# EGNOS System Test Bed signal status

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# ESTB General outlines

- ESTB = specific HW/SW infrastructure
  - representative of EGNOS system
  - operated under ESA responsibility by CNES, NMA and industry
- ESTB signal start broadcast in Feb. 2000
- Current ESTB GEO: Inmarsat-3 AOR-E, PRN 120
- ESTB signal will continue broadcast until February 2006 on PRN 120
- No signal interruptions except for maintenance

# ESTB MOPS messages

- Signal in space compliant with MOPS DO229 C,
- ESTB signal is usable for non safety of life:
  - Message type 0 is filled with message type 2 contents

- Specific configuration:
  - No GEO ranging messages broadcast (MT9-12)
  - No MT 24 broadcast (mixed FC/LT corrections)
  - Slow GPS ephemeris variation set to 0 in MT25
  - Iono information (MT18&MT26) is covering Europe and Africa

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# ESTB Messages type broadcast

| Type | Contents | comments |
|------|----------|----------|
| 0 | Don't use for safety applications (for WAAS testing) | Filled in with MT2 content for non safety application |
| 1 | PRN Mask assignments, set up to 51 of 210 bits | GEO PRN 120 set with 1 |
| 3 to 4 | Fast corrections | Only with GPS corrections |
| 6 | Integrity information | - |
| 7 | Fast correction degradation factor | Indicator set to 13 |
| 9 | GEO navigation message ($X$, $Y$, $Z$, time, etc.) | Broadcast only for test (on request) |
| 10 | Degradation Parameters | - |
| 12 | WAAS Network Time/UTC offset parameters | Broadcast only for test (on request) |
| 17 | GEO satellite almanacs | Ranging "off" |
| 18 | Ionospheric grid point masks | Band 3, 4 and 5 |
| 25 | Long term satellite error corrections | Veloc Code=0, GPS ephemeris corrections = 0 |
| 26 | Ionospheric delay corrections | - |
| 63 | Null Message | - |

# ESTB coverage



Avail. APV-I 23-Jun-2005 07:35:17 - 23-Jun-2005 08:35:17 GPS Time PRN-120
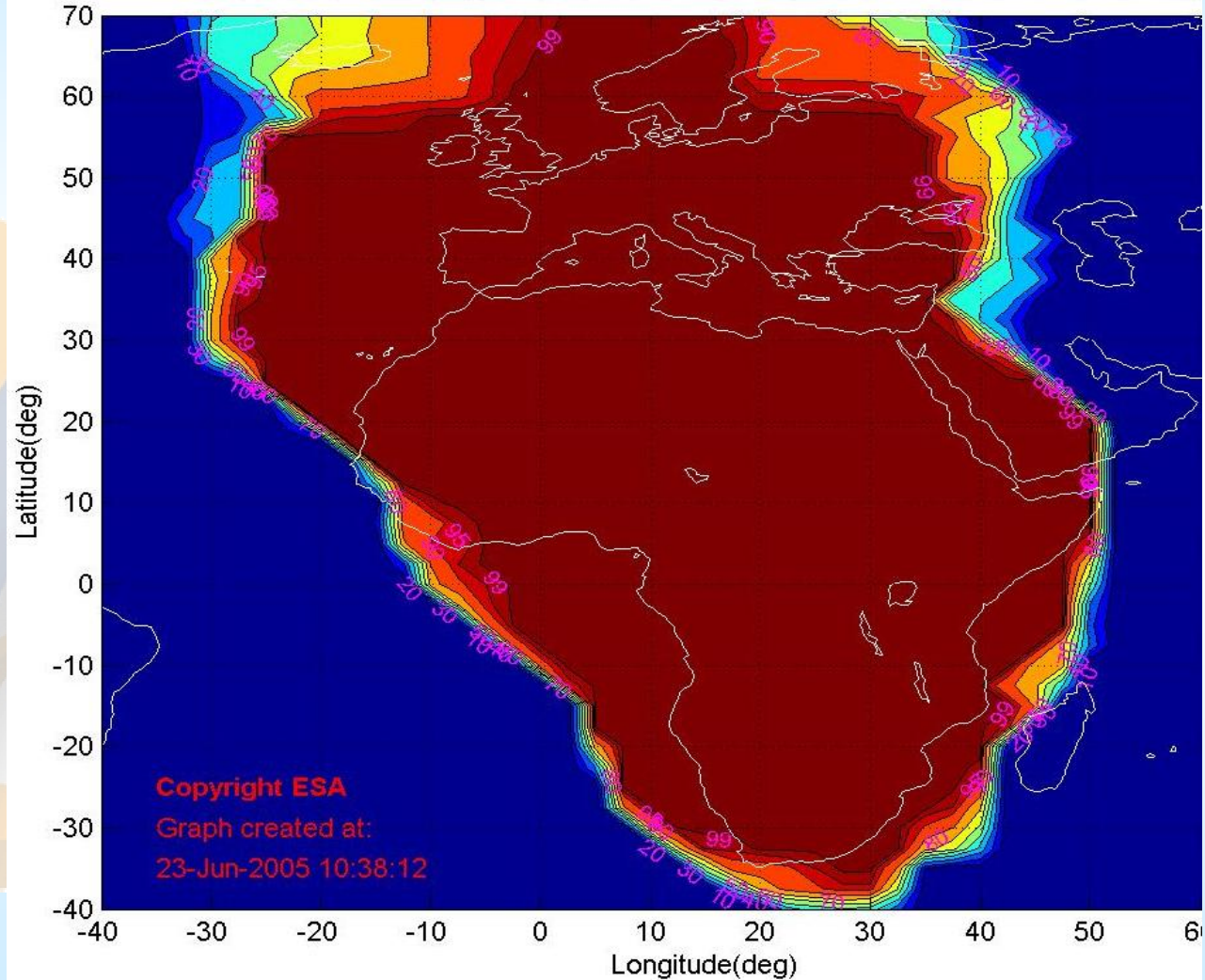
Copyright ESA
Graph created at:
23-Jun-2005 10:38:12

# ESTB performances

- The performance level over Europe and Africa is APV-1 service
- APV-1 service available between 99% and 100% of time.
- the positioning accuracy is typically:
  - 1 m in horizontal plan 95% of time
  - 2 m in vertical plan 95% of time

# **ESTB signal for testing receivers**

- For testing purpose, specific ESTB signal configuration can be performed:

  – broadcast of GEO Ranging messages (MT9 & MT12)

  – Broadcast of MT27

  – MT0 filled with 0

  – Modification of some MOPS parameters, messages sequences, IODI, IODF,….

- Please make the request to ESA at egnos@esa.int

# GEO Selection for SBAS

Point to be clarified:

1. When GEO PRN set to "not monitored" in MT1, GPS corrections are not applied (Garmin receivers).

2. GEO SBAS selection criteria when 2 signals (same provider ID) are broadcast as following:

   – 1 signal with MT0/2 (PRN120)

   – 1 signal with MT0 filled with 0 (PRN 124)

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# THANK YOU

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