

2nd ESTB Workshop Nice 12 November 2001

ESA ESTB Team Interfaces

**WEB PAGES
HELPDESK
NEWSLETTER**



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GNSS-1 Project Office

EGNOS/ESTB WEB PAGES

<http://www.esa.int/navigation/egnos>

European Space Agency

Feature on
Navigation
Satellite Applications

Satellite Applications Home Navigation Telecommunications Observing Our Earth

8-Nov-2001 11:59:40 UT

More information

- How does EGNOS work?
- Who's involved in EGNOS
- The EGNOS test bed
- Who benefits from EGNOS
- Interoperability

Related links

- EGNOS website
- GLONASS
- US Naval Observatory GPS operations
- WAAS
- US National Satellite Test Bed (NSTB)

What is EGNOS?

"When you get a GPS navigation signal, how do you know you can trust it?" asks Laurent Gauthier, the EGNOS project manager at the European Space Agency. "EGNOS will tell you whether you can trust the signal. It will tell you that you are at a particular spot with a high degree of certainty and definitely within an area enclosed by a circle with the spot at the centre. In effect, it will give you your position and say by how much it could be out."

EGNOS is Europe's first venture into satellite navigation. It will augment the two military satellite navigation systems now operating, the US GPS and Russian GLONASS systems, and make them suitable for safety critical applications such as flying aircraft or navigating ships through narrow channels.

Air interior with the GPS (Global System Position)

TO HI-RES IMAGE

Consisting of three geostationary satellites and a network of ground stations, EGNOS



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ESTB WEB PAGES

<http://www.esa.int/navigation/estb>

The screenshot shows the official website for the EGNOS System Test Bed (ESTB). The header features the European Space Agency (ESA) logo and the text "European Space Agency Navigation". Below the header, there is a banner with the text "EGNOS System Test Bed" and several white birds flying against a blue background.

The main navigation menu includes links to "ESA Home", "Satellite Applications", "Navigation", and "What is EGNOS?". A timestamp "8-Nov-2001 12:29 UT" is also present. On the left, a sidebar lists various links under the heading "ESTB": "What is EGNOS? >", "About ESTB >", "Architecture >", "ESTB User Interface Document >", "SIS Broadcast Archive > (highlighted with a red circle)", "Publications >", "ESTB Newsletter Archive >", and "Contact the ESTB Help Desk >".

The central content area contains a detailed description of the ESTB: "The EGNOS System Test Bed (ESTB) is the EGNOS prototype which has been broadcasting a Signal in Space (SIS) since February 2000. It is used to support and test the development of the EGNOS system, to demonstrate EGNOS to potential users, to prepare for the introduction of EGNOS and to test the possibility of expanding this system outside Europe. The ESTB provides users with a GPS-augmentation signal that enables them to calculate their position to an accuracy of within a few metres." To the left of this text is a small graphic of a satellite orbiting Earth.

At the bottom of the content area, three blue buttons are highlighted with red circles: "ESTB SIS performance > (highlighted with a red circle)", "Current month ESTB SIS broadcast schedule > (highlighted with a red circle)", and "ESTB SIS real time information > (highlighted with a red circle)".

Below these buttons, a section titled "What's new?" displays a single item: "18 October 2001: ESTB used to guide aircraft at Nice airport >>>".



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ESTB WEB PAGES

AOR-E May 2001 Broadcast

SIS Broadcast Archive

ADM-E Broadcast Schedule for May 12, 2000
Date: 10/05/00, 14:00 hours UTC
From: Christophe Teste - ESRIN/MSC (Mission and Control Center) for
EGSM TESTBED-1/EL 33 (N) 54.25, 129°

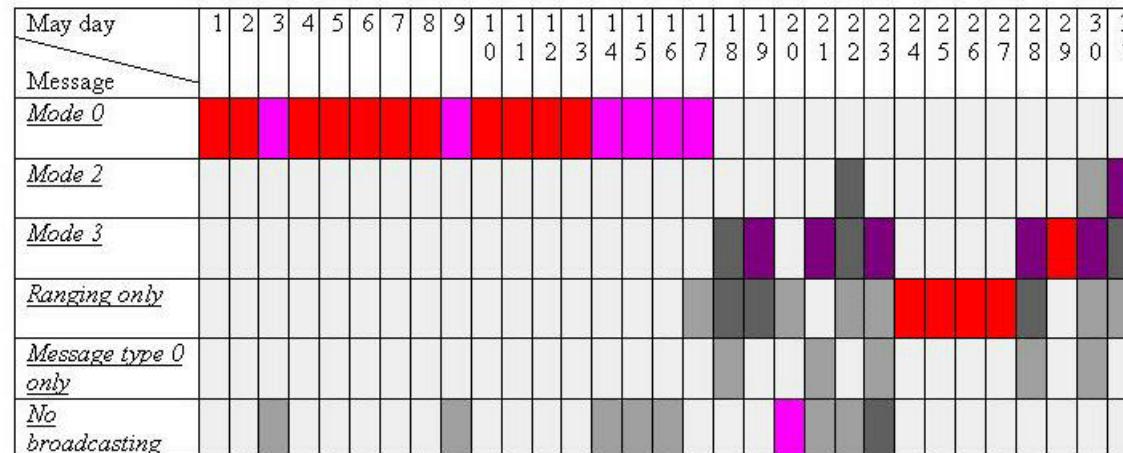
Today (12/05/00), the ESTB agent will broadcast a PPS 128 signal on ADM-E in
the following modes:

- * in mode 0 (GEC WAD messages and mapping).

The broadcast in this mode is available since the 30/04/01 at 13:00 UT.
Broadcasting of the ESTB agent scheduled continuously.

Note:

1. The ESTB reference station is running.
2. 17/04/01 : The Bousfor reference station is available ever again.
3. 05/04/01 : The Bousfor reference station is out of order.
4. 09/04/01 : The Cadiac reference station is out of order.
5. 04/04/01 : The Bousfor reference station is available ever again.
6. 20/03/01 : The Bousfor reference station is out of order.
7. 24/03/01 : Suspension of the portable reference station deployed at Tenerife in the configuration of the ESTB server for a specific experiment from the 21/03/01 up to 25/03/01.
8. 21/03/01 : Addition of the portable reference station deployed at Tenerife in the configuration of the ESTB server for a specific experiment from the 21/03/01 up to 25/03/01.
9. 18/03/01 : Deactivation of the two Italian reference stations in the configuration of the ESTB server.
10. 08/03/01 : Addition of the two Italian reference stations in the configuration of the ESTB server for a specific trial from the 21/03/01 up to 25/03/01.
11. 20/03/01 : New GPS clock values inserted in the ESTB posture (GPS 1 and GPS 2).



Legend

100%	From 75% To 99%	From 50% To 74%	From 25% To 49%	From 0% To 24%	0%
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Details on RIMS
running
Chronology of
events related to
ESTB SIS broadcast



ESTB SIS AOR-E Broadcast News

ESTB SIS AOR-E Broadcast News	
01/05/01	from 00h00 to 24h00 UT mode 0 (with ranging included)
02/05/01	from 00h00 to 24h00 UT mode 0 (with ranging included)
03/05/01	from 00h00 to 15h46 UT mode 0 (with ranging included) from 15h46 to 15h54 UT no broadcasting from 15h54 to 24h00 UT mode 0 (with ranging included)
04/05/01	from 00h00 to 24h00 UT mode 0 (with ranging included)



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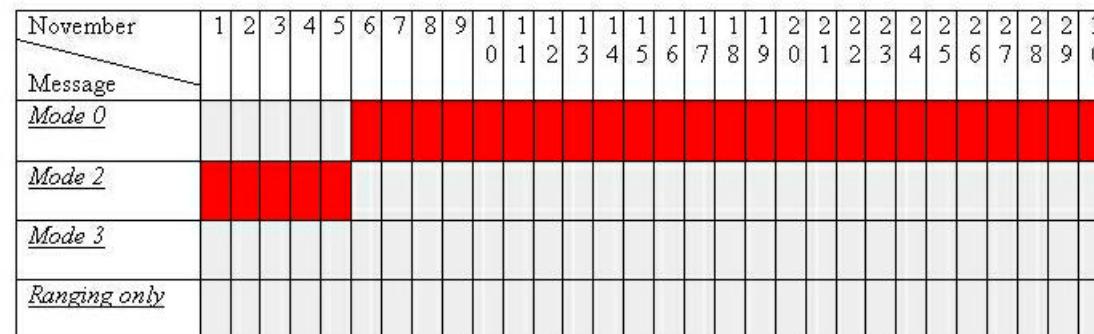
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Current Month ESTB SIS Broadcast

ESTB Broadcast Schedule for November 05, 2011
Date: 05/11/11, 08:30 hours UTC
From: Christopher Taylor - ESTB/US/MCC (Mission and Control Center) for ESTB/SIS TEST EDD - tel: 304-926-1226
Today @ 11:01 the ESTB signal will broadcast a PSN/120 signal on AOR-E in the following modes:
* From 08:29 in mode 2 (fast correction and complex corrections plus ranging) Broadcasting of the ESTB signal scheduled continuously.
The last ESTB broadcasting has been the following:
* from 03/11/01 08:15 up to 03/11/01 08:38 UT : in mode 2 (fast correction and complex corrections plus Ranging) * from 03/11/01 08:38 up to 03/11/01 08:56 UT : no broadcasting. * from 03/11/01 08:56 up to 03/11/01 09:29 UT : in several intervals (message type 0 only).
Information: The 03/11/01 from 08:29 until 08:38 UT and the 03/11/01 from 08:38 until 08:56 UT and the 03/11/01 from 08:56 until 09:29 UT and from 09:29 until 09:38 UT, some ESTB messages have been replaced by the message of type 03 because of losses of ESTB messages due to the quality of the communication network on the frame relay line between Brasilia and Coimbra.

AOR-E November Scheduled Broadcast



Legend					
100%	From 75% To 99%	From 50% To 74%	From 25% To 49%	From 0% To 24%	0%

03/11/01	from 00h00 to 24h00 UT mode 2 (with ranging included)
04/11/01	from 00h00 to 24h00 UT mode 2 (with ranging included)
05/11/01	from 00h00 to 03h38 UT mode 2 (with ranging included) from 03h38 to 08h16 UT no broadcasting. from 08h16 to 09h59 UT message type 0 only from 09h59 to 24h00 UT mode 2 (with ranging included)
	from 00h00 to 05h27 UT mode 2 (with ranging included)

Details on RIMS running
Chronology of last events related to ESTB SIS broadcast



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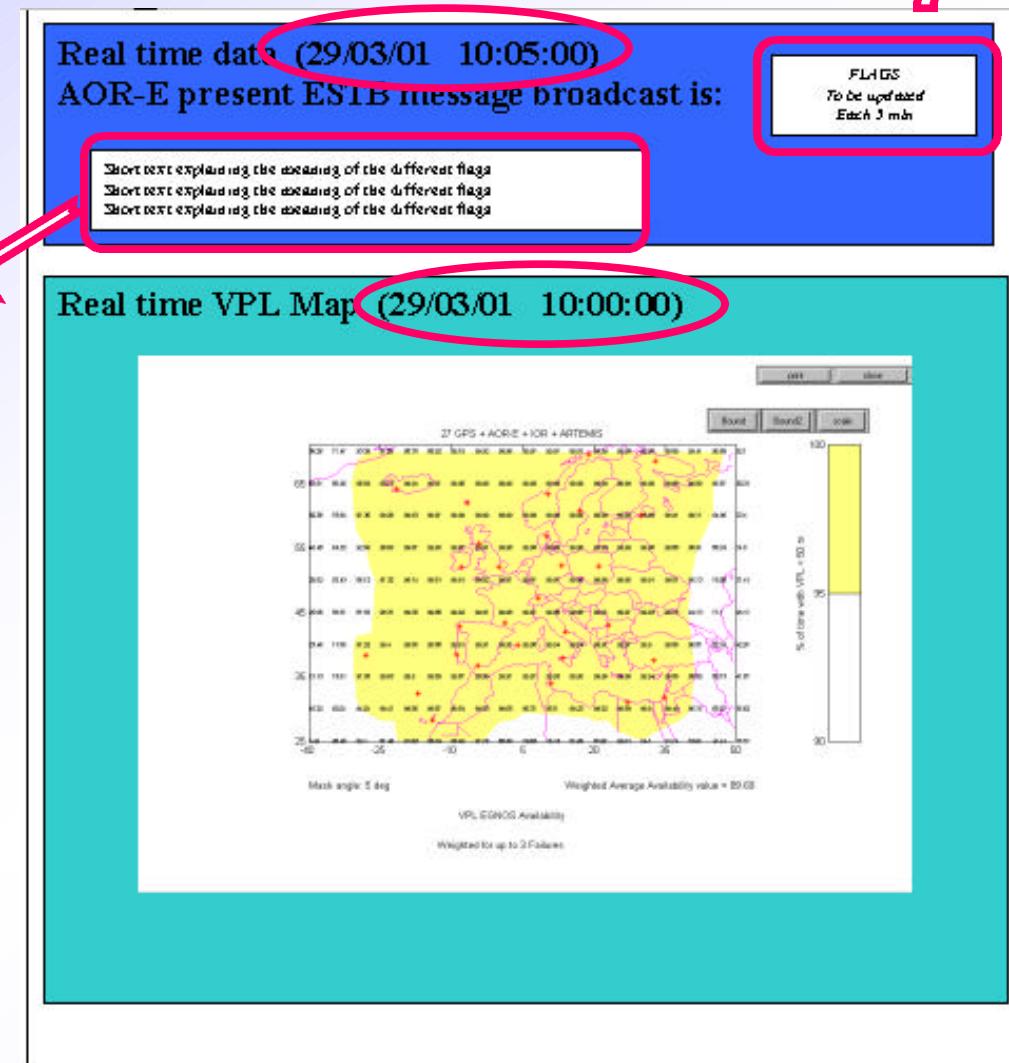
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ESTB WEB PAGES

ESTB SIS real time information



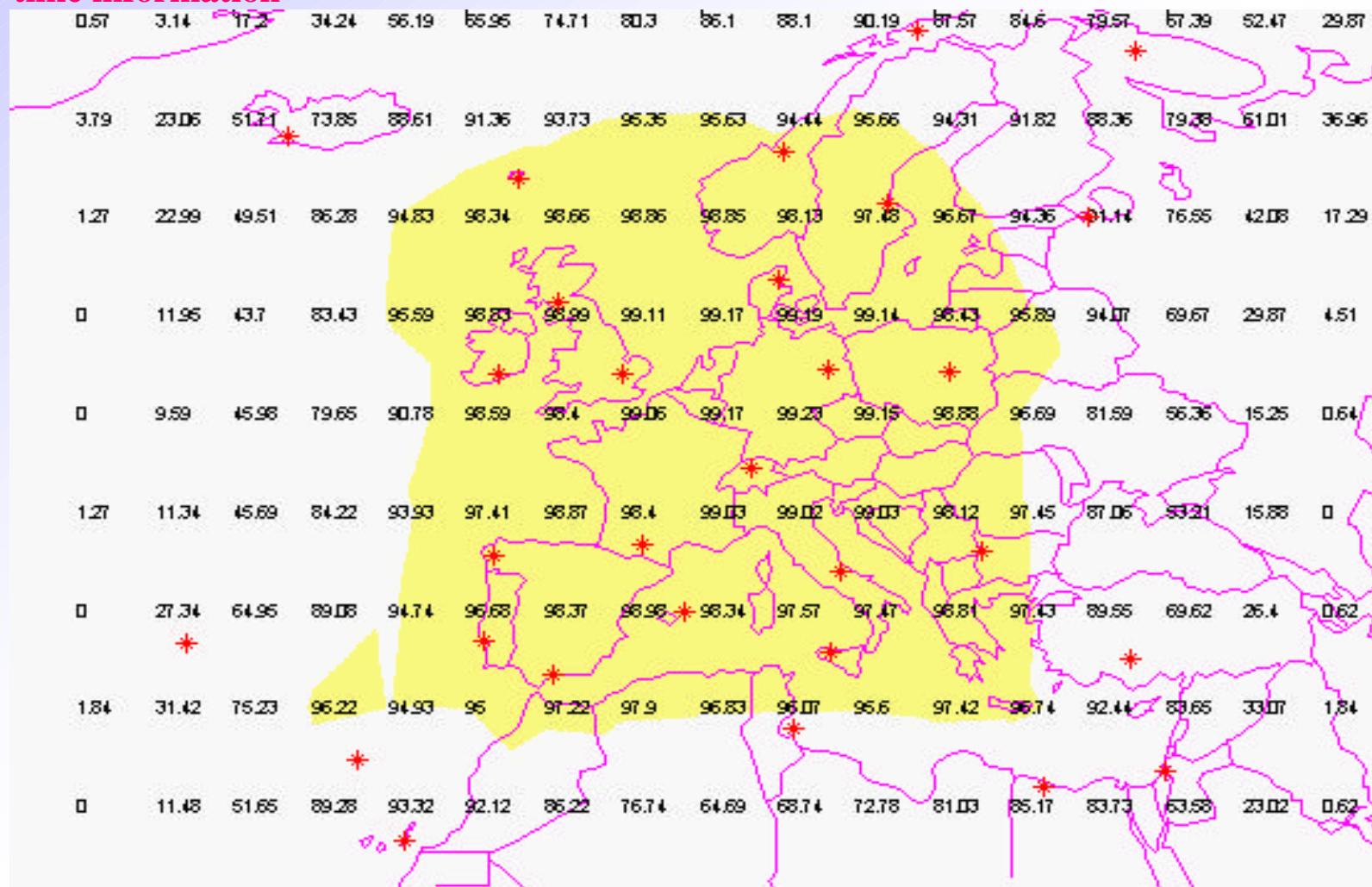
Definition of the Mode of the SIS broadcast



ESTB WEB PAGES

ESTB SIS real
time information

% of availability of VPL = 20 m (APV II)



e

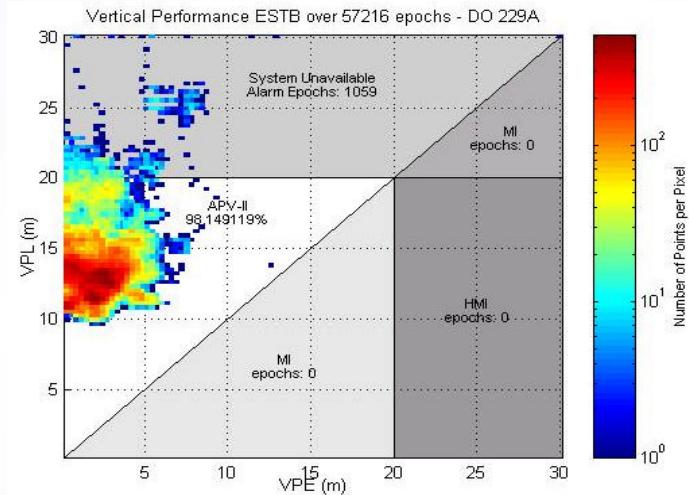
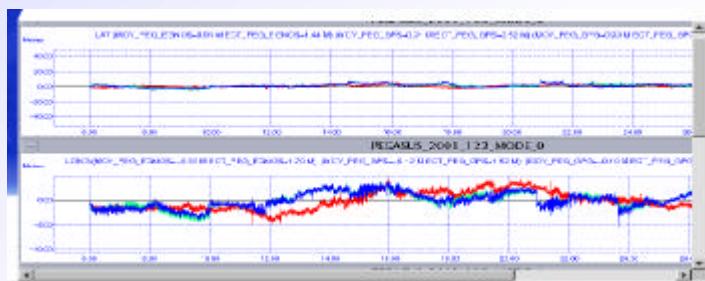


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ESTB SIS performance



PEGASUS RESULTS AT MCC EGNOS TEST BED (CNES)

DATES : 123

BEGIN= 3/5/2001 6H0M1S END= 4/5/2001 6H0M4S (672904800 672991200)

RIMS STATUS IN SOLUTIONS CPF USE: 7 LOSS: Cadiz

CPF MODE: 0

MEAN (M)

STANDARD DEVIATION (M)

GNOS_ALT	2.34	3.85
GNOS_LAT	0.99	2.33
GNOS_LONG	-0.10	1.54
GNOS_PLAN_H	2.61	1.39
GPS_ALT	2.24	3.80



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ESTB HELPDESK

e-mail address: **ESTB@esa.int**

The ESTB Helpdesk aim is to create an interface with the users giving answers on the following main issues:

- **ESTB Generals and Definitions**
- **ESTB Performance**
- **ESTB Technical Issue**
- **ESTB Operational Issue**
- **ESTB User Equipment**
- **Info/Request for ESTB Promotion/Demo/Trials**



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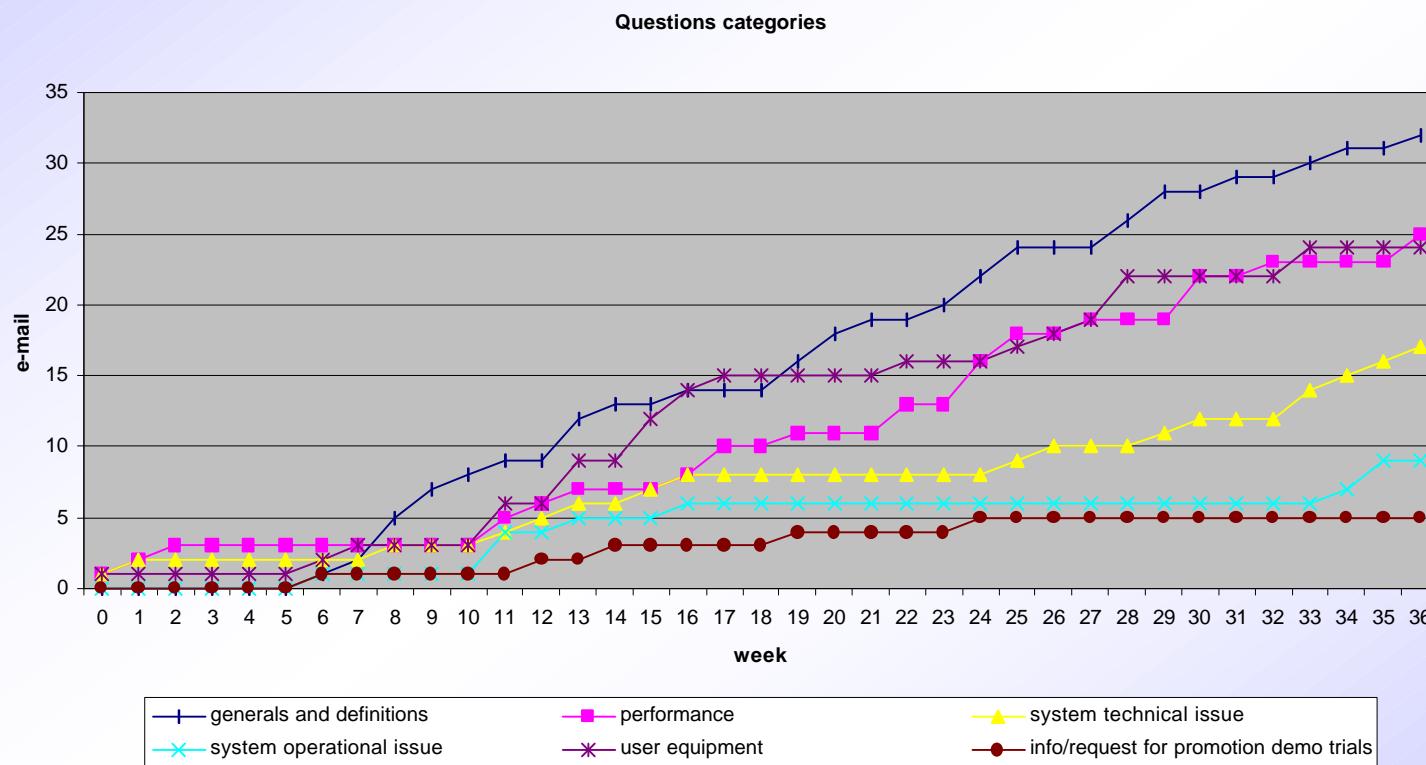
ESTB HELPDESK

e-mail address: **ESTB@esa.int**

- Starting date **27/02/01**
- Last check **07/11/01**
- E-mail processed **112**
- Target time for giving answers **5 w.d.**
- Average time to answer **2 days**

ESTB HELPDESK

e-mail address: **ESTB@esa.int**



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ESTB HELPDESK

e-mail address: **ESTB@esa.int**

FAQ

1. ESTB available Receivers
2. ESTB availability and Broadcast schedule
3. EGNOS WAAS Interoperability
4. EGNOS Program schedule
5. EGNOS Performances

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ESTB NEWSLETTER

The ESTB News is aimed at all potential future EGNOS users, as well as anyone else with an interest in state-of-art satellite navigation.

It reports information and **results from trials** performed via the ESTB as well as it addresses some **technical issues** and gives **web links and/or relevant point of contact** to acquaint the reader with news and event of relevance to EGNOS/ESTB System.

Contents:

- EGNOS explained
- Safety News: It's All EGNOS
- ESTB Response
- Putting EGNOS at the ITSEC00 Conference
- New Safety Standards in the Aegean Sea
- Frequently Asked Questions
- Further Information Resources

Gauthier Welcomes ESTB News

With great pleasure that we present to you the first edition of ESTB News. It is aimed at all potential future EGNOS users, as well as anyone else with an interest in state-of-the-art of satellite navigation. In ESTB News, you will find latest information and results from trials performed via the EGNOS System Test Bed (ESTB), the EGNOS prototype now operational since February 2000. These trials demonstrate the remarkable performance of Satellite Based Augmentation Systems such as EGNOS, for the three benefit of a wide range of applications such as personal, car, train, ship and aircraft navigation and positioning determination. Thanks to its web links and relevant points of contact throughout this letter, we'll acquaint the reader with news and events of relevance for EGNOS/ESTB System. These contents, and as the ESTB Help Desk, can provide a first tool of support in planning and setting up experimental applications using the available EGNOS Test signal. We hope you will find ESTB News useful and informative.

Laurent Gauthier, ESA EGNOS Project Manager

EGNOS Brings New Safety Standards to the Aegean Sea

EGNOS trials in the Aegean Sea demonstrate potential safety benefits and stimulate interest from Greek government ministries. Kinathropo and ESA conducted an EGNOS trial on the "Blue Star Aegean" in March 2001 in the framework of the PEGASUS/GALILEO project.

EGNOS Explained

The European Geostationary Navigation Overlay Service - EGNOS - is being developed to provide regional satellite-based augmentation services to aviation, maritime and land users in Europe.

Contents:

- Artemis Satellites Recovery
- Integrity Explained
- 2nd ESTB Workshop
- Flight Trials
- ESTB News
- SISNET: EGNOS over the Internet
- Frequently Asked Questions
- Upcoming Events
- Further Information Resources

Editorial

Welcome to the second issue of the ESTB News. Much has happened since May, and this issue recognises both the successes and challenges of EGNOS. Two successful trials are reported in this newsletter: an aviation trial at high latitudes that demonstrates the value of EGNOS for the third dimension of GNSS, namely for delivering the EGNOS messages over the Internet. Perhaps the greatest challenge is that of coaxing the Artemis satellite into operation following its launch in December 2000. This is a difficult task, especially within EGNOS, and we applaud the professionalism of the combined ESA/industry team that is recovering the Artemis satellite. Finally, we would like to thank our readers for their interest in ESTB News, an attempt explaining integrity, and ESTB system needs. We hope you enjoy ESTB News. Please send us your comments, suggestions and inputs for further issues.

Artemis Satellite Recovery Continuing Successfully

Artemis is ESA's latest communications satellite. Based on the Eutelsat 3000 platform, it carries a navigation payload for disseminating from 2000 onwards the EGNOS messages over the Internet. Integrity is a key quality and safety parameter, alerting users when the system exceeds tolerance limits. Artemis will also provide a differential correction to improve accuracy, and alert users within six seconds if something goes wrong. (Integrity) (continued on page 2)

Integrity Explained

EGNOS will provide a Europe-wide, standardised and quality-assured augmentation service suitable for safety-critical applications. Integrity is a key quality and safety parameter, alerting users when the system exceeds tolerance limits. Artemis will also provide a differential correction to improve accuracy, and alert users within six seconds if something goes wrong. (Integrity) (continued on page 2)

ESA Announces 2nd ESTB Workshop

ESA's second one-day ESTB workshop will take place on 12th November 2001 in Nîmes, France. The conference will be particularly attractive to companies or institutions involved in the development of new services and applications for novel services and applications. An overview of the ESTB performs

Flight Trials Confirm EGNOS Signal Availability At High Latitudes

Aviation users have very stringent requirements for safety. One is that the EGNOS signal availability is demonstrated at high latitudes with low GEO elevations.

Aviation users have very stringent requirements for service availability - typically between 99% and 99.999% - and the EGNOS system has demonstrated EGNOS



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ESTB NEWSLETTER

- Issue 1 08/05/01 GNSS 2001 (Sevilla)
- Issue 2 11/09/01 ION
 12/11/01 2nd ESTB Workshop / NavSat 2001
- **Issue 3** **10/12/01** **NAVITEC 2001**
- The ESTB Newsletter is also issued via e-mail
- Last e-mail distribution list: **1334** people
- To be included in the Newsletter distribution list please send an e-mail with subject *ESTB News inscription* specifying Name, Surname Company and e-mail address to **ESTB-News@esa.int**



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ESTB Useful addresses (Summary)

- ESTB Helpdesk : **ESTB@esa.int**
- ESTB Newsletter : **ESTB-News@esa.int**
- EGNOS Web Pages : **<http://www.esa.int/navigation/egnos>**
- ESTB Web Pages : **<http://www.esa.int/navigation/estb>**