations.

The target performance level (PRL) over the land masses and islands of the MEDA Partners (i.e. Morocco, Algeria, Tunisia (Maghreb), Egypt, Israel, Jordan, the Palestinian Authority, Lebanon, Syria (Mashrek) and Turkey (with longitude limit at 40 degrees East)) is indicated in the following table:

Accuracy (95%)	Lateral	16m
	Vertical	20 m
Integrity	Risk	2x10 ⁻⁷ /Appr ³
	Time to Alarm	10s
	Horizontal Alert Limit	40m
	Vertical Alert Limit	50 m
Continuity		Typically better than ⁴ 10E-3
Availability	Global	Typically better than 95% in nominal conditions ⁴
	Local	See footnote 4.

The performance requirement level over the maritime areas of: Morocco, Algeria, Tunisia (Maghreb), Egypt, Israel, Jordan, the Palestinian Authority, Lebanon, Syria (Mashrek) and Turkey (with longitude limit at 40 degrees East) is indicated in the following table:

Accuracy (95%)	Lateral	10 m
Integrity	Risk	10 ⁻⁵ / 3 hours ³
	Time to Alarm	10s
	Horizontal Alert Limit	25 m
Continuity		Typically better than ⁴ 10E-3
Availability	Global	Typically better than 95% nominal conditions ⁴
	Local	See footnote 4.

³ The service will not yet be certified for safety of life applications by the appropriate authorities. Although the system performance will be compatible with the provision of the specified integrity risk/TTA, the safety of life application will not therefore be formally authorised.

⁴ The actual continuity and availability will be determined by ESA on the basis of the final location of extra RIMS in the region and of the precise final EGNOS ORR performance model to be developed by ESA under the EGNOS Programme It is understood that the performance will be compatible with a meaningful pre-operational service, i.e. allowing adequate application demonstrations in the specified MEDA region.

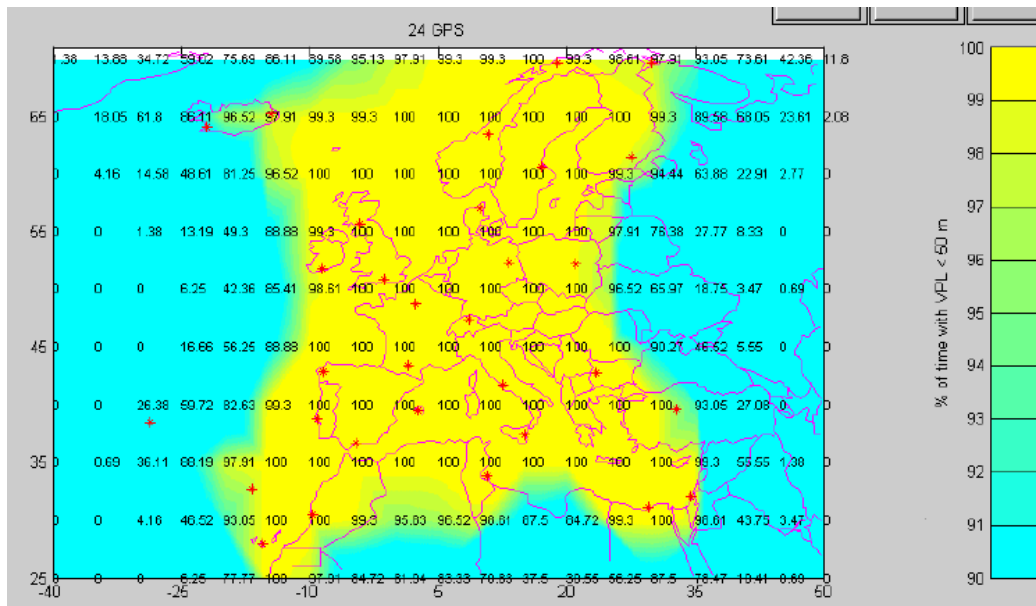


Figure 1 - Signal in Space Coverage

Based upon the results of system engineering studies, ESA has determined that four demo RIMS are to be implemented at the following locations:

- Agadir/ Morocco
- Tamanrasset/ Algeria
- Abu Simbel/ Egypt
- Tel Aviv/ Israel

ESA has obtained GJU endorsement, after consultation with the EC, for the choice of these locations and from the related site hosting partner organisations and preparation for the necessary effort has begun:

- Planning for the demo RIMS site infrastructure in Tamanrasset is on target for pre-Summer 2007
- After a successful site survey for the demo RIMS in Agadir, work is on schedule and installation is expected to being in March 2007.
- Following the delays in authorization by the Egyptian authorities for the planned deployment of 2007, the RIMS at Abu Simbel may be at risk. ESA are currently in discussions with the Egyptian National Air Navigation Services Company (NANSC) to determine a way forward.

- A new initiative to perform the site survey activities for the demo RIMS in Tel Aviv is being launched after cancellation of for the planned survey in July due to security concerns for staff. The original planned deployment of early 2007 may be delayed

The RIMS equipment, which will offer a demonstration service, (not suitable for Safety of Life operations) has been procured and the necessary qualification activities issues are being finalised. It will be ready for deployment at the end of October 2006 allowing the immediate steps for SIS provision to be undertaken.

6 FINANCIAL STATUS

The EuroMed GNSS I Project financial budget is shown below:

Heading	METIS (EUR)	ESA (EUR)	Total (EUR)
Activity A (GNSS Regional Plan)	300		300
Activity B (Training and Awareness)	200	200	400
Activity C (GNSS Service Demonstration)	2.000.000		2.000.000
Activity D (GNSS Signal in Space Provision)		1.800.000	1.700.000
Total	2.500.000	2.000.000	4.500.000

€2.5 million is allocated to the METIS project for their involvement and a further €2million allocated to ESA for their work as part of the activities in MEDA.

An advanced payment of 50%, €1,000,000, was made to ESA upon signature of the bilateral agreement.

Similarly, an advance payment of 36%, €846,345.00, was made to the METIS Consortium upon contract signature.

7 WORK PLAN FOR PROJECT ACTIVITIES WITHIN THE NEXT YEAR

This section outlines the workplan for the EuroMed GNSS I Activities. The Activities will be executed in parallel and key to the success of the project is seen to be the involvement of the MEDA stakeholders throughout.

7.1 Activity A - GNSS Regional plan

Under METIS project

The objective is to analyse the necessary steps and enablers to allow the progressive introduction of GNSS applications and services. Within the next year analysis of the current status and evolution plans for navigation infrastructure of the Meda region will be complete. This will provide the starting point for the Regional Plan and help identify those critical steps in bringing EGNOS and Galileo applications and services to the region.

Work will commence on the analysis of GNSS status with respect to the regional needs across the various domains, where the maritime and aeronautical domains will be given particular emphasis. With the production of a set of synthetic service requirements, the development of the GNSS service implementation roadmap can begin, taking into account all the technological, institutional and service provision aspects.

A series of business cases and economical/financial studies will begin in order to provide more concrete results to support the decision making process of organisations in the region. These will include market sizing and projections for the GNSS market, quantification of the operational benefits that the use of EGNOS and Galileo will bring to the users and evaluation of the costs associated with the ensuing Implementation Plan.

7.2 Activity B – Training and Awareness

Under METIS project

Two primary events are planned for the duration of the project; a one day combined training and awareness event in Morocco and then again in Egypt. At each event it is envisaged to hold targeted training sessions and workshops. Training will cater for different audience types such as technical or non-technical (programmatic, institutional, legal, etc.) and help teach trainers for future GNSS courses, and the workshops will be aimed at stakeholders/decision makers from the region to help raise awareness of GNSS and gather feedback concerning the developed GNSS Regional Plan.

A preliminary date in March 2007 has been set for the first event to take place in Morocco.

Other planned awareness activities (separate to the abovementioned workshops) are to include

- Edition, publication and distribution of the first two editions of a Newsletter
 - o this will serve to promote METIS activities (eg. the service demonstrations, training events, etc.) amongst GNSS actors in Meda and help raise awareness of any other GNSS related news in the region.
- the establishment of an info desk
 - o this will create a central point of communication for the GNSS community including institutions, industrialists and users. It will not only facilitating information exchange but also fostering the development of partnership with European counterparts.
- maintenance and update of a communications database
 - o a centralized database of all information relating to GNSS-related initiatives, events and projects in the region.
- production of multimedia communication material
 - o to include publication and dissemination of demonstration results.

7.3 Activity C – GNSS Service Demonstrations

Under METIS project

The execution of the GNSS service demonstration will commence in Summer 2007 with the wide area demonstrations following detailed planning and preparation. Finalisation of the local area demos will be reached in November and their implementation schedule for the project agreed.

After each demonstration, data collected will be processed and analysed and its expected success assessed. The results of the demonstrations and interfaces established will provide valuable input for the business cases and economic/financial studies of Activity A.



7.4 Activity D – GNSS Signal in Space Provision

Under ESA activity

Upon successful preparation of the four demo RIMS sites, work will begin for the provision of the Signal in Space, enabling the implementation of the demonstrations from summer 2007. An updated view of the coverage shown in Figure 1 will be provided at the end of November 2006 following further simulations.