



EGNOS, it's there. Use it.

How to configure EGNOS on your mapping/GIS receiver: step-by-step guide



European
Global Navigation
Satellite Systems
Agency



Precise navigation,
powered by Europe



Table Of Contents

- **Who we are - ESSP**
- **What we offer? - Free GPS augmentation**
- **How to configure your GPS/SBAS receiver: step-by step guide for selected receivers**
- **Summary**

Who we are

European Satellite Services Provider



delivers EGNOS augmentation services 24/7



operates and maintain EGNOS system



promotes EGNOS and its applications



supports and interfaces with users



monitors & analyses EGNOS performance



supports in the development of EGNOS-based applications



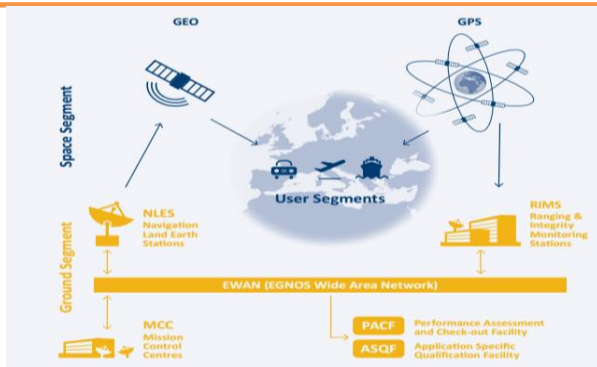
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What we offer

EGNOS: Free GPS augmentation

system



EGNOS:

- the European Satellite Based Augmentation System
- provides GPS corrections
- broadcasts from GEO satellites

since 2009



SATELLITE based corrections

- Free of charge
- Sub-metre positioning accuracy
- Real time
- Throughout Europe

Satellite based corrections: Why choosing EGNOS OS?



* in comparison with PPP/RTK

EGNOS added value in:

General mapping and basis-accuracy cartography

GIS mapping

Large amount of points to be referenced

Inventories over wide areas (roads, natural parks, municipalities)

Archeological works

Fauna and botanical species catalogues

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What is a GPS/SBAS receiver?

A **GPS/SBAS** receiver is a **GPS** receiver that locks onto the **EGNOS** satellites and apply the EGNOS corrections to the GPS signal.



Example#1: Trimble R1 + ArcGIS collector.



Model

Sub-metre accuracy

Trimble R1 Receiver + ArcGIS collector

Capabilities

GNSS single frequency (L1):

- GPS, Glonass, BeiDou, Galileo, QZSS

SBAS corrections supported:

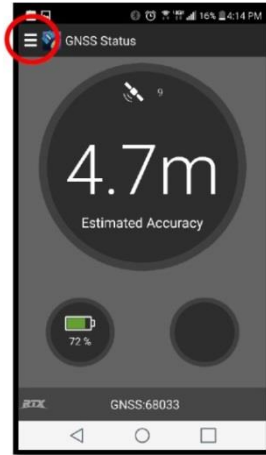
- WAAS, **EGNOS**, GAGAN, MSAS, SDCM



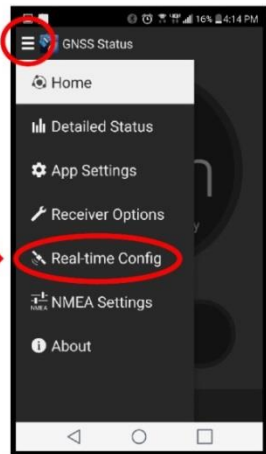
 This receiver connects wirelessly to a smart device via Bluetooth connectivity.

Example#1: Trimble R1 + ArcGIS collector. How to configure EGNOS OS

1. Once the App is connected to the R1 receiver, you are taken to the GNSS Status Home Screen.



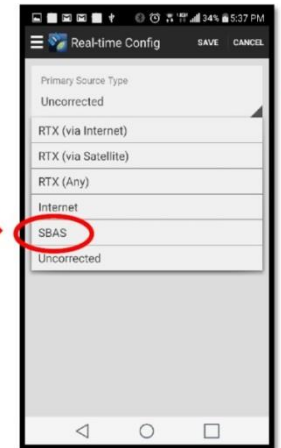
2. Tap the Menu button, and chose "Real-Time Config"



3. On Real-time Config tap "Edit" at the top right of the screen.

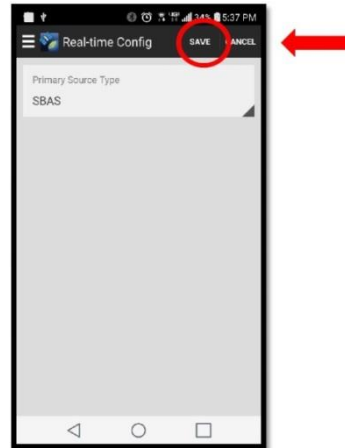


4. Tap the *Primary Source Type* field. Choose **SBAS**.



Example#1: Trimble R1 + ArcGIS collector. How to configure EGNOS OS

5. Tap “Save”. Then tap the Menu button and return to the Home Screen.



6. Once GNSS Status app is connected to R1 Receiver and **SBAS** service in use, you will have the word “SBAS” in the bottom right-hand circle and the **Estimated Accuracy** will drop to < 1m.



7. Tap home button of your device to minimize the GNSS Status (It stays running) then open the Collector App. The location Collector in use is now coming from the R1 Receiver vs the mobile devices internal receiver.



Example#2: Leica Viva.



Model

Sub-metre accuracy

Viva

Capabilities

GNSS multifrequency:

- GPS (L1/L2/L5), Glonass (G1/G2/G3), BeiDou (B1/B2/B3), Galileo (E1/E5a/E5b/AltBOC/E6)

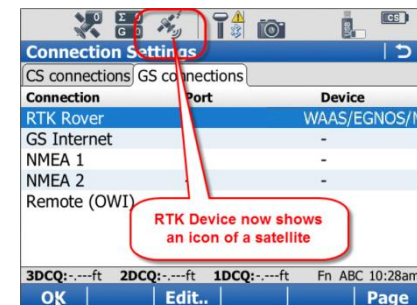
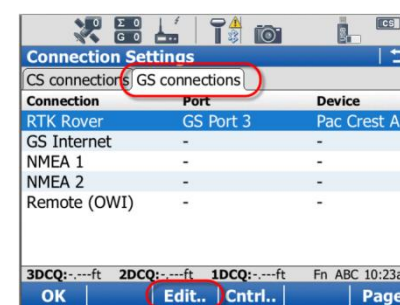
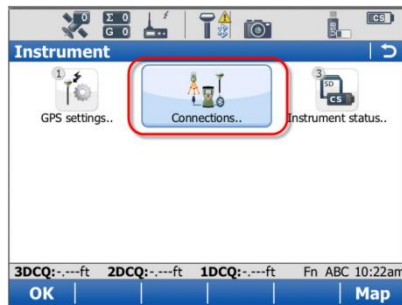
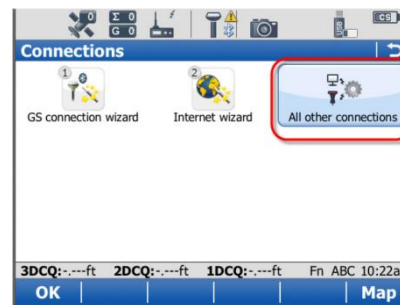
SBAS corrections supported:

- WAAS, **EGNOS**, GAGAN, MSAS



Example#2: Leica Viva. How to configure EGNOS OS

1. From main menu select *Instrument* icon and then choose *Connections*.
2. Select *All other connections* and then in *GS connections* page highlight *RTK Rover* and tap on *Edit*.
3. On the General page change the “RTK Data Format” field to “Automatic SBAS”.



Example#3: Leica GS16/ GS18.



Model

Sub-metre accuracy

Captivate: GS16/ GS18.

Capabilities

GNSS:

- GPS (L1/L2/L2C/L5), Glonass (G1/G2/G3), BeiDou (B1/B2/B3), Galileo (E1/E5a/E5B/Alt-BOC/E6)

SBAS corrections supported:

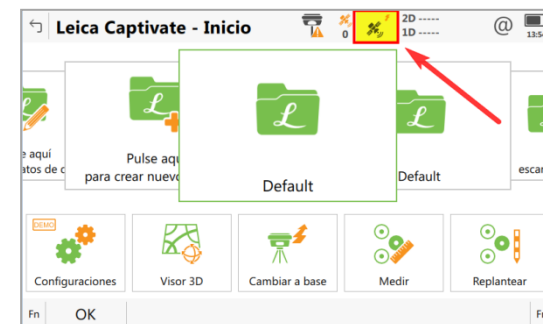
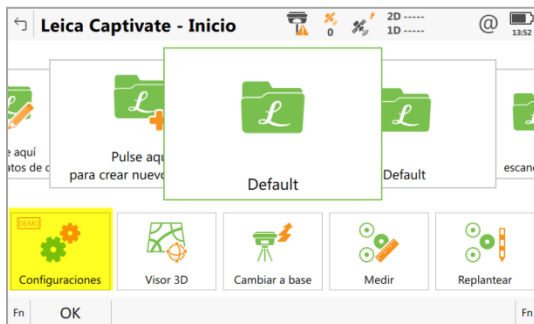
- WAAS, **EGNOS**, GAGAN, MSAS



Example#3: Leica GS16/ GS18.

How to configure EGNOS OS

1. Tap on *Configuration* button and then *Connections*.
2. Go to *All connections*, then RTK Rover and tap on *Edit*.
3. Check *Receive RTK Data* and select “Automatic SBAS”. WAAS/EGNOS will appear as RTK rover connection.



Example#4: NavCom SF-3050.



Model

Sub-metre accuracy

Model: SF-3050

Capabilities

GNSS:

- GPS (L1/L2/L5), GLONASS (G1/G2), QZSS, StarFire

SBAS corrections supported:

- WAAS, **EGNOS**, GAGAN, MSAS



i Basic receiver is GIS but upgradable to higher precision .



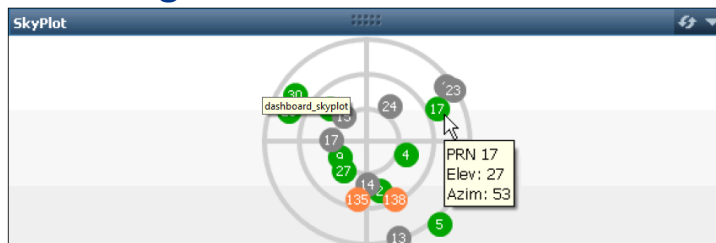
Example#4: NavCom SF-3050. How to configure EGNOS OS

1. *Navigation Modes* provides access to settings for RTCM, SBAS and StarFire.

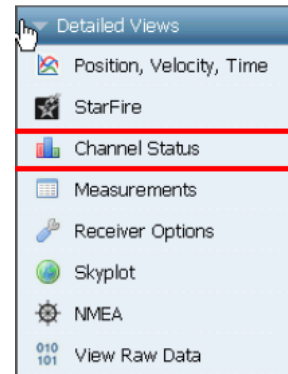
Activate **SBAS**.

| SET NAVIGATION MODES | | |
|---|-------------|----------------------------|
| | | CURRENT NAVIGATION SETTING |
| RTCM Code: | On | ON |
| SBAS: | On | ON |
| StarFire: | On Internal | ON , INTERNAL |
| Apply Navigation Settings to the Receiver | | |

2. *Sky Plot* displays tracked satellite locations and provides an interface to select constellations. Each satellite is displayed by color and PRN: GPS=Green, GLONASS=Grey, SBAS=Orange.



3. The SF-3050 receiver locates and tracks **SBAS** satellites at run-time, building a list of satellites that contribute to navigation solution.



| PRN | AZ | EL | CH (L1CA) | ST | C/N0 | CR | AL | TM | CH (L1P1) | ST | C/N0 | CR | AL | TM | CH (L2) | ST | C/N0 | CR | AL | TM | CH (L2C) | ST | C/N0 | CR | AL | TM |
|-----|-----|----|-----------|------|-------|------|----|----|-----------|------|-------|------|----|----|---------|------|-------|------|----|----|----------|----|------|----|----|----|
| 1 | 282 | 51 | 8 | LOCK | 52.25 | 1 | N | 3 | 8 | LOCK | 51 | 0.94 | N | 3 | 9 | COHY | 47.75 | 0.99 | N | 3 | - | - | - | - | - | - |
| 11 | 245 | 41 | 4 | LOCK | 52.5 | 0.99 | N | 3 | 4 | LOCK | 51 | 0.88 | N | 3 | 5 | COHY | 46 | 1 | N | 3 | - | - | - | - | - | - |
| 14 | 52 | 26 | 10 | LOCK | 46 | 0.97 | N | 3 | 10 | LOCK | 44.5 | 0.75 | N | 3 | 11 | COHY | 40.75 | 1 | N | 3 | - | - | - | - | - | - |
| 20 | 310 | 29 | 14 | LOCK | 49 | 1 | N | 3 | 14 | LOCK | 48 | 0.8 | N | 3 | 15 | COHY | 42 | 0.98 | N | 3 | - | - | - | - | - | - |
| 22 | 111 | 22 | 16 | LOCK | 49.25 | 0.97 | N | 3 | 16 | LOCK | 48.5 | 0.95 | N | 3 | 17 | COHY | 44 | 1 | N | 3 | - | - | - | - | - | - |
| 23 | 260 | 15 | 6 | LOCK | 46.75 | 0.99 | N | 3 | 6 | LOCK | 44.25 | 0.83 | N | 3 | 7 | COHY | 41.25 | 0.97 | N | 3 | - | - | - | - | - | - |
| 25 | 59 | 10 | 18 | LOCK | 42.25 | 1 | N | 3 | 18 | LOCK | 39.25 | 0.41 | N | 3 | 19 | COHY | 37 | 0.9 | N | 3 | - | - | - | - | - | - |
| 30 | 149 | 13 | 20 | LOCK | 46 | 0.97 | N | 3 | 20 | LOCK | 45 | 0.75 | N | 3 | 21 | COHY | 39.25 | 0.92 | N | 3 | - | - | - | - | - | - |
| 31 | 109 | 71 | 0 | LOCK | 54.25 | 1 | N | 3 | 0 | LOCK | 53.25 | 0.92 | N | 3 | 1 | COHY | 50 | 0.99 | N | 3 | - | - | - | - | - | - |
| 32 | 325 | 54 | 2 | LOCK | 51.5 | 1 | N | 3 | 2 | LOCK | 50.25 | 0.91 | N | 3 | 3 | COHY | 46.25 | 0.96 | N | 3 | - | - | - | - | - | - |

| PRN | AZ | EL | CH (G1C) | ST | C/N0 | CR | AL | TM | CH (G2C) | ST | C/N0 | CR | AL | TM | CH (G1P) | ST | C/N0 | CR | AL | TM | CH (G2P) | ST | C/N0 | CR | AL | TM |
|-----|-----|----|----------|------|-------|------|----|----|----------|------|-------|------|----|----|----------|----|------|----|----|----|----------|----|------|----|----|----|
| 1 | 16 | 55 | 25 | LOCK | 52 | 0.98 | N | 3 | 40 | LOCK | 36 | 0.99 | N | 3 | - | - | - | - | - | - | - | - | - | - | - | - |
| 2 | 313 | 21 | 26 | LOCK | 47.75 | 0.99 | N | 3 | 41 | LOCK | 33.75 | 1 | N | 3 | - | - | - | - | - | - | - | - | - | - | - | - |
| 10 | 31 | 22 | 29 | LOCK | 47 | 0.98 | N | 3 | 30 | LOCK | 30.75 | 0.99 | N | 3 | - | - | - | - | - | - | - | - | - | - | - | - |
| 11 | 86 | 64 | 33 | LOCK | 51.75 | 0.99 | N | 3 | 42 | LOCK | 37 | 0.99 | N | 3 | - | - | - | - | - | - | - | - | - | - | - | - |
| 12 | 176 | 34 | 24 | LOCK | 51.5 | 1 | N | 3 | 43 | LOCK | 41.5 | 0.99 | N | 3 | - | - | - | - | - | - | - | - | - | - | - | - |
| 17 | 294 | 17 | 31 | LOCK | 45.5 | 0.99 | N | 3 | 27 | LOCK | 35.75 | 0.98 | N | 3 | - | - | - | - | - | - | - | - | - | - | - | - |
| 24 | 240 | 14 | 38 | LOCK | 45 | 0.98 | N | 3 | 39 | LOCK | 36 | 0.99 | N | 3 | - | - | - | - | - | - | - | - | - | - | - | - |

| PRN | AZ | EL | CH (L1CA) | ST | C/N0 | CR | AL | TM | CH (L1P1) | ST | C/N0 | CR | AL | TM | CH (L2) | ST | C/N0 | CR | AL | TM | CH (L2C) | ST | C/N0 | CR | AL | TM |
|-----|-----|----|-----------|------|-------|------|----|----|-----------|----|------|----|----|----|---------|----|------|----|----|----|----------|----|------|----|----|----|
| 135 | 205 | 47 | 49 | LOCK | 53.25 | 0.99 | N | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 138 | 160 | 48 | 50 | LOCK | 52.75 | 0.95 | N | 15 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Example#5: Hemisphere R330 and SX Blue.



| Model | Sub-metre accuracy |
|-------|--------------------|
|-------|--------------------|

| | |
|------|--|
| R330 | |
|------|--|

Capabilities

GNSS double frequency:

- GPS (L1/L2)

SBAS corrections supported (3 channels):

- WAAS, **EGNOS**, GAGAN, MSAS



| Model | Sub-metre accuracy |
|-------|--------------------|
|-------|--------------------|

| | |
|----------------|--|
| II-GNSS series | |
|----------------|--|

Capabilities

GNSS single frequency:

- GPS (L1), GLONASS (G1)

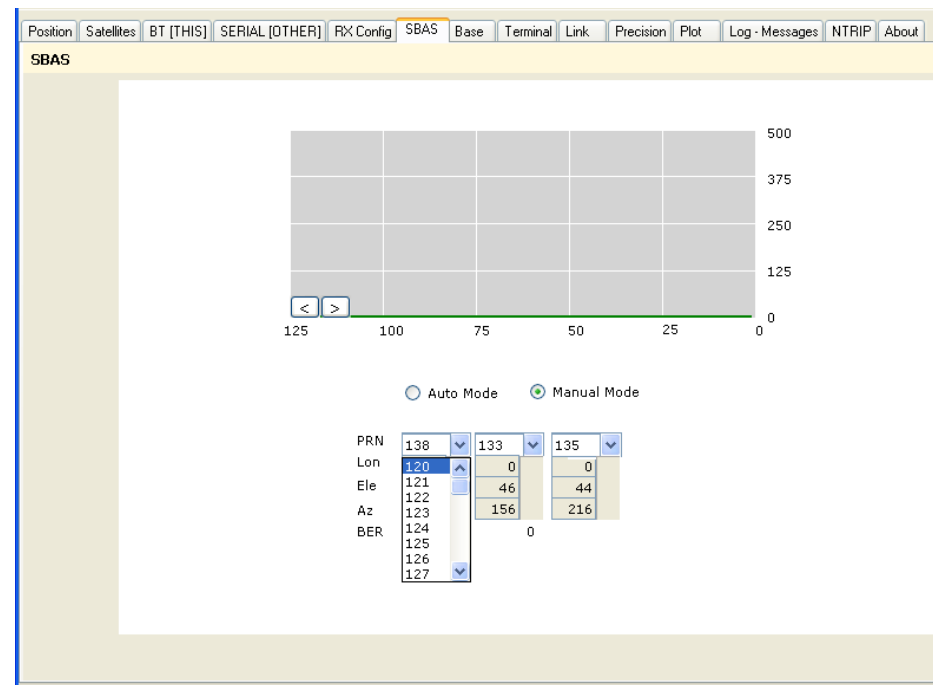
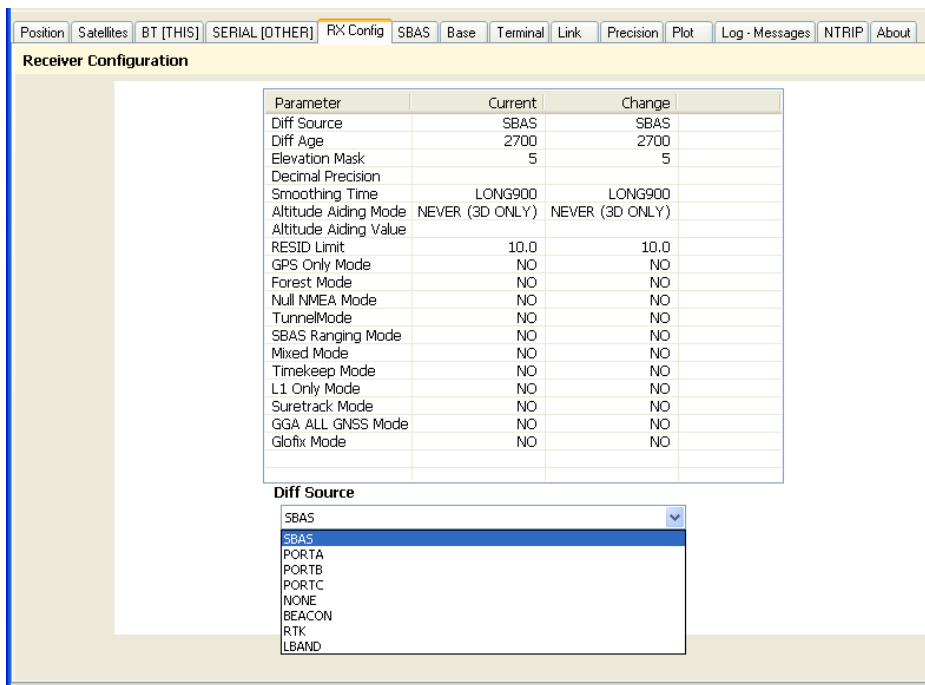
SBAS corrections supported (3 channels):

- WAAS, **EGNOS**, GAGAN, MSAS

Example#5: Hemisphere R330 and SX Blue.

How to configure EGNOS OS

1. On *RX Config* page of receiver configuration software select **SBAS** as Differential corrections source (*Diff Source*).
2. In SBAS page you can select three **SBAS** satellites for tracking. Choose PRN 123 and 136 (You have to repeat one).



Example#5: Hemisphere R330 and SX Blue. How to configure EGNOS OS

3. On Position page **SBAS** will appear as Differential corrections source.

4. In Satellites page tracked GNSS and **SBAS** information is shown.

Position Satellites BT [THIS] SERIAL [OTHER] RX Config SBAS Base Terminal Link Precision Plot Log - Messages NTRIP About

GNSS - Position

| Parameter | Value | Option |
|----------------|------------------|-----------|
| Serial Port | | |
| Date | 2012/03/13 | |
| Time | 15:43:17 | Local |
| Latitude | 33 33 25.60922 | DMS |
| Longitude | -111 53 21.23008 | DMS |
| Height | 380.521 | m |
| Speed | 0.02 | m/s |
| Precision | 0.236 | CEP (50%) |
| COG | 155.12 | |
| HDOP | 0.8 | |
| Sats Used | 12 | |
| Diff Requested | SBAS | |
| Diff Used | SBAS | |
| Diff Status | DGPS | |
| Diff Age | 6 | |
| Reference ID | 0 | |

COMMS GPS DIFF

Position Satellites BT [THIS] SERIAL [OTHER] RX Config SBAS Base Terminal Link Precision Plot Log - Messages NTRIP About

Satellites

GNSS

| | |
|-----------|----|
| Tracked | 15 |
| Aby Mask | 15 |
| Corrected | 14 |
| L1 Used | 12 |
| L2 Used | 0 |
| G1 Used | 0 |
| G2 Used | 0 |

SBAS

| | |
|---------|---|
| Tracked | 3 |
| Used | 1 |

GPS GLONASS L1 SNR L2 SNR

SV: 3 15 16 6 18 30 9 29 21 27 26 22 138 133 135

Useful information about EGNOS

<https://egnos-user-support.essp-sas.eu>

EGNOS SIS availability forecast

The top part of each cell in the calendar represents the availability forecast of **PRN 123**, the bottom one shows the status of **PRN 136**.

(SEPTEMBER 2018)

S M T W T F S

| | | | | | | |
|----|----|----|----|----|----|----|
| | | | | | | 1 |
| 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| 16 | 17 | 18 | 19 | 20 | 21 | 22 |
| 23 | 24 | 25 | 26 | 27 | 28 | 29 |
| 30 | | | | | | |

Planned Signal Available Risk of Signal Outage
Planned Signal Outage TBC Signal Available



PRN 123
ACTIVE
Sol. Mode



PRN 136
ACTIVE
Sol. Mode



PRN 120
ACTIVE
Test Mode

NEWS & EVENTSDOCUMENTSRESOURCES & TOOLS

LIBRARY

SDD

SERVICE IMPLEMENTATION ROADMAPS

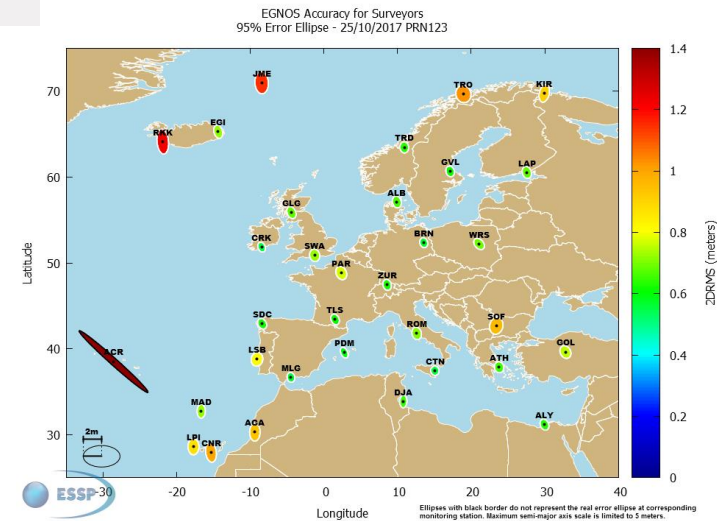
MONTHLY PERFORMANCE REPORTS

SERVICE NOTICES

YEARLY REPORTS

BROCHURES

SUCCESS STORIES



EGNOS SERVICE NOTICE

Number: 15 | Version: 1.0

Date: 2018-08-31
Status: Final
Subject: EGNOS Space Segment Update

The EGNOS Service Notice (ESN) provides information on the status of the EGNOS service and the EGNOS Space Segment (ESS) update. It is published whenever there is any complementary information that could have a relevant impact in any of the EGNOS Service Definition Documents' contents. Hence, an EGNOS Service Notice is a temporal amendment to the EGNOS Service Definition Documents.

ESN #15 (August 2018) provides the EGNOS service status and the EGNOS Space Segment update. It is published whenever there is any complementary information that could have a relevant impact in any of the EGNOS Service Definition Documents' contents. Hence, an EGNOS Service Notice is a temporal amendment to the EGNOS Service Definition Documents.

Download: [service_notice_15.pdf](#)

Service Notice #15 EGNOS Space Segment Update - (In Force)

Service Notices | Friday, August 31, 2018

The EGNOS Service Notices are notifications published whenever there is any complementary information that could have a relevant impact in any of the EGNOS Service Definition Documents' contents. Hence, an EGNOS Service Notice is a temporal amendment to the EGNOS Service Definition Documents.

Download: [service_notice_15.pdf](#)

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Summary

EGNOS provides free GPS corrections:



EGNOS OS is a free of charge real time SATELLITE based correction service enhancing GPS accuracy throughout Europe.

How to access EGNOS corrections:



Access to EGNOS requires a GPS/SBAS receiver.



GPS/SBAS receivers are easily configured through the display.
No registration is needed as EGNOS signal is ready to use.



EGNOS, it's there. Use it.



www.essp-sas.eu

rodrigo.gonzalez@essp-sas.eu



<http://egnos-user-support.essp-sas.eu>



egnos-helpdesk@essp-sas.eu

+34 911 236 555 (H24/7)



Corporate Video

THANK YOU!