

# ESA Support to ESTB Users

*Dr. Javier Ventura-Traveset  
European Space Agency*

**3<sup>rd</sup> ESTB Workshop Nice 12 November 2002**



NEE / JV

***GNSS-1 Project Office***

# OUTLINE

- ❑ ESA ESTB website support
- ❑ The ESTB/EGNOS Helpdesk
- ❑ The ESTB Newsletter
- ❑ The ESA SISNET technology
- ❑ Examples of ESTB low cost demonstrations
- ❑ Summary



# ESTB WEB PAGES

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



The screenshot shows the ESA website's navigation page for the EGNOS System Test Bed (ESTB). The header features the ESA logo and the text "EGNOS System Test Bed" and "European Space Agency Navigation". A navigation menu includes "ESA Home", "Satellite Applications", "Navigation", and "What is EGNOS?". The page is dated "8-Nov-2001 12:29 UT".

**ESTB**

**What is EGNOS? »**

**About ESTB »**

**Architecture »**

**ESTB User Interface Document »**

**SIS Broadcast Archive »**

**Publications »**

**ESTB Newsletter Archive »**

**Contact the ESTB Help Desk »**

**Search**



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.

**ESTB SIS performance »**

**Current month ESTB SIS broadcast schedule »**

**ESTB SIS real time information »**

**What's new?**

18 October 2001: ESTB used to guide aircraft at Nice airport >>>

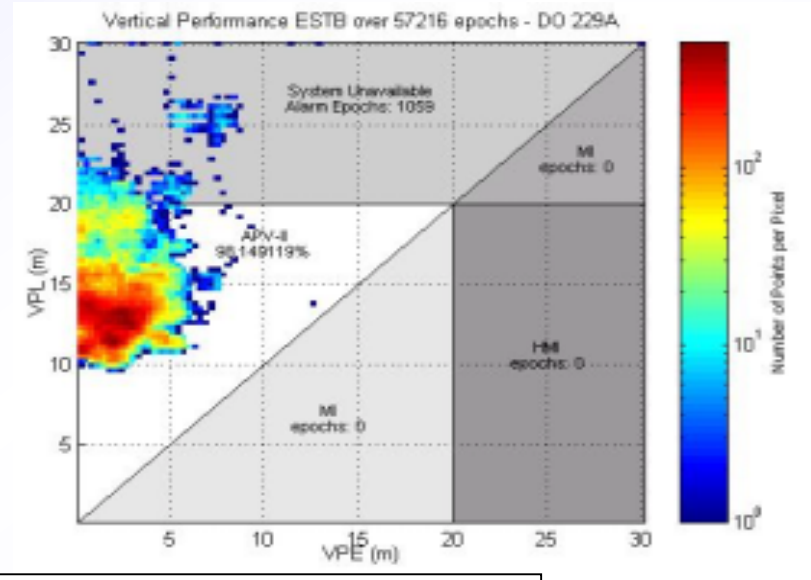
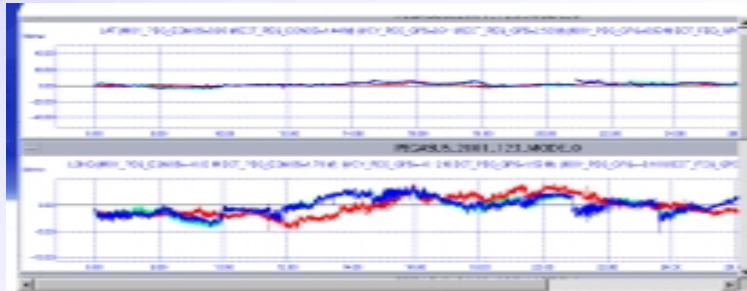


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# ESTB SIS PERFORMANCES

- ESTB measured performance at ESTB CMT Toulouse
- Almost daily information (both Novatel and TBUE)



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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
    
```





# ESTB SIS REAL TIME INFORMATION

ESTB SIS real time information










Definition of the Mode of the SIS broadcast

**Real time data (29/03/01 10:05:00)**  
**AOR-E present ESTB message broadcast is:**

Short text explaining the meaning of the different flags  
 Short text explaining the meaning of the different flags  
 Short text explaining the meaning of the different flags

FLAGS  
 To be updated  
 Each 3 min

**Real time VPL Map (29/03/01 10:00:00)**

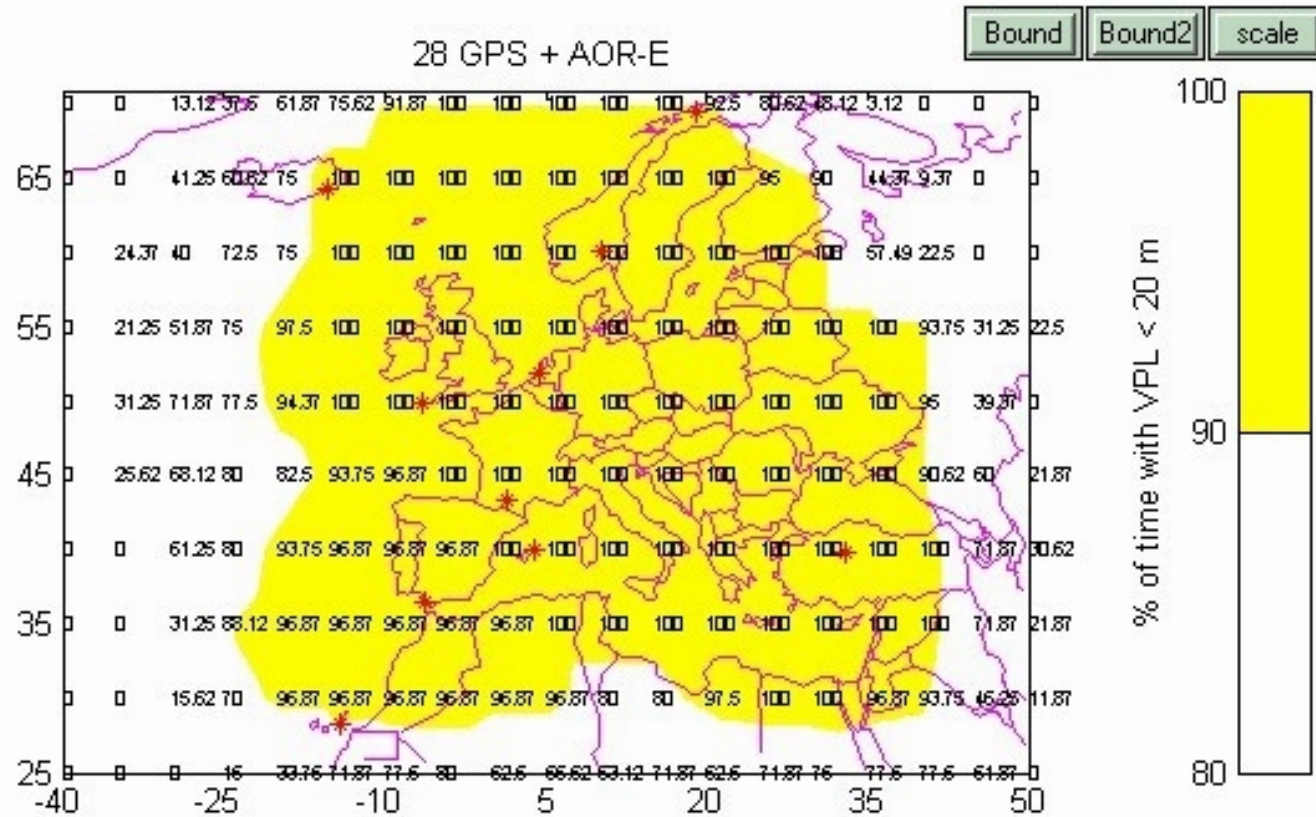
-   
MODE 0
-   
MODE 2
-   
MODE 3
-   
Ranging only
-   
Testing Mode
-   
No Messages Broadcast
-   
Info on broadcast N/A



# ESTB SIS REAL TIME INFORMATION

Last 24 hours of ESTB data. 02-Oct-2002 12:38:05 (CET)

print close



Mask angle: 5 deg

VPL EGNOS Availability



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# ESTB/EGNOS HELPDESK

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

- **ESTB/EGNOS General Questions**
- **ESTB/EGNOS Performance**
- **ESTB Specific Technical Issue**
- **ESTB Operational Issues**
- **ESTB/EGNOS User Equipment**
- **Info/Request/Support for ESTB Trials**



The helpdesk address is: **ESTB@esa.int**



# HELPDESK 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 ESA ESTB News is aimed at ESTB current users and all potential future EGNOS. It includes: results from EGNOS trials, regular updates on ESTB/EGNOS status, specific technical tutorials, FAQ, and useful EGNOS/ESTB links. (ESTB-NEWS@esa.int)

From Dec 2002 will be renamed to **EGNOS News**



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### EGNOS Signal In Space over the interNeT in real time



Satellite Navigation

- Ubiquitous
- Standardised
- EGNOS enhances GPS performance to 1-2 m
- Very low rate needed

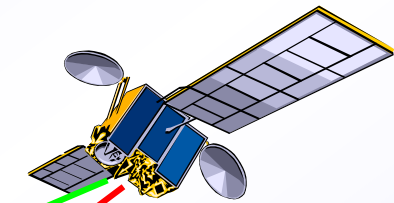


The Internet

- Ubiquitous
- Standardised
- Proven communications
- Future-proofed

Together, these technologies are stronger than the sum of the parts

Excellent complement to satellite transmission  
In urban and canyon areas.



EGNOS GEO  
satellite

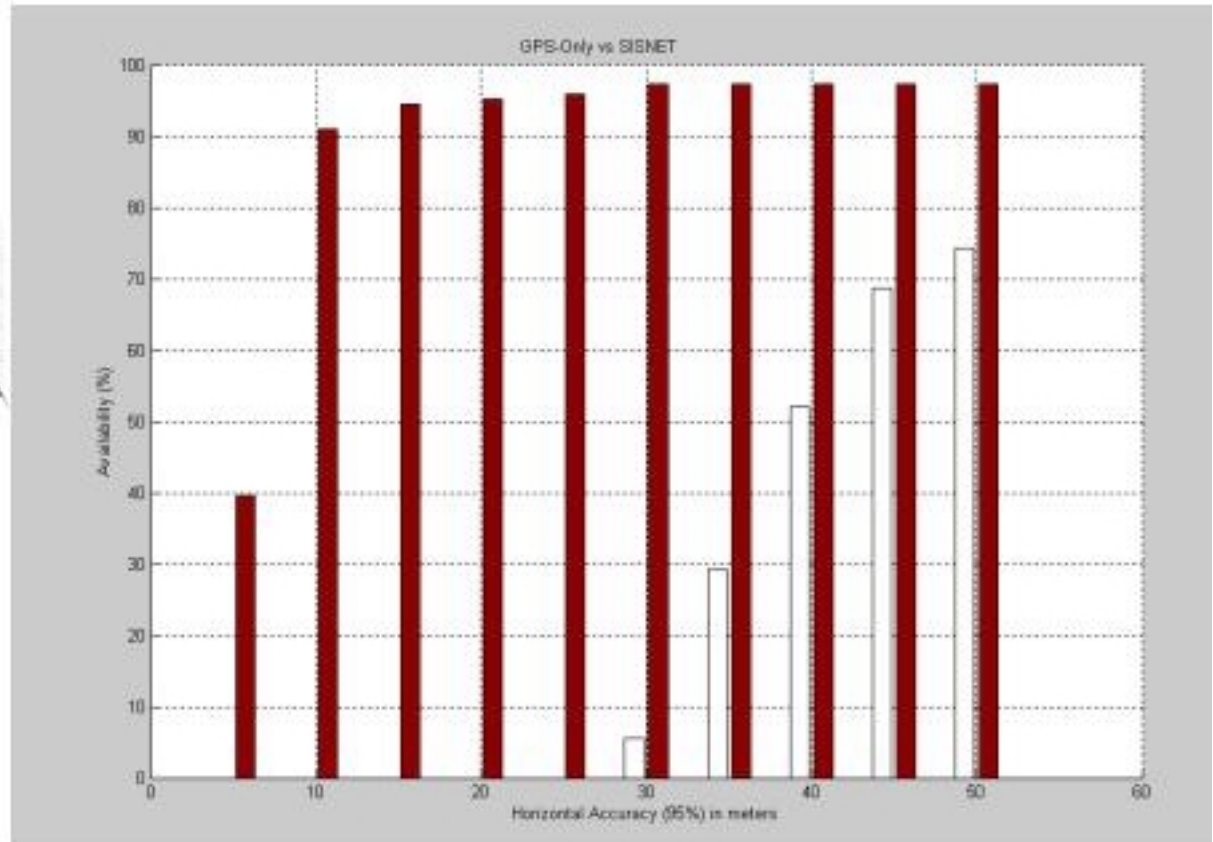
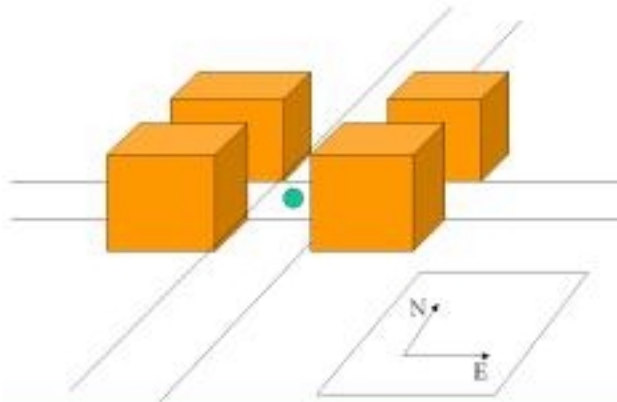
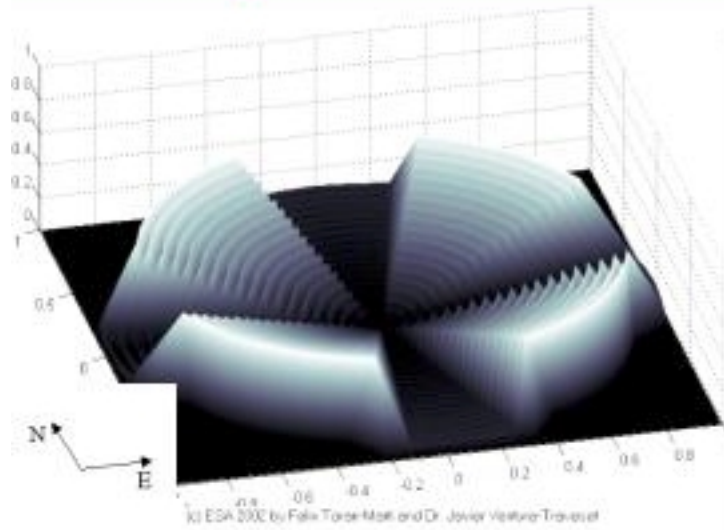
EGNOS blocked  
by buildings

Getting EGNOS corrections in these cases proves to be very useful





# Preliminary Simulation Result: Scenario\_1



esa

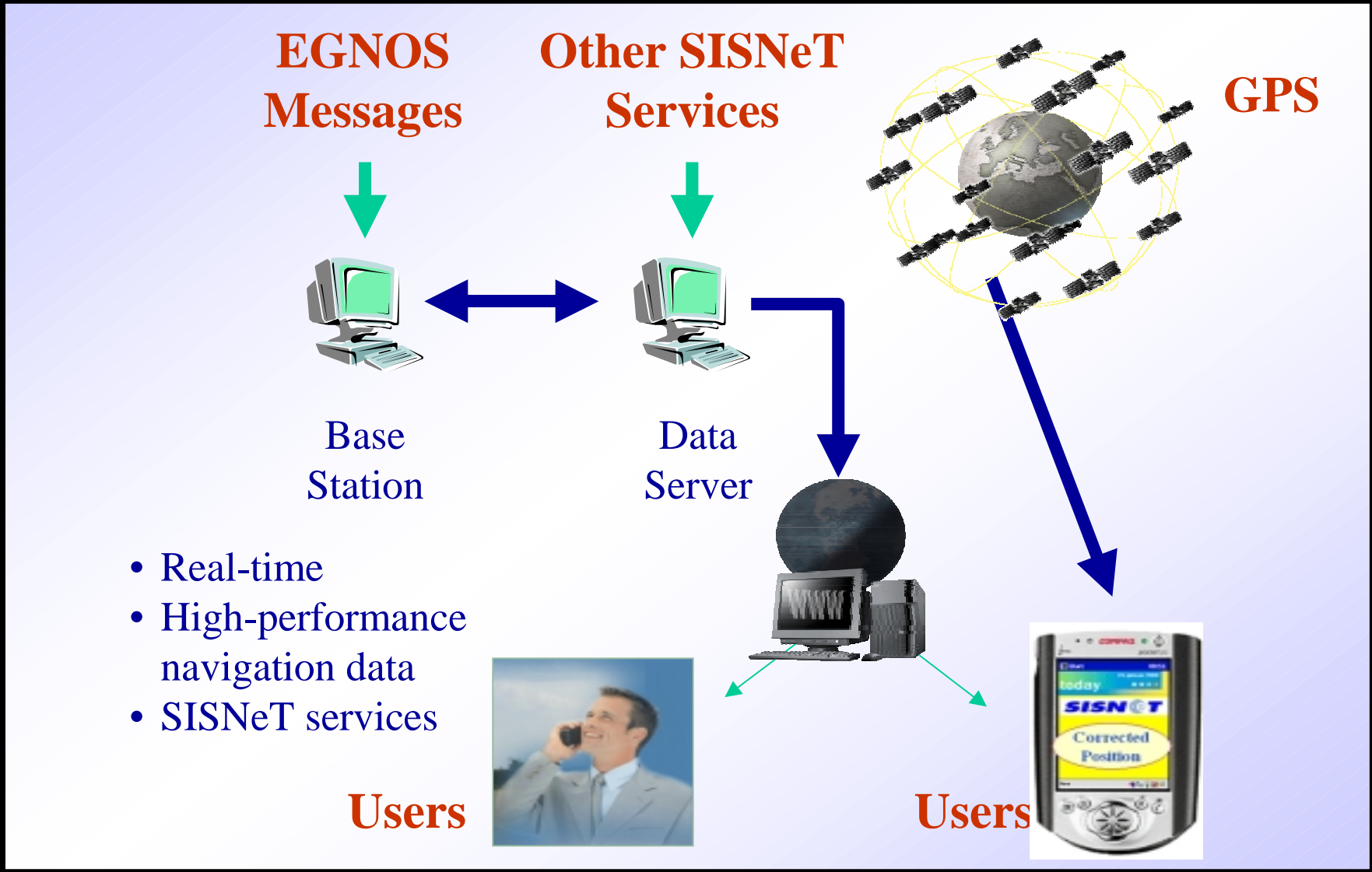
SISNET





# SISNeT

HOW?



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# SISNET

RECEIVER?



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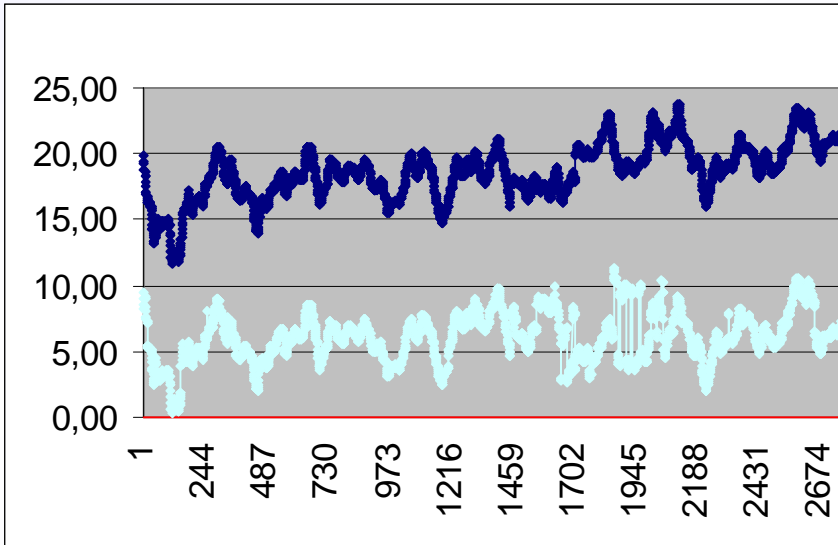
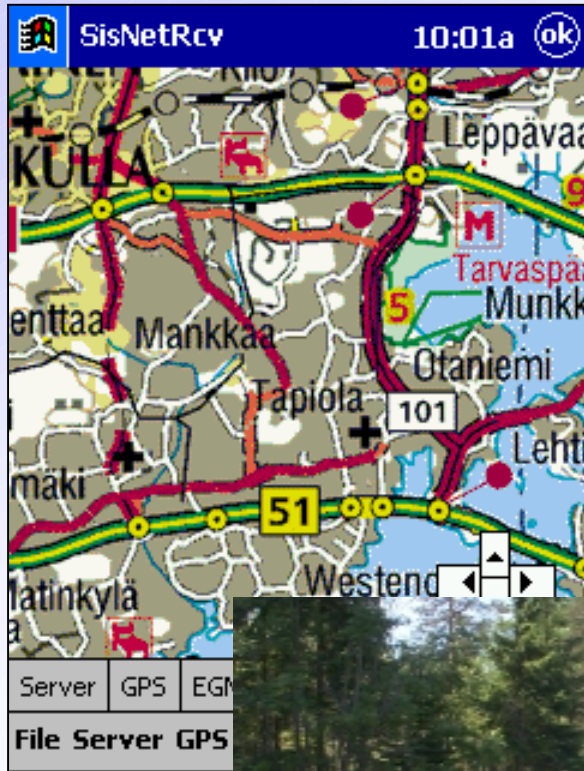
**SISNET**

**USER?**



# SISNET

## PERFORMANCE?

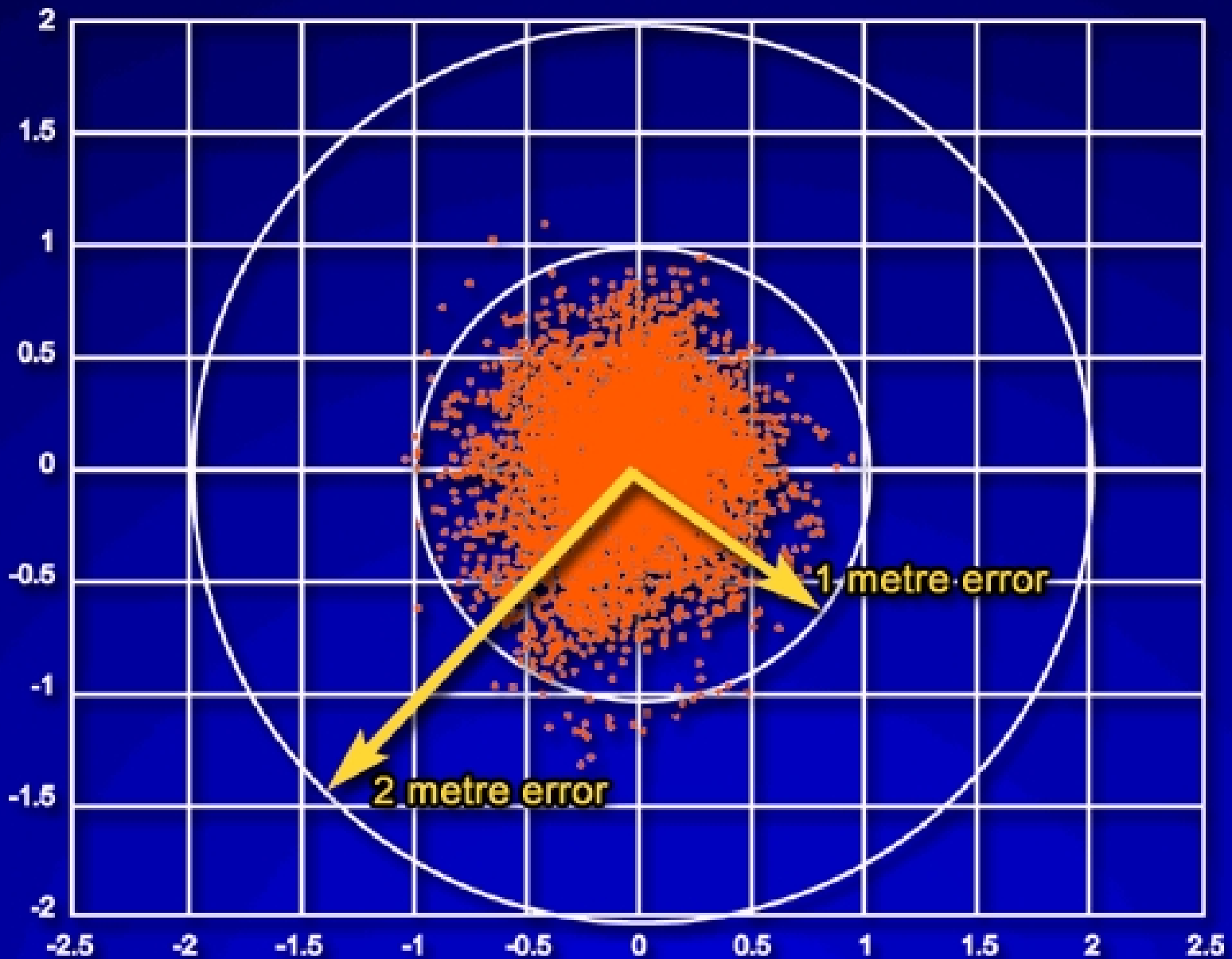


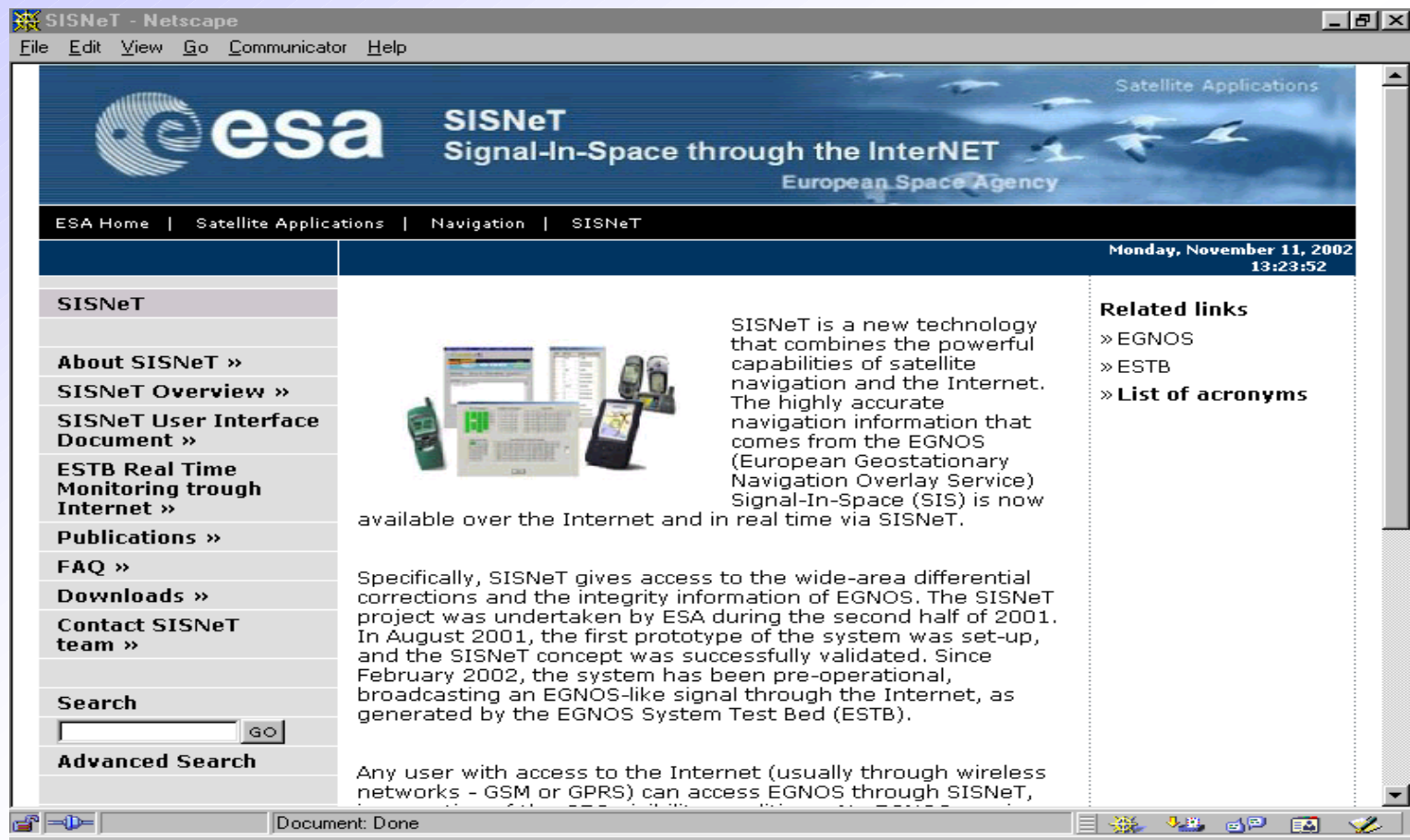
First tests successfully performed in Finland (in May 2002) with SISNET PDA developed receiver.



# CURRENT ESTB PERFORMANCES

(HNSE(95%) close to 1 m accuracy !!)





ESA dedicated website at: [www.esa.int/navigation/sisnet](http://www.esa.int/navigation/sisnet)  
 Dedicated E-mail for users support: [sisnet@esa.int](mailto:sisnet@esa.int)



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# Example of on-going low cost Multi-modal EGNOS demonstrations supported by ESA

## EGNOS Project office

- ❑ EGNOS/SISNET for public bus transportation (NAVOCAP)
- ❑ EGNOS dissemination through FM RDS (TDF)
- ❑ EUROCOPTER (Helicopter Emergency Medical Services)
- ❑ DELTA hybridation test in airports (M3 systems)
- ❑ EGNOS disseminations through DAB (BOSCH/BLAUPUNKT)
- ❑ SISNET iPAC PDA receiver (Finish Geodetic Institute)
- ❑ EGNOS/SISNET to support blind pedestrian (GMV)





# ESTB/EGNOS Useful website addresses (summary)

- ESA website : [www.esa.int](http://www.esa.int)
- EGNOS website : [www.esa.int/navigation/egnos](http://www.esa.int/navigation/egnos)
- ESTB website : [www.esa.int/navigation/estb](http://www.esa.int/navigation/estb)
- SISNET website : [www.esa.int/navigation/sisnet](http://www.esa.int/navigation/sisnet)



# ESTB/EGNOS Useful E-mail addresses (summary)

- Daily E-mail on planned ESTB operations : **Christophe.texier@cnes.fr**
- ESTB Helpdesk : **ESTB@esa.int**
- ESTB Newsletter : **ESTB-News@esa.int**
- SISNET administrator : **SISNET@esa.int**



# SUMMARY

- ❑ ESA keeps updated a dedicated **ESTB website** in support to users including ESTB real time information, ESTB SIS planned broadcast schedule and ESTB-measured daily performance results.
- ❑ ESA supports a dedicated **ESTB/EGNOS Helpdesk**. We also provide information on ESTB upgrades and relevant tests through a dedicated **ESTB News Journal** (quarterly basis).
- ❑ ESA has set up the **SISNET technology** to allow ESTB SIS access through Internet in real time. We support experimentation with that technology.
- ❑ ESA EGNOS P.O. is supporting a large number of low-cost **EGNOS multi-modal trials**, which make use of the ESTB EGNOS-like signal.

