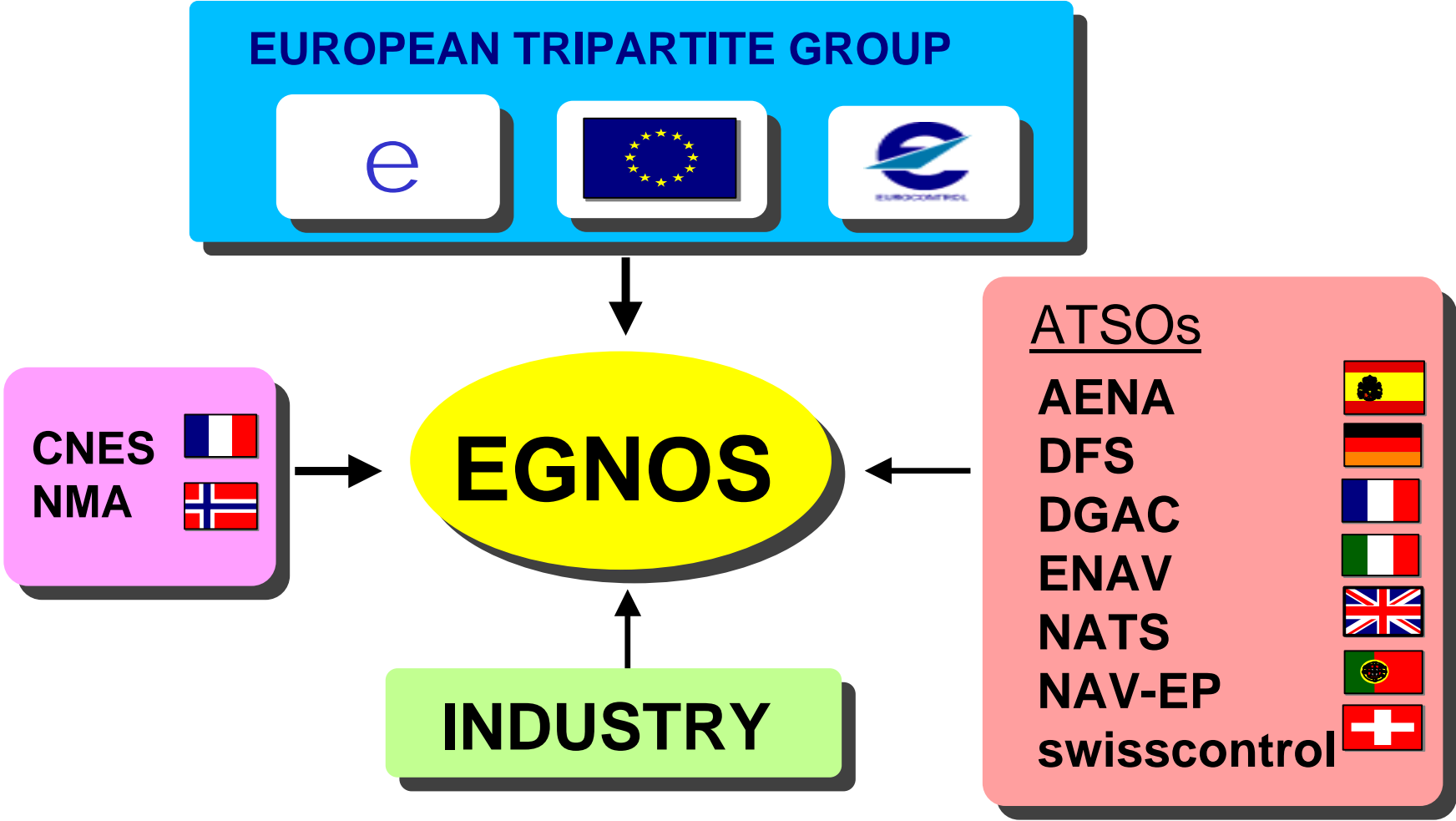


# Presentation Outline

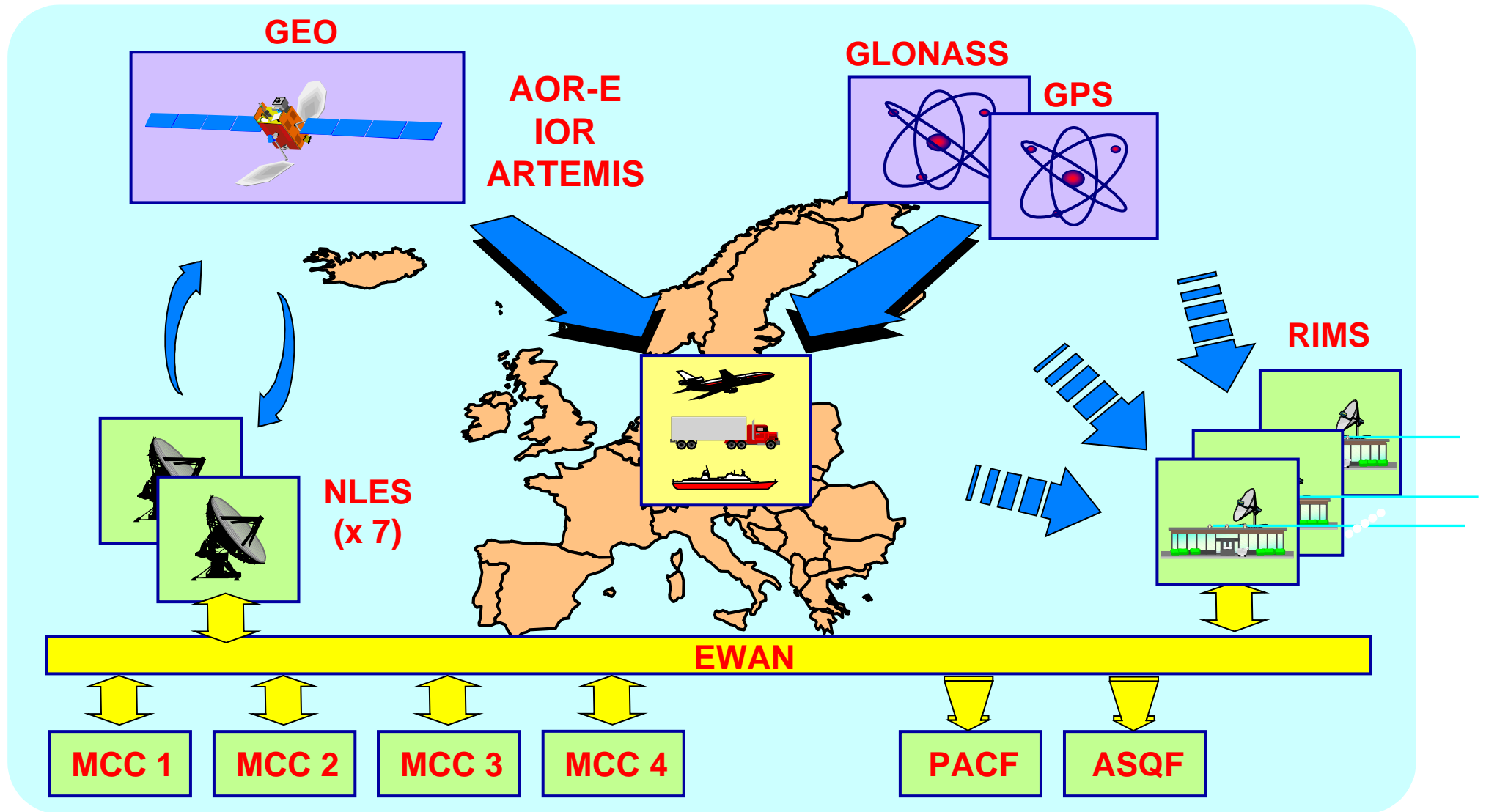
1. EGNOS Programme Status
2. ESTB Introduction and Outline
3. ESTB Evolution Plan



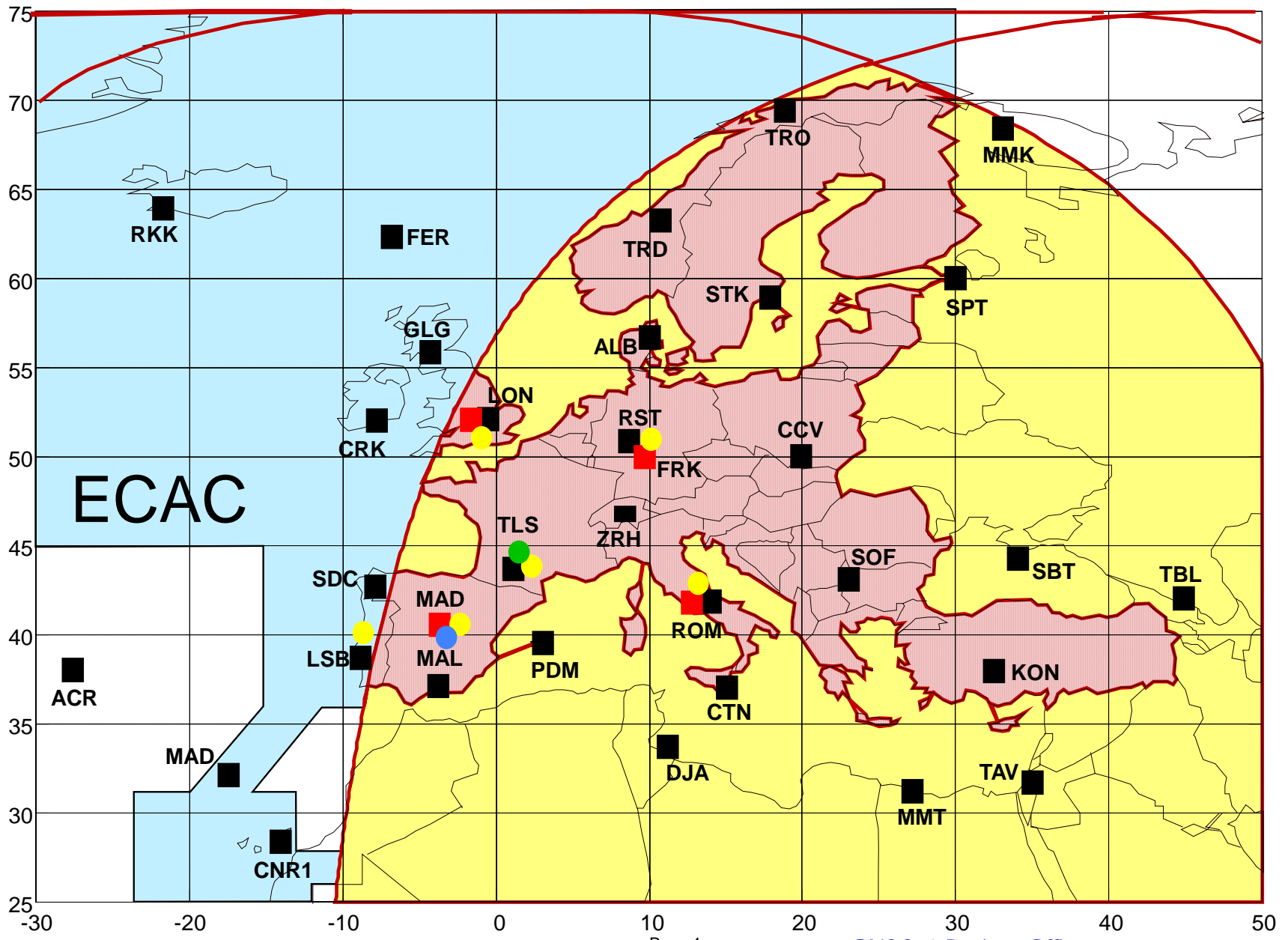
# EGNOS partnership



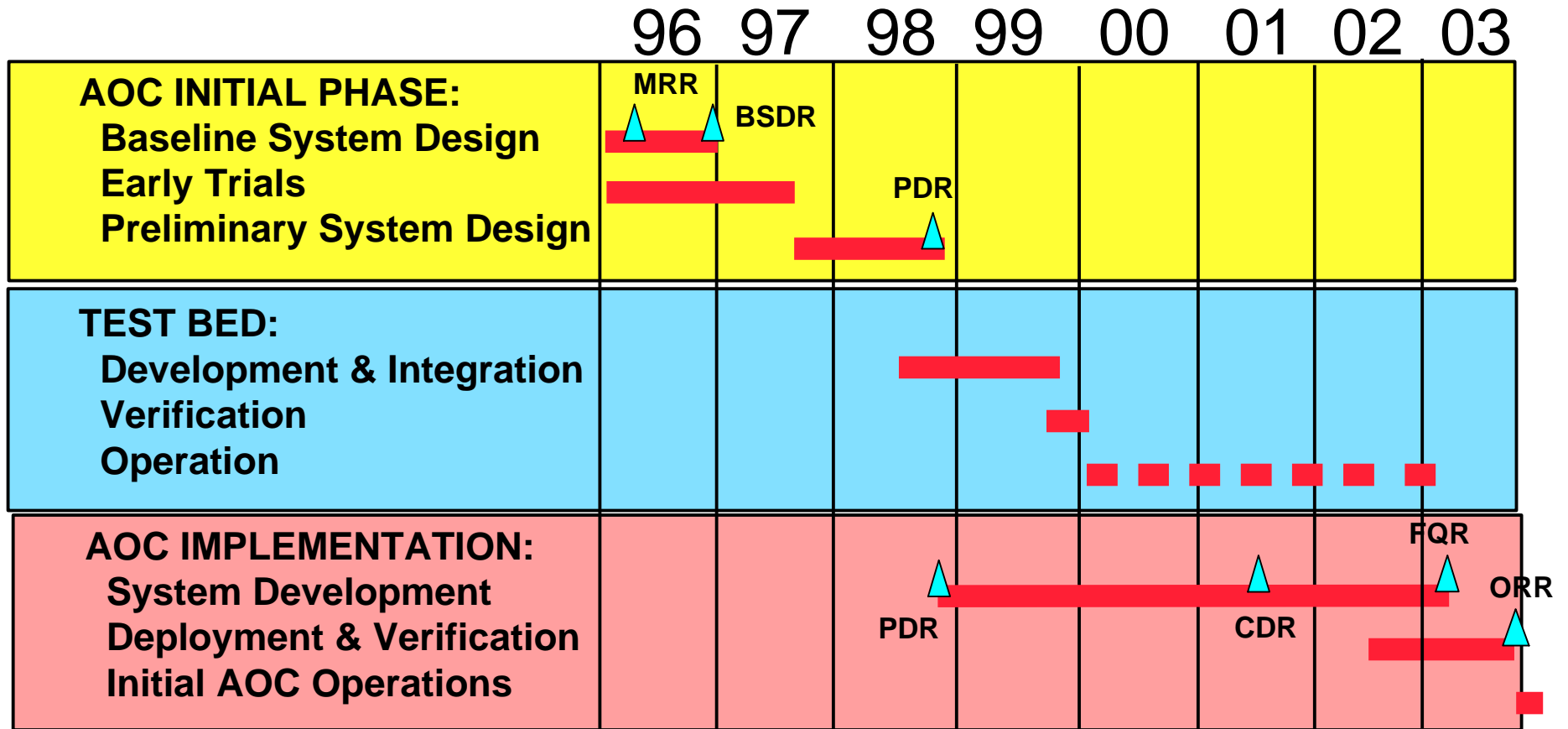
# EGNOS AOC Architecture



RIMS
  MCC
  NLES
 
 ASQF PACF



# EGNOS AOC SUMMARY SCHEDULE



## EGNOS key Achievements 1998-2000

- ❑ **November 98**: System PDR & Phase C/D kicked-off with Industry
- ❑ **January 99**: Bilateral Agreements signed with CAAs
- ❑ **June 99**: Full Contract signed with Prime contractor
- ❑ **January-Oct 99**: All key sub-systems are kicked-off
- ❑ **June-December 99**: Implementation of Change Request 1 (ICAO standard update)



## EGNOS key Achievements 1998-2000

- ❑ **February 2000:** Test bed signal in space available
- ❑ **March-June 2000:** Major sub-system PDRs held successfully
- ❑ **June 2000:** Major System Review (IPKP) held successfully
- ❑ **July 2000:** sub-contract negotiation finalisation & signatures - partial

# EGNOS Operational Milestones

## TEST BED

- Ranging + GIC + WAD test signals
- development and operations support
- now available

## EGNOS AOC Service

- Ranging + GIC + WAD Operational
- En-Route, NPA, IPV, CAT-I primary means
- to start in 2004

## EGNOS Integration with GALILEO

- Need to guarantee EGNOS service continuity
- Enable Sole means operation
- Several scenarios are currently under analysis for implementation



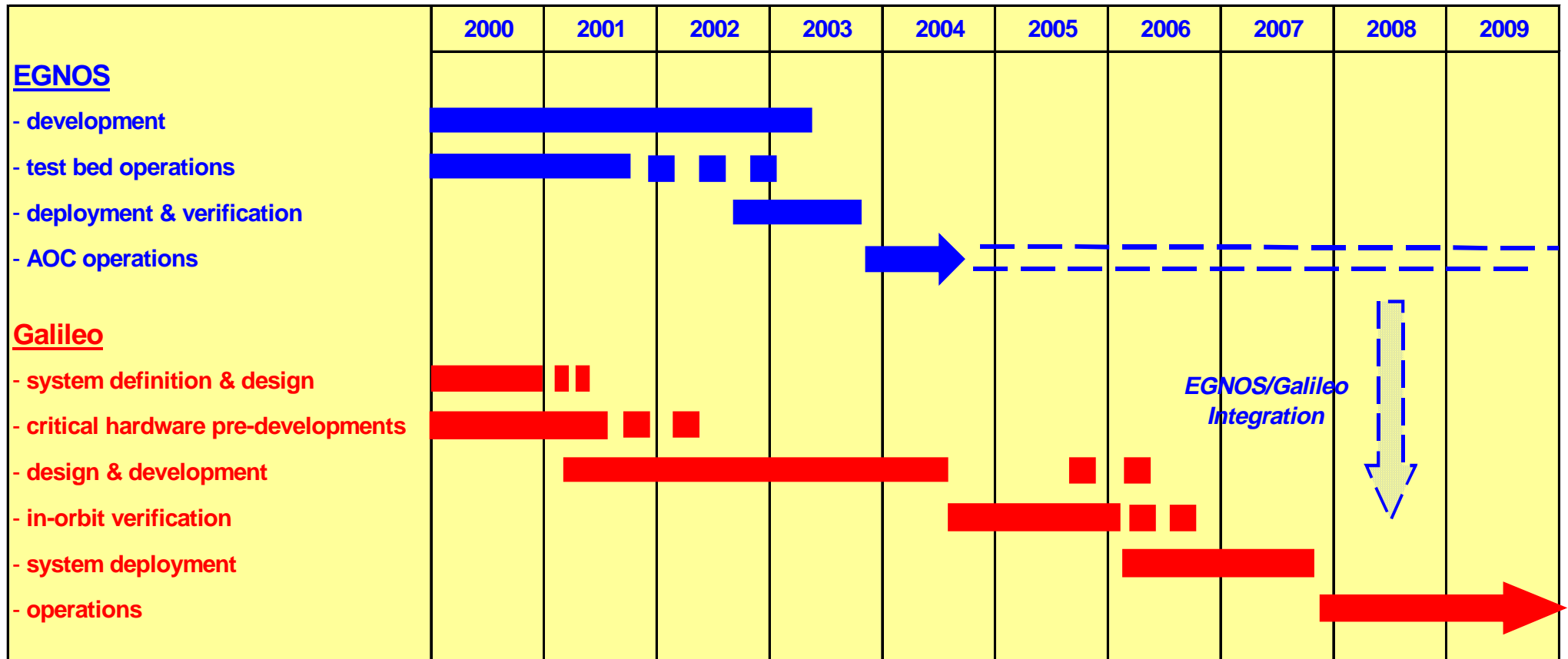


# EGNOS Integration with Galileo - Principles

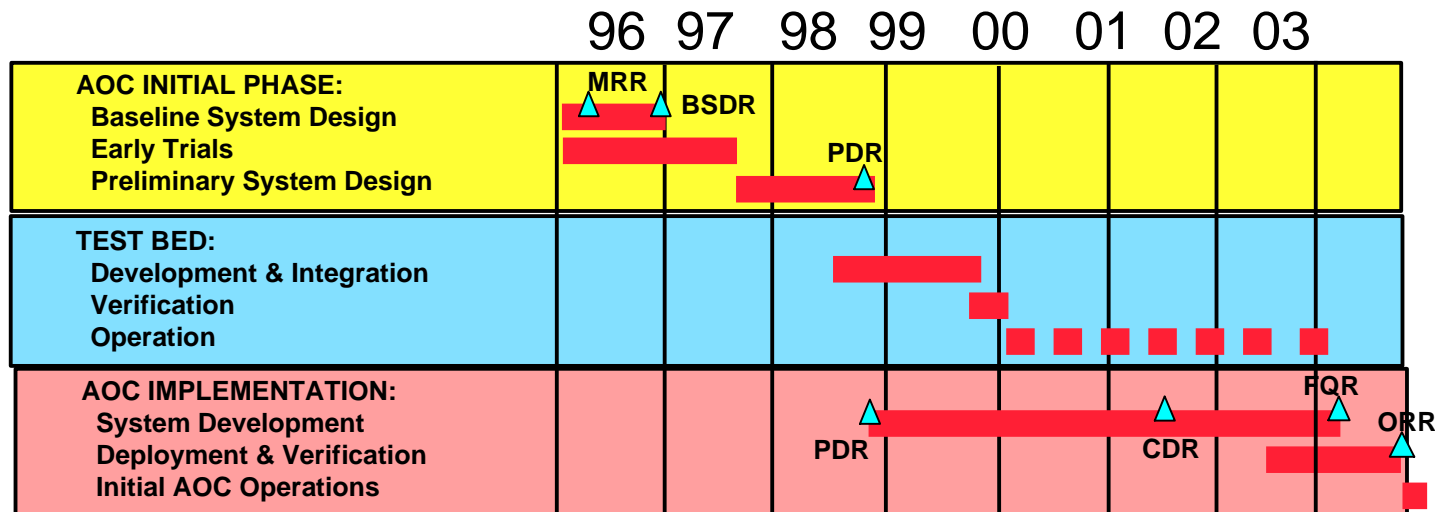
- EGNOS Integration with Galileo scenarios being analysed via EC INTEG study, to be incorporated into GALA/GALILEOSAT
- Need for EGNOS Service (GPS augmentation) over specified lifetime not challenged by existence of Galileo
- Current EGNOS AOC Development to continue as planned to offer service from 2004 onward
- Future incremental EGNOS evolutions to be defined according to preferred integration scenario:
  - to be finalised by end 2000



# Galileo/EGNOS Implementation Schedule



# Why an EGNOS Test Bed?



- Operational signal available in 2003
- Need for hands-on experience on
  - system behavior
  - user applications



# ESTB OBJECTIVES

- Assessment of overall system and mission performances
- Analysis of specific critical design issues
- GEO, GPS and Glonass raw data collection
- Demonstration of operational benefits of EGNOS
- Preparation to the operational introduction of EGNOS
- Unique tool for applications development

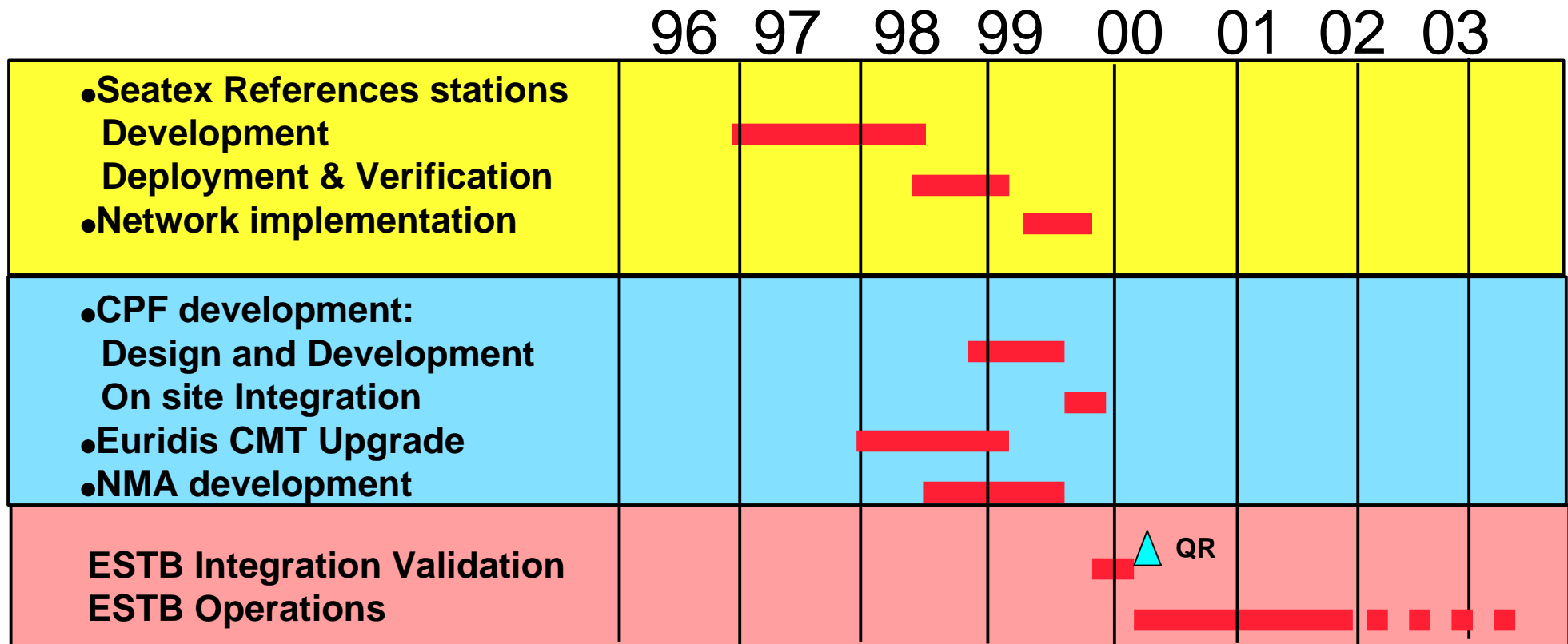


# Main ESTB characteristics

- Complete end to end system
- Functionally representative of EGNOS system
- Flexible for easy evolutions
- Target availability: 95%
- Developed by EGNOS Industrial Consortium
- Integrates National Contributions



# ESTB Development schedule



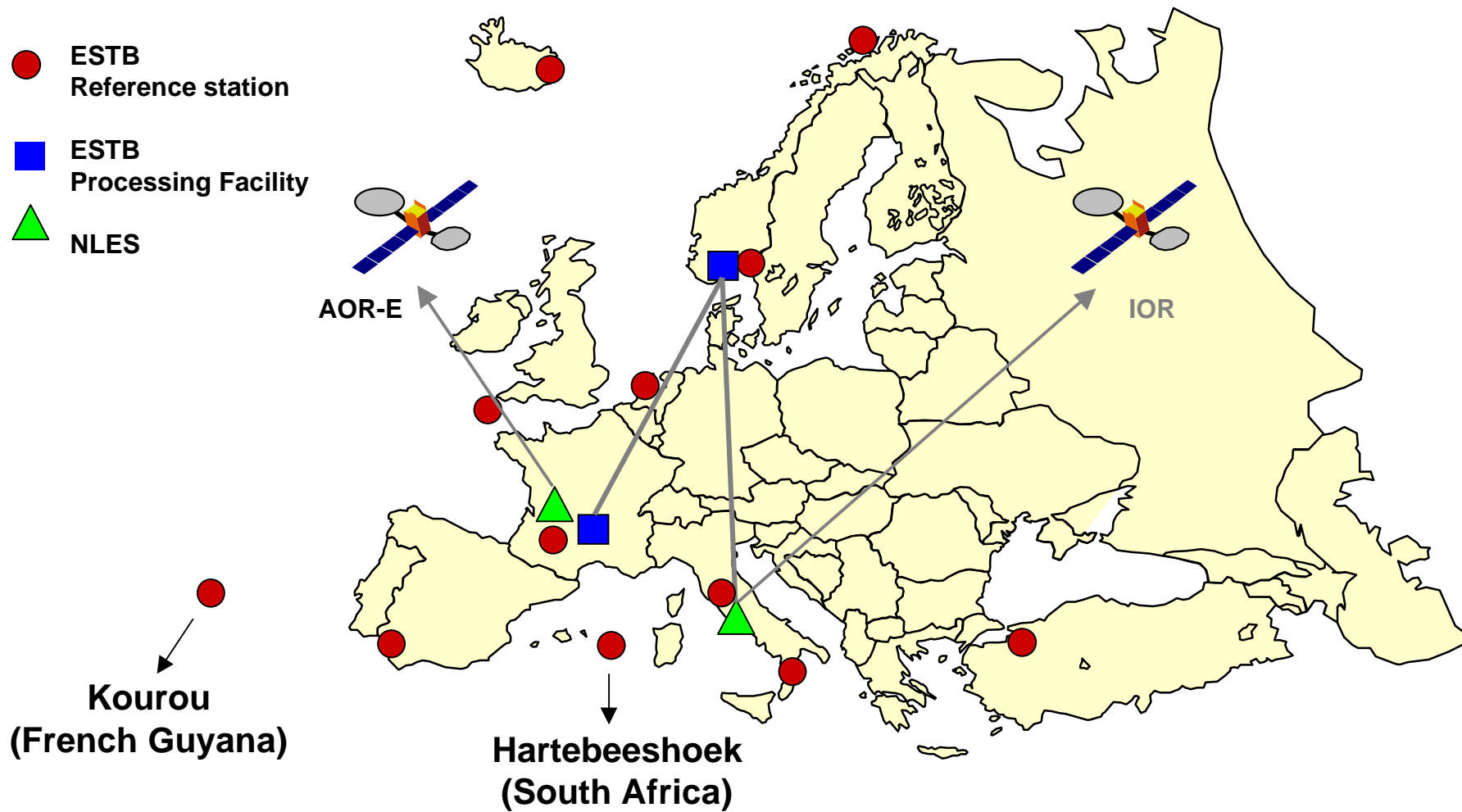
# ESTB STATUS

- Since February 00, ESTB is providing an EGNOS pre-operational SIS on Inmarsat AOR-E satellite.
- ESTB Overall Operations: ESA, in co-operation with CNES (French Space Agency) and NMA (Norwegian Mapping Authority)
- Industrial development:
  - Prime contractor: Alcatel Spaces Industries (F),
  - Subcontractors: GMV (E), DSS (D), DLR (D), Seatex (UK), Racal (UK), Sextant (F)



# ESTB OUTLINES

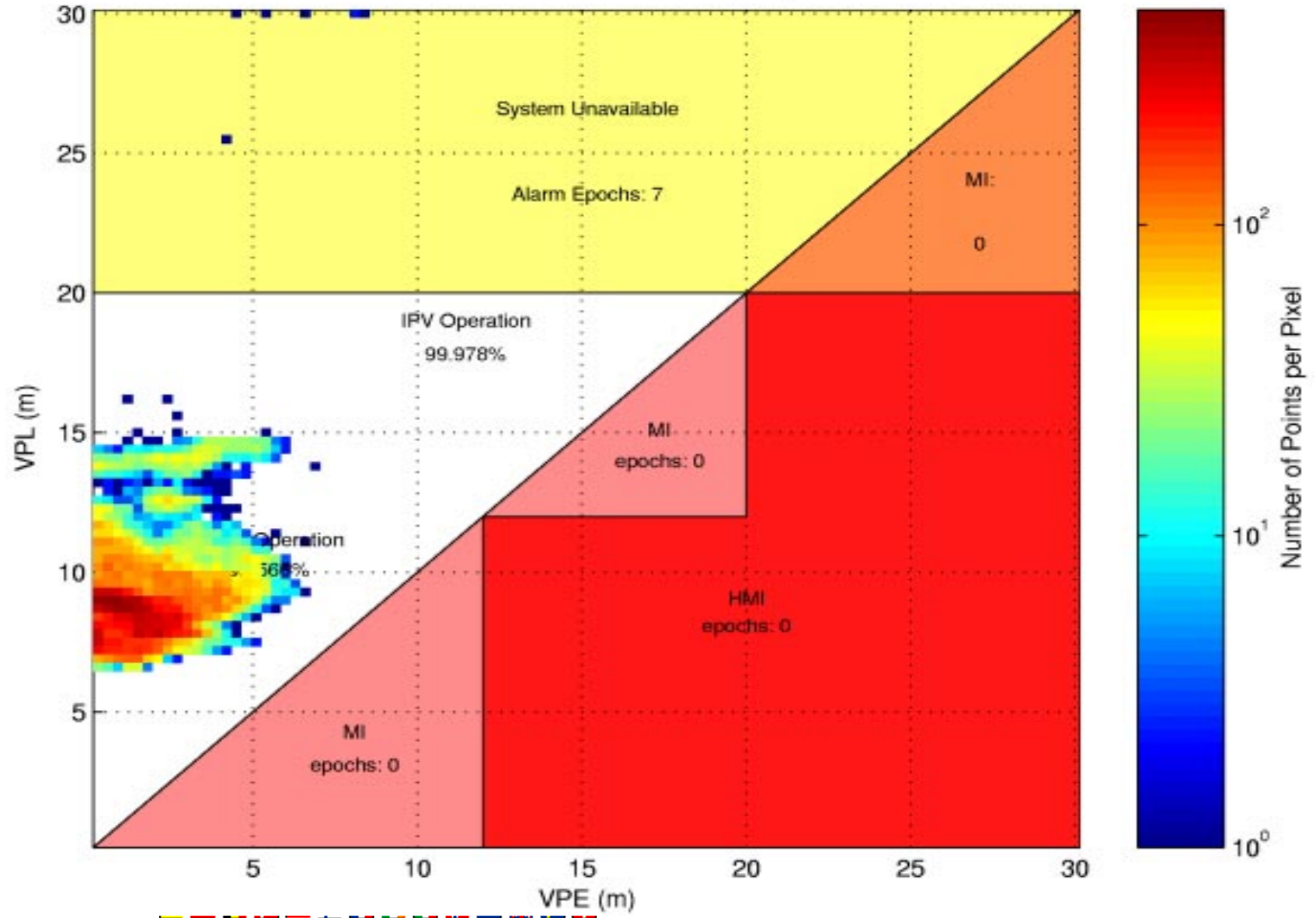
- ESTB Reference station
- ESTB Processing Facility
- ▲ NLES





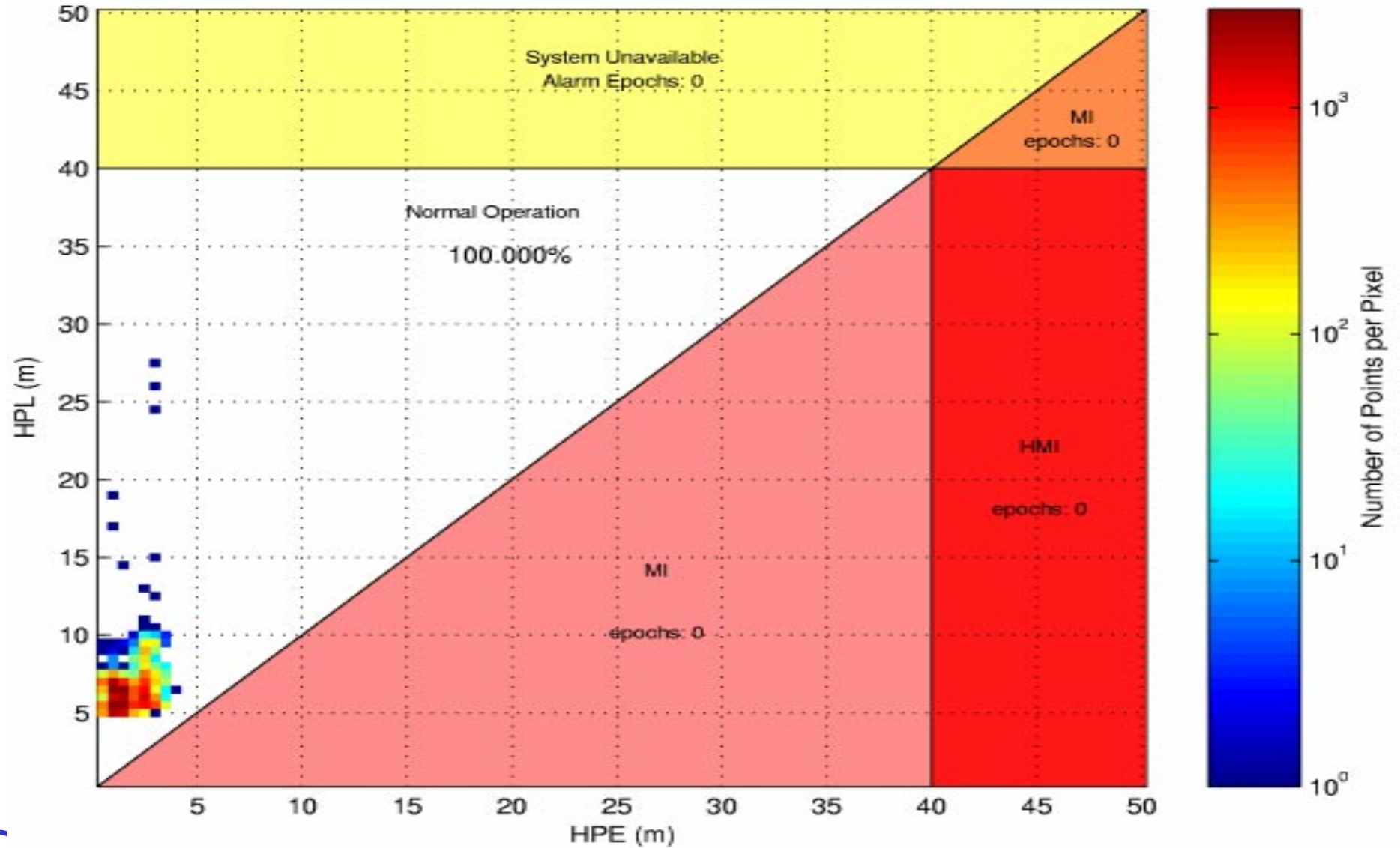
ESTB - TOULOUSE le 21/09/2000  
de 07:18 à 16:25

Vertical Performance ESTB over 32058 epochs



ESTB - TOULOUSE le 21/09/2000  
de 07:18 à 16:25

Horizontal Performance ESTB over 32058 epochs



# Points of Contact

- For ESTB Technical information and utilisation request:  
ESA GNSS1 PO
  - e-mail: [ESTB@hq.esa.fr](mailto:ESTB@hq.esa.fr)
- For operational information:
  - ESTB operation team: [euridis@pcs-euridis.cnes.fr](mailto:euridis@pcs-euridis.cnes.fr)
  - Web site: [www.esa.int/navigation/](http://www.esa.int/navigation/) , (monthly updated)
  - mailing list for SIS current status (daily)



# Main ESTB Workshop conclusions (1)

- ESTB user workshop has been a large success
  - Attendance to the workshop has been very large and diversified: more than 100 external participants representing a wide range of potential GNSS users, originating from about 20 countries and nearly 25% of the participants coming from countries outside Europe.
  - The objective of providing information on ESTB and EGNOS has been largely fulfilled. The programme of the plenary session including both very general briefings and more technical information on the ESTB was well suited to the wide range of participants. The dedicated session on user receivers was extremely useful and the announcement and demonstration of the EGNOS and ESTB WEB site very well received.
  - Splinter meetings have fulfilled their objectives, allowing in particular a good level of discussion as well as expression of viewpoints from user communities. Specific conclusions and feedback from splinter sessions are developed in the next section



## ESTB Workshop Follow-up

- As a result of ESTB Workshop, presentation to PB-Nav by ESA of a “*Proposal for the Enhancement and Promotion of the EGNOS System Test Bed*” addressing:
  - *Evolution for System Robustness (24/24 operations)*
  - *Continuity of ESTB beyond end 2001*
  - *Experimenters’ Support*
  - *ESTB Help Desk*
  - *Coverage Expansions*



# ESTB Evolution Schedule

	2000	2001	2002	2003	2004
<b>ESTB Operations</b>	initial ■ ■ ■ ■	stable operations —————▶			
<b><u>Enhancements</u></b>					
• System robustness		————			
• Exp. Support		———— ■ ■ ■ ■			
• Help Desk		————▶			
• Continuity beyond end 2001		■ ■ ■ ■ ■	————▶		
• Coverage expansions			————▶		



# Status of ESTB evolution Proposal

- Proposal well received by PB-Nav
- Funding under discussion with CEU (5Meuros for 2001- about 10 Meuros in total)
- Details to be presented at the November PB-Nav
- Implementation and procurement plan under preparation by ESA

