



EGNOS, it's there. Use it.

FINNAIR

EGNOS BULLETIN

A350

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European
Global Navigation
Satellite Systems
Agency



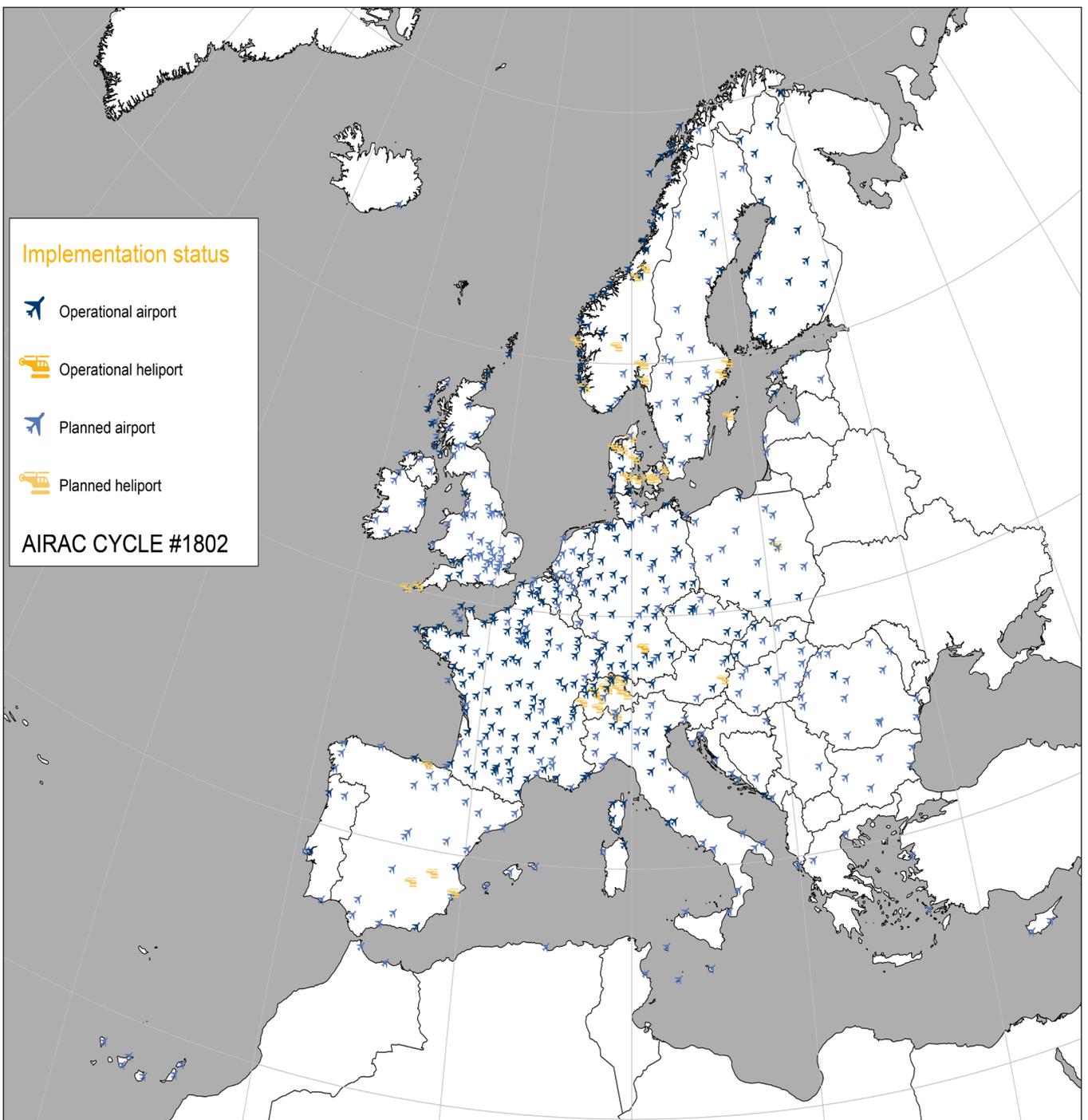
Precise navigation,
powered by Europe

<http://egnos-portal.gsa.europa.eu/>



<http://www.essp-sas.eu/>

EGNOS implementation



EGNOS

Success Stories

AirBaltic starts LPV operation in Dash8 fleet



Credits: AirBaltic

After successful completion of PBN training for crew, the Latvian operator has carried out over 20 LPV operations on their Dash 8 Q400 fleet. These operations are not new to AirBaltic as the functionality is also available on their Bombardier CS300 for which they are the launch customer worldwide. However, contrary to the CSeries which are LPV ready by default, the Dash8 required certain modifications to receive certification for LPV. The Supplemental Type Certificate for this retrofit, which was developed by the USA design organisation Canard, had been previously approved by the FAA in November 2016 and received EASA certification under STC number 10061069 on the 22nd of February 2017. To date, AirBaltic has upgraded 8 units out of 12 in fleet while the remaining 4 will be upgraded during the next maintenance C-check scheduled in winter 2018.

The STC is based on the installation of Universal Avionics UNS-1Ew FMS, GPS/SBAS antennas and

Blue Avionics BA-440 router/filter which feeds FMS data into the EGPWS computer during a LPV approach, fully complying with the former EASA regulation on "Excessive Downward Deviation From Glideslope" alerting for TAWS.

The carrier, which performs more than 40 thousand flights per year, is currently flying to 25 European destinations with an LPV in place and these could grow up to 34 by 2019 according to current ANSPs' plans, putting the performed LPV numbers on a clearly growing trend.

The development of such STC as well as the purchase of the equipment, its installation, certification and crew training have been funded by GSA through a Competitive Call for Grants launched in 2014.

“Air Baltic has upgraded 8 units out of 12 in fleet while the remaining 4 will be upgraded during the next maintenance scheduled in winter 2018”

“Guidelines on the Retransmission of SBAS Corrections Using MF RB and AIS” published by IALA



The IALA Council met for its 65th session at IALA Headquarters from 12 to 15 December 2017

Global Navigation Satellite Systems have become the primary means of obtaining Position, Navigation and Timing (PNT) information at sea, however, augmentation is required to ensure that the necessary level of integrity is achieved and accuracies improved, over the use of GNSS alone. While ground based augmentation systems, such as marine radio beacon DGNSS, have been in use for a long time, Satellite Based Augmentation Systems (SBAS) use in maritime has been explored during the last years.

Under the key leadership of GSA and ESSP, important studies have been carried out within IALA to lay out the basis for the use of SBAS in maritime navigation. To accomplish this objective, the ENAV Committee PNT WG worked on a document setting out guidance for marine Aids to Navigation (AtoN) service providers. This guidance material lays out where SBAS information could be used to support the mariner and then how to employ such data. The main purpose of the document is to describe the SBAS use within

augmentation services through marine radio beacon and AIS transmissions.

Since the work on the draft document started back in 2014 during IALA ENAV15 Committee, a lot of work has been carried out within the IALA ENAV PNT Working Group (WG5) on the SBAS Guidelines. Even intersessional meetings were held to move forward, ending up with a closed version of the document which was submitted to the Council for approval after the ENAV21 Committee, in September 2017.

The work done the past years has been rewarded with the IALA approval and acceptance by the IALA Council in its 65th session of these Guidelines under the reference: “IALA G1129 – The Retransmission of SBAS Corrections Using MF RB and AIS” and available [here](#).

Moreover, the work on SBAS within IALA will continue the next quadrennial working period, and several action items and tasks on augmentation systems are expected to be included in the next working plan (2018-2022).

Talking about EGNOS with... Finnair

Founded over 90 years ago as Finland's flag carrier, Finnair has conducted during the last years a significant restructuring program which has served the company to return to profit and start a massive recruitment program, among others. Today's Finnair fleet consists of over 60 aircraft, including eleven new Airbus A350 XWBs, the first of which was received in 2015. In this issue of the EGNOS Bulletin, we interview Finnair's Airbus Chief Pilot, Captain Marko Valtonen

When did you first hear about EGNOS and LPVs?

I can't remember an exact date, but we have definitely paid more attention to these terms while preparing our A350 pilots' training programme, including exchanges with Airbus on the SLS function operation. Additionally, the terms became relevant during discussions with ESSP about our interest to see new LPVs deployed in Finnish airports.

As Fleet Chief Pilot, could you please let us know which are your roles within Finnair?

I am the Chief Pilot of A330 and A350 flight operations. Among many other things, I am responsible for the preparation and modification of the fleets' Operational Manuals (OMs) and Standard Operating Procedures (SOPs).

How many A350's do you currently operate, and how many do you plan to operate once all the orders are delivered?

We already operate 11 A350s. The next delivery will take place in December 2018. Our current plan foresees operating a fleet of 19 A350 aircraft.

The SLS option (SBAS Landing System, acronym selected by Airbus "for the A/C function supporting SBAS applications (LPV or LP)") on the Airbus A350's is purchased as an option. What was the reason behind Finnair's decision to go for it?

I was not involved in the decision when the orders took place some years ago...but now I can say that selecting the SLS option was the right decision, since we expect the A350's to remain in Finnair's fleet for quite a long time.

The combined SLS/GLS capability guarantees that the aircraft will be able to cope with the requirements associated with the future ATM environment.



Credits: Airbus. Photo by master films / F. Lancelot

In which airports do you expect the SLS to be more beneficial? Why?

Our main base is Helsinki and for that reason we would appreciate having LPVs there. Behind this, we would prioritise London Heathrow, as we are flying there too. On the other hand, our American destinations (New York JFK, Chicago O'Hare and San Francisco) already have LPV procedures in

place, in this case based on WAAS. As for the reasons we would appreciate LPVs in our current destinations, in today's scenario we consider LPV as the perfect back-up for ILS Cat II and III approaches. In tomorrow's scenario, and probably for other airlines already today, LPVs would be beneficial when landing at non-ILS runways.

According to our knowledge, Finnair flight crews have been, or are being trained, to make use of the SLS functionality? Have you received any feedback from the crews in relation with this functionality?

Our crews started the SLS/GLS training in July 2017 and it has gone very well. All our A350-only pilots have already passed their theoretical and practical training. Those A350 pilots who are flying SFF¹ (Single Fleet Flying) and operating A330 aircraft too, will receive their training soon too. We expect to complete all training by the end of June 2018.

How much and what type of training did the crews receive?

both the SLS/GLS syllabus and practical training have already been implemented in the type rating course of all new A350 pilots, including CTR²

(Common Type Rating) and CCQ³ (Cross-Crew Qualification) course.

The practical training in the simulator takes, together with the briefing, around 90 minutes, and it includes executing 4 SLS/GLS approaches. In some of these, contingency procedures are also put into practice, and we check how crews will judge the situations and apply the corresponding action, like executing go arounds, etc.

Has the Finnish Aviation Authority approved your crew training and amended operation manuals to be able to fly LPVs? If not, when do you expect to receive such approval?

The training is in place and therefore approved by our authority. The amendments to the Operational Manuals are still on-going. We expect to have them ready by the time all pilots will be trained, which shall occur by mid-2018.

Finally, as you certainly have SBAS sensors on-board...do your aircraft also include ADS-B Out capability?

Yes, ADS-B Out is a function we have in the A350's. Again, this feature allows us to cope with the ADS-B Out mandates emerging around the globe.

¹ Fly both aircraft under a single license endorsement

² Again, one license for A330 and A350

³ Abbreviated type rating course where only differences with respect to "base aircraft" are taught

Did you know...?

... that since December 7th 2017, EGNOS-based geometric altitude, instead of barometric altimetry, can be used to compute the vertical guidance of all LNAV/VNAV approaches published in Finland? Hence 33 new operations distributed at 17 airports have been recently added to the [EGNOS-based operations map](#).

This expands the network of European aerodromes where operators can now land thanks to EGNOS. Actually, users equipped with an approved SBAS receiver can get rid of the temperature limits promulgated on the chart for the LNAV/VNAV line of minima. More information can be found in [Finland AIC A 16 / 2017](#).

3rd Call for Grants “EGNOS Adoption in Aviation”

The GNSS Agency (GSA) has launched the 3rd Call for Grants “EGNOS Adoption in Aviation” on the 12th of February to foster the use of EGNOS. It is mainly addressed to users to equip their aircraft/rotorcraft fleet with GPS/SBAS enabled avionics and to Air Navigation Service Providers and airports/heliports to publish RNP APCH down to LPV, including approaches benefitting from the LPV200 capacity, PinS LPV procedures and low level IFR routes in Europe.

It is also considered pilot cases on advanced navigation operations benefitting from EGNOS and activities promoting the use of EGNOS for other communication and surveillance applications in all phases of flight. OEMs interested in benefitting from EGNOS are also encouraged to apply to the call.

Funding rate will be maximum of 60% (+7% of indirect costs) and applications seeking LPV (or LPV+ADS-B Out) will be fully aligned with the objectives of this call.

This time **€10M** are available. The previous two calls in 2014 and 2015 funded more than 25 projects and reached very positive results: more than 100



EGNOS based approach procedures, more than 15 operators equipped to fly LPV, new STC (5), EGNOS enabled simulator (6).

Potential applicants can address questions related to the content of this call by e-mail to gnss.grants@gsa.europa.eu.

More information at <https://www.gsa.europa.eu/egnos-adoption-aviation-0>.

Please, be aware that **deadline is 21st May**. Don't miss this opportunity!

Did you know...?

... that the 2017 CEF Transport SESAR Call For Proposals was published on 6 October 2017, making €290 million of EU funding available for projects of common interest in the transport sector in all EU Members States. It is an opportunity for funding certain EGNOS Adoption activities such as the implementation of RNP APCH instrument approach procedures down to LPV minima or LPV and ADS-B Out aircraft retrofits.

Land-based equipment may be funded up to 50% of the eligible costs (grant ceiling: €25,000 per approach) and on-board components are limited to 20% of the eligible costs. The deadline for submission is 12 April 2018. Further information can be found in their [website](#).

Talking about EGNOS with... Machinery Guide

Zoltan Bertok is the executive director of Affield Ltd, a hardware and software developer company that deals with agricultural applications. In 2014, they came out with their MachineryGuide guidance application for Android. Their goal is to help simplify and modernize the work of small and middle sized farms with the opportunity of precision agriculture. In the past three years, they set up an international reseller network, and the development of new projects is continuous

Which are the main benefits for farmers when using GNSS guided machinery?

There are quite a few agricultural activities performed by machines utilizing wide equipment, for example fertilizing or spraying systems.

The width of an average sprayer machine is around 15-30 metres. With these significant sizes, farmers cannot simply turn around at the end of a row and continue on the very next row. As a consequence, it is difficult to check which row was cultivated. This results in overlaps or omitted rows.

Tracking helps farmers' work efficiently, because the expenses of fuel, machines, fertilizers and pesticides can be significantly reduced.

GNSS guided systems offer a solution for the issue of omissions and overlaps, therefore making it possible to farmers to using less energy and emitting less pollution while working on the fields.

Which are the main benefits that EGNOS offers to companies providing products like yours?

Following our experiences, the EGNOS service is highly available and accurate, which serves as a base of our systems. It fits perfectly in our initial concept, which aids to help farmers who previously had no opportunity to invest in precision agricultural devices due to the size of their fields.

What type of crops and soils do those farmers work with when using EGNOS?

Since we sell our products worldwide, we can state that our products are used at almost all of the main types of crops, mainly cereals. The type of soil also varies by countries.

However, we can divide our users into two large groups. The first one uses it only for the most necessary applications, such as spraying or fertilizing. The second group however, utilizes it for all applications, mostly not for navigation, but as an equipment for area measuring, for recording the work area.



Credits: Machinery Guide

What would you say for those considering the possibility of using EGNOS?

"It's there. Use it."

How did you get to know EGNOS for the first time?

We started the development of our MachineryGuide guidance software in 2013. Initially, we only planned developing and selling software. However, we had to consider early that no cost-effective and accurate enough GPS/GNSS devices were available on the market which we could supply with our software.

For this reason, we started to develop our own hardware in 2014. After long research in technical literature, we came across with the possibility of the free SBAS service, and its European implementation, EGNOS.

A rough estimation for the number of users currently using your EGNOS capable equipment?

We sell our products on the international market. Around 500 of our customers use the EGNOS service.

Fasten your seat belts, The new EGNOS User Support Website is here!

The image shows a screenshot of the EGNOS User Support Website. At the top, there is a navigation bar with the following menu items: EUROPEAN GNSS, EGNOS SYSTEM, SERVICES, NEWS & EVENTS, DOCUMENTS, and RESOURCES & TOOLS. Below the navigation bar is the EGNOS User Support logo on the left, the text "Find the support you need!" in the center, and a grid of icons representing different market segments (Tractor, Smartphone, Drone, Road, Ship, Construction, Train) on the right. A hand cursor is pointing at the "ROAD" icon.

MEET THE BRAND NEW EGNOS USER SUPPORT WEBSITE
Is here!

Redistributed Navigation panel
Relevant information per market segment at a glance

New Library
Filter by document type, market segment and more

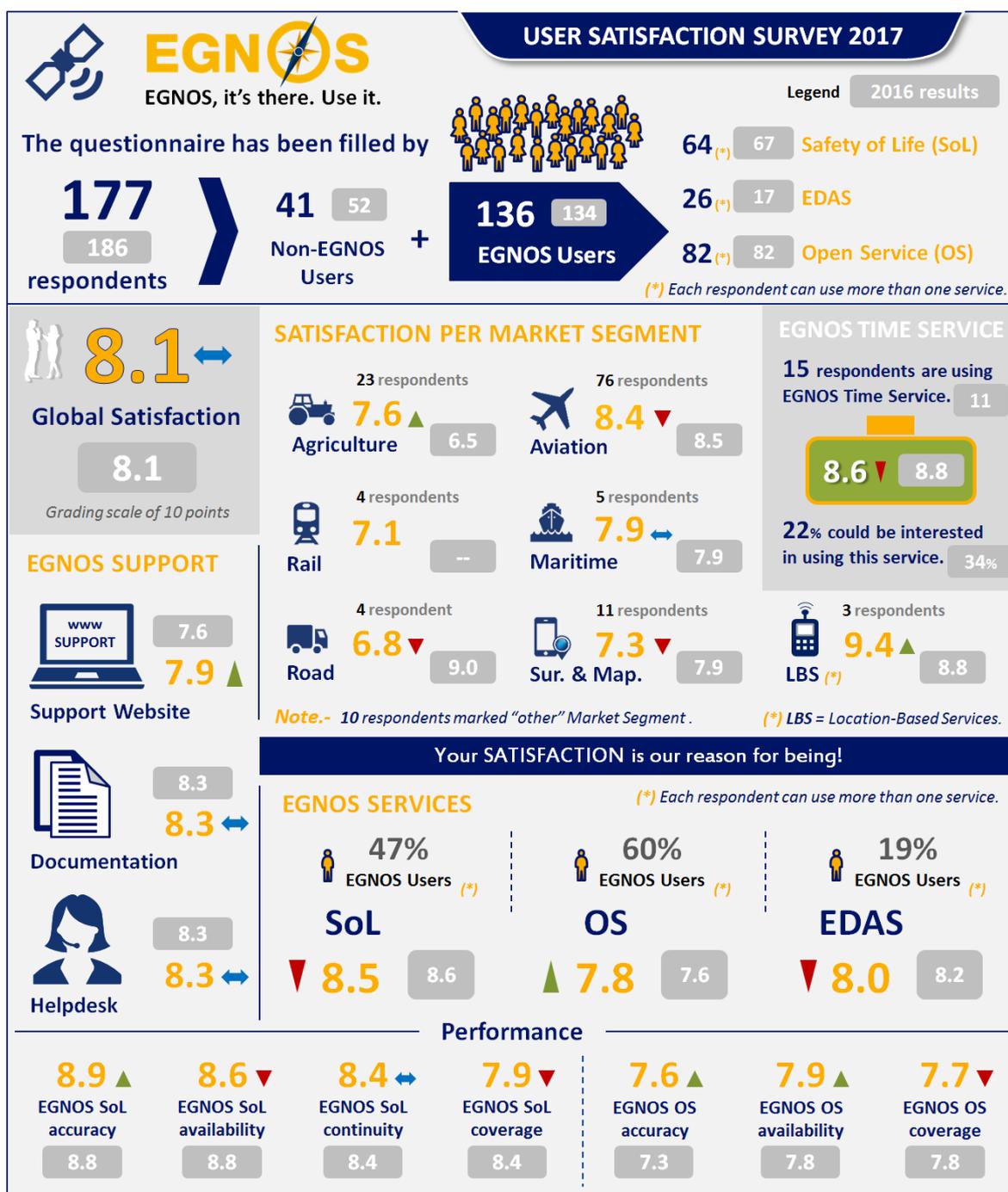
Easy access EGNOS Helpdesk
New floating icon available on every page

Restyled Look & feel

Handy Dashboard

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

EGNOS services highlights



What's new?

Since last bulletin...

EGNOS WORKING AGREEMENTS SIGNED (EWA)

The following EWAs have been signed in the last quarter:



Aircraft Industries, a.s.

Czech Republic



FerroNATS

Spain



HCAA

Greece

LPV & APV Baro procedures published per country (including AIRAC cycle 2018 #02 – 01/02/2018)

Next table shows, for each country:

- the number of airports with LPV procedures, as well as the total number of LPV procedures;
- the number of airports with APV Baro procedures authorised to be flown with EGNOS vertical guidance as well as the total number of APV Baro procedures.

Country	Airports – SBAS APV procedures	# SBAS APV Procedures	Airports – SBAS CAT-I procedures	# SBAS CAT-I procedures	SBAS RNP0.3 routes	Airports – APV baro Procedures	# APV baro Procedures
Austria	2	2	3	5	0	0	0
Belgium	5	9	0	0	0	0	0
Croatia	1	1	0	0	0	0	0
Czech Republic	5	9	0	0	0	1	4
Denmark	4	8	1	2	0	0	0
Estonia	1	2	0	0	0	0	0
Finland	1	2	0	0	0	17	33
France	71	106	42	57	0	4	5
Germany	22	35	5	8	0	22	60
Guernsey	1	2	0	0	0	0	0
Hungary	0	0	1	4	0	0	0
Ireland	1	1	0	0	0	0	0
Italy	10	20	0	0	0	0	0
Netherlands	2	3	0	0	0	0	0
Norway	16	24	9	19	0	5	10
Poland	5	9	0	0	0	0	0
Portugal	2	3	0	0	0	0	0
Romania	1	2	0	0	0	0	0
Slovak Republic	2	4	2	2	0	0	0
Spain	3	6	0	0	0	0	0
Sweden	4	6	0	0	0	0	0
Switzerland	8	10	2	2	5	0	0
United Kingdom	14	31	0	0	0	0	0
Total	181	295	65	99	5	49	112

SBAS in the world

All SBAS providers and entities related with the SBAS world met at the Interoperability Working Group, meeting number #33 that took place in Madrid from 17th to 19th January. Participants presented the latest information about their programs without forgetting new progress on DFMC standards, trials and R&D projects. It was agreed to create the "Operational Sub-group (OSG)" devoted to share experiences, operational issues, success stories etc.



WAAS-based LPVs... in French AIP

From March 3rd 2018, two LPV approach procedures serving runways 08 and 26 will be operational at French Saint Pierre Airport (LFVP). The novelty of these manoeuvres relies on the fact that they make use of WAAS, the American SBAS.

It is the first time that a European State makes use of an SBAS different than EGNOS to publish such kind of manoeuvres. The reason behind is that the Overseas Collectivity of Saint Pierre and Miquelon is located in the northwestern Atlantic Ocean, just 25 kilometres from Canadian territory. DSN was required by the surveillance authority in charge of French overseas airspaces (French DSAC) to build an agreement with FAA supporting exchange of information on WAAS.

The availability of these new CAT-I approaches, achieving 200ft DH in the case of RWY26, will highly benefit operators like Air Saint-Pierre, a French regional airline serving Saint-Pierre and Miquelon-Langlade islands and Canada, who recently provisioned for the LPV upgrade of one aircraft.

WAAS

The table below shows the WAAS list of satellite-based approach procedures. You can find further information on [SatNav news](#).

Courtesy of the FAA WAAS Team.

Satellite-based Approach Procedures			
	Procedures (Part 139 Airports)	Procedures (Non-Part 139 Airports)	Total Number of Procedures
<i>RNAV (GPS) Approach</i>			
LNAV Line of Minima	1,775	4,332	6,107
<i>RNAV (GPS) Approach</i>			
LNAV/VNAV Line of Minima	1,401	2,198	3,599
<i>RNAV (GPS) Approach</i>			
LPV Line of Minima	1,403	2,319	3,722
<i>Non-ILS runway</i>	51	1,724	1,775
<i>ILS runway</i>	1,352	595	1,947
<i>RNAV (GPS) Approach</i>			
LPVs w/200' HAT			949
<i>RNAV (GPS) Approach</i>			
LP Line of Minima	88	533	621
<i>GPS Approach</i>			
GPS Stand-Alone Procedures	8	78	86
<i>GLS Approach</i>			
	11	0	11

(Data as of September 15, 2016)

What's going on...



HELITECH AND MRO 2017

The most prominent sectorial meetings for the European helicopters and MRO (Maintenance, Repair and Overhaul) industries took place during the 3th - 5th of October 2017 in London. Helitech's EGNOS stand raised a significant interest among avionics manufacturers and Part-21 (aka STC houses) organisations, in need of responding to an increasing demand from operators who wish to fit EGNOS-capable equipment in their helicopters.



ERA GENERAL ASSEMBLY 2017

Greece's capital city Athens was the perfect setting for the ERA General Assembly. More than 400 European aviation leaders and key industry figures from ERA member companies attended the event over the three days, 17-19 October 2017, and connected with colleagues from across the industry.

The event constitutes the main European congress on regional aviation and EGNOS offered again a stand where visitors were instructed in a simulator about the benefits of EGNOS for Civil Aviation. Attendees to the ERA Operations Group meeting, taking place in parallel to the event, were briefed by GSA and ESSP on current European funding programmes and latest updates on LPV retrofitting solutions for their fleets of regional jets and turboprops.



What's going on...



in GNSS.

ION 2017

The ION GNSS 2017 conference took place on 27-29 September, at the Oregon Convention Center in Portland. ION GNSS is a technical meeting and showcase of GNSS technology, products and services. This conference gathered together international leaders in GNSS and related positioning, navigation and timing fields to present new research, introduce new technologies, discuss current policy, demonstrate products and exchange ideas.

This edition was marked by the potential adoption of new GNSS techniques in Android devices (considering that the Android N operating system provides raw GNSS measurements) and the plans for several PPP services worldwide to enable positioning at decimetre level accuracy.

ESSP presented two papers targeting different market segments: maritime and agriculture. The first one showed the EGNOS Maritime Performance considering a SBAS Service based in



IMO Res. A.1046(2) and the second one presented some in-filed test results using EDAS DGNSS corrections using Topcon precision agriculture products.

ECALL SYSTEM BECOMES MANDATORY

European cars will automatically call emergency services after a crash. The system that enables this, known as 112 eCall, automatically dials Europe's single emergency number 112 in the event of a serious road accident and communicates the vehicle's location to the emergency services. As a result, 112 eCall can speed up emergency response times and can reduce the number of fatalities and severe injuries. European Commission Delegated Regulation 2017/79 lays down a mandate for new models of passenger cars and light duty vehicles that will be commercialised in Europe to be equipped with 112-based eCall in-vehicle systems as of 31st of March 2018. This Regulation establishes that to ensure the provision of accurate and reliable position information, the 112-based eCall in-vehicle system should be able to use the positioning services provided by the Galileo and the EGNOS systems.



In view of the approaching applicability of this Regulation, the GSA launched on March 2017 an eCall testing campaign, inviting all interested eCall device manufacturers to have their EGNOS and Galileo enabled eCall products tested. In this regard, the GSA and the JRC have recently published a joint report containing guidance material to facilitate the implementation of eCall testing in compliance with the EU Regulation 2017/79 by technical centres in charge of issuing the EC type-approval for eCall On-Board Units. If you want to know more, visit the [GSA news](#).

What's going on...



in maritime.

EGNOS AT THE 30TH METS ANNIVERSARY

METSTRADE Show, the top business show in leisure marine equipment, focused on innovation, market developments, and on-site networking. As every year, November in Amsterdam was the backdrop for this trade fair, however, not less than 68% of the marine industry professionals present at the show came from outside the Netherlands, which gives it a pronounced international character. This year, the show commemorated its 30th anniversary with 116 different nationalities represented, 16.307 visitors and 1.552 exhibitors: the highest numbers to date. These figures and facts make this event the perfect place for networking; to promote EGNOS and to be updated on new product launches. EGNOS was located



at Hall 1, surrounded by the most representative manufacturers of navigation equipment and AIS devices.



in rail.

INNORAIL 2017

From 10 to 12 October 2017, Budapest welcomed around 300 international participants at Innorail; the International Conference on the Single European Railway Area. During these three days, a total of 61 presentations were given, one of them showing the potential of EGNOS in railway positioning. This conference was a great opportunity to raise awareness on EGNOS in East Europe where it is probably less known within the rail community. EGNOS can play a major role in the rail segment, not only in non-safety of life applications, such as fleet management, but also in regards to control, command and signalling, requiring the highest needs in terms of safety. EGNOS can contribute to increase reliability and reduce cost of the ERTMS deployment and maintenance. In support of these messages, the presentation titled "EGNOS, a key enabler in future railway



positioning" provided an overview of the most representative and innovative European projects carried out in order to explore the use of EGNOS in the railway segment. Virtual balise concept, the application of E-GNSS in low density lines and the E-GNSS roadmap for rail signalling were some of the topics addressed.

For more information on this event, click [here](#).



in agriculture.

AGROSHOW 2017

Agro Show is one of the largest international agricultural exhibitions in Europe accounting with over 800 exhibitors and 150,000 visitors.

It is not only a great place to do business between different companies but a huge showcase for the general public and that is why every key stakeholder of the industry is present year after year. Visitors had the chance to see a wide catalogue of products, talk about them with experts and see live demonstrations.

In this edition, hundreds of visitors stopped by at the European Commission's stand, where EGNOS and many other topics where the European Commission is involved were presented.



European Commission's stand

AGRITECHNICA 2017

AGRITECHNICA has again impressively confirmed its status as the world's leading trade fair for agricultural machinery and equipment and concluded with a record result: more than 450.000 visitors from 128 countries flocked to the Hanover Fairground during the seven days of the fair. The attendants profited from the attractive offerings of the 2,803 exhibitors from 53 countries, the many innovations and the technical programme with its forums, expert talks, panel discussions and conferences.

The innovation leadership in agriculture was also recognised to specific products through the AGRITECHNICA Innovation Awards, which were determined by an independent committee of experts appointed by the DLG (German Agricultural Society). Several of this year's silver medals were awarded to solutions based on GNSS, confirming the relevance of satellite navigation in precision farming. In this context, EGNOS plays an important role, as the free European GPS augmentation service.

In this edition of AGRITECHNICA, EGNOS continued attracting the interest of multiple visitors who came to the GSA's stand looking for the latest of the European GNSS programme.



EGNOS and Galileo stand

EGNOS capabilities and performance were therefore discussed with different types of actors, including students, farmers, entrepreneurs, machinery manufacturers, SW developers and producers of GNSS equipment. In this way, current EGNOS users were personally assisted with their specific inquiries, while potential ones were informed in detail on the benefits of EGNOS for farming activities.

What's going on... in agriculture.



MARS 23 CONFERENCE 2017

On the 27th November 2017, it took place the **23rd MARS Conference**, a platform with the purpose of presenting Member State experiences on the CAP administration.

The new paradigm change from inspection (today) to monitoring (future) thanks to the technologies deployed in Europe - Copernicus in particular - was presented.

Synergies between EGNSS and Copernicus were highlighted.



in surveying.

INTERGEO 2017

Intergo is one of the largest and most important international exhibitions in Europe where thousands of persons from different industries go to find the most innovative solutions for surveying and geodesy.

EGNOS shared the stand with Galileo and Copernicus to create a space where visitors had the chance to learn about the three most important European space programs, the synergies between all of them and how to take advantage of all these innovations.



Did you know...?

... that on 15-16 November 2017, the European Union Agency for Railways held the Control Command and Railway Communication Conference 2017. Latest news on Shift2Rail were presented, since this is the key program for evolution of ERTMS, where the R&D activities related to the introduction of GNSS in European signalling are to be tackled.

Upcoming Events

Munich Satellite Navigation Summit

5 - 7
March

One more year **Munich Satellite Navigation Summit**, taking place on March 5– 7, 2018 will gather experts from all over the world and positioning industries to talk about satellite navigation now and in the future. EGNOS will be present in Session 1., Day 2



World ATM Congress

6 - 8
March

A new edition of the World ATM Congress, the most important Air Navigation Services Providers (ANSPs) congress in the world, will be held again in Madrid between 6th and 8th March 2016.

Operated by CANSO BV in association with the Air Traffic Control Association (ATCA), the event provides an excellent opportunity for worldwide ANSPs and the ATM Industry to meet. Visitors will have the chance to walk the exhibition and enjoy a large number of free conferences.

EGNOS will be present at Stand 1261



**World ATM
Congress 2018**

6-8 March 2018

SmartRail

17 - 19
April

Focusing on the latest innovations across rail IT, Big Data, assets, signalling, telecoms and passenger systems, SmartRail conference brings an excellent opportunity to gain a comprehensive overview of the trends and new developments in railway business.

The 2018 congress will bring together railway infrastructure managers, train operating companies, system and data integrators and technology suppliers to create the digital railway of the future. This event will focus on digitalisation across the operation and maintenance of infrastructure and rolling stock for both passenger and freight trains.

Do not miss the session on Wednesday 18th April devoted to "Signalling from space: towards rail safety relevant applications with EGNOS and Galileo".



Upcoming Events

Aero Friedrichshafen

**18 - 21
April**

The entire spectrum of general aviation will be present in the upcoming Aero Friedrichshafen 2016, taking place next April 20-23, Europe's largest General Aviation show. It represents a great opportunity to learn about the latest products from general and business aircraft manufactures', while getting in touch with various associations such as national AOPAs, PPL/IR, flight schools or airport owners. EGNOS will be present at Hall A4 Stand 114 (TBC)



19TH IALA Conference 2018S+

**27 May -
2 June**

Every four years, IALA holds a general Aids to Navigation Conference. 2018 is Korea's time to hold the congress under the topic: Successful voyages, Sustainable planet - A New Era for Marine Aids to Navigation in a Connected World. IALA General Assembly will also take place in conjunction with the Conference. Papers, presentations and discussions will address a wide range of Marine Aids to Navigation issues. The work of IALA over the previous four years will be also presented, including the Guidelines on The Retransmission of SBAS Corrections Using MF RB and AIS, recently approved and published by IALA.





EGNOS, it's there. Use it.

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

Information on historical and real-time EGNOS performance. EGNOS Signal in Space (SIS) status. Forecast on SIS availability and EGNOS performance. EDAS information and registration. EGNOS adoption material and tools.

<http://egnos-portal.gsa.europa.eu>

EGNOS applications. Developers platform. Business support.

For questions & information

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