

EGNOS Status

Combined ICAO EUR PBN TF and
Eurocontrol RAiSG #1

ICAO EURNAT

11-13 Sept 2013 Paris



The **EGNOS** Service Provider

Agenda

- *EGNOS Service Provision Contract 2014-2021*
- *EGNOS Performance Status (2.3.1, 2.3.2, SDD)*
- *SDCM – EGNOS coordination*
- *EGNOS SoL User Consultation Process 2012*
- *LPV Implementation Status*
- *EGNOS NOTAMs update*
- *SHERPA User Forum*

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EGNOS Service Provision Contract 2014-2021

- **ESSP has been awarded with the EGNOS Service Provision (ESP) contract 2014-2021** as a result of the open Tender GSA/NP/09/12
- **ESSP will ensure a seamless transition between contracts** and will improve its efforts in the EGNOS services provision to EU citizens
- **GSA will manage the ESP contract:** GSA Director Carlo des Dorides and ESSP President Dirk Werquin signed the 8-year past June 26th

EGNOS Service Provision Contract 2014-2021

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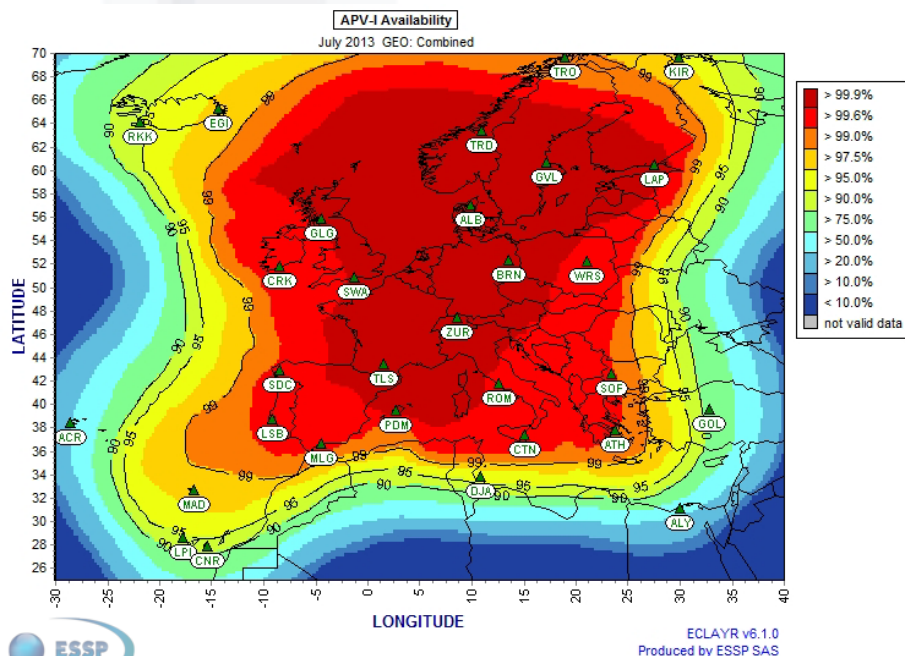
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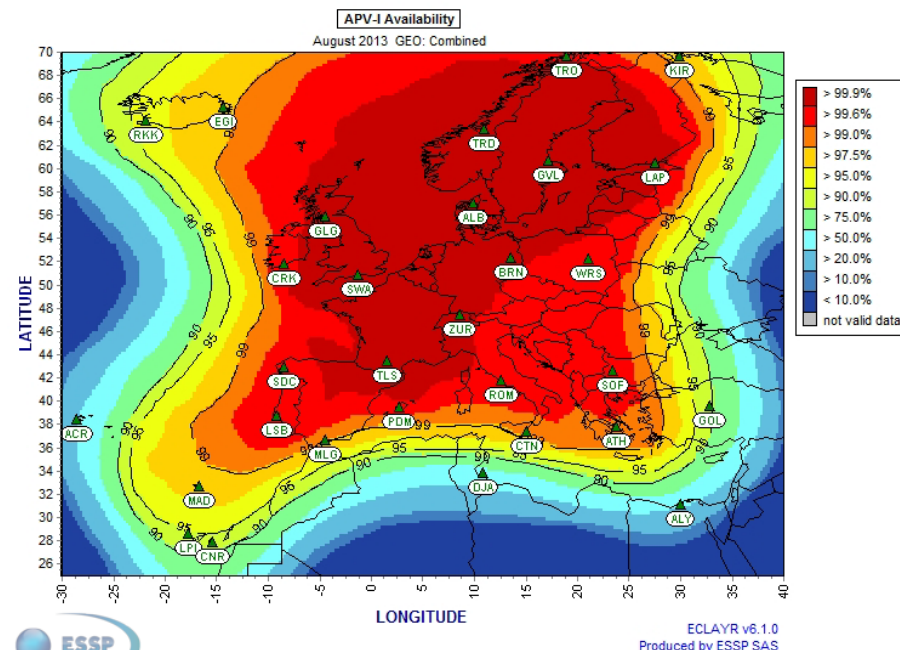
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EGNOS SoL Service availability (ESR v2.3.1i)

Actual performance obtained in nominal conditions...



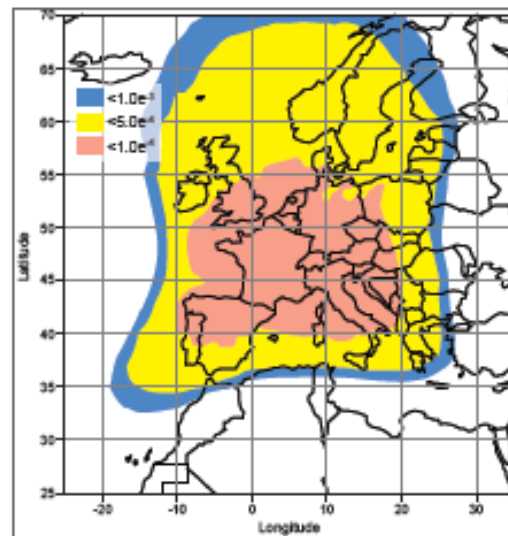
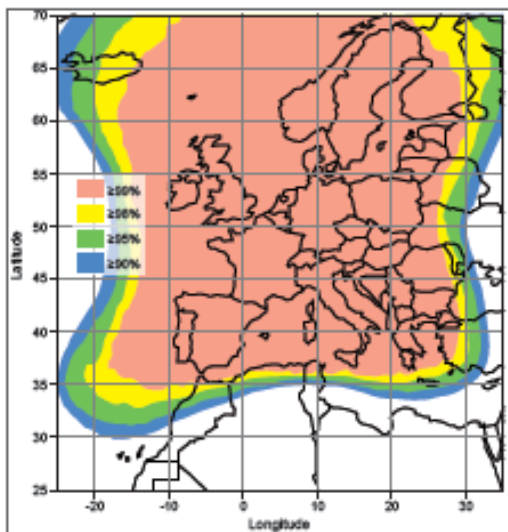
July 2013



August 2013

New EGNOS SoL Service Def Document

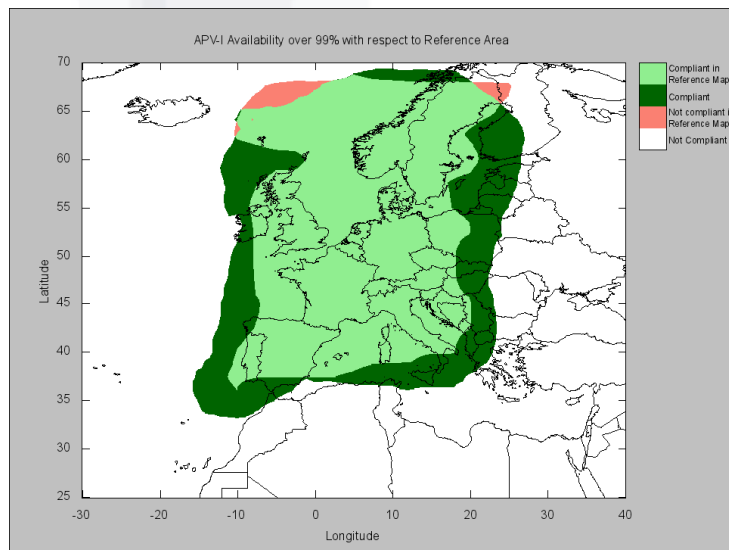
- The EC published the new EGNOS SoL SDD last 28/06/2013 based on ESR v2.3.1



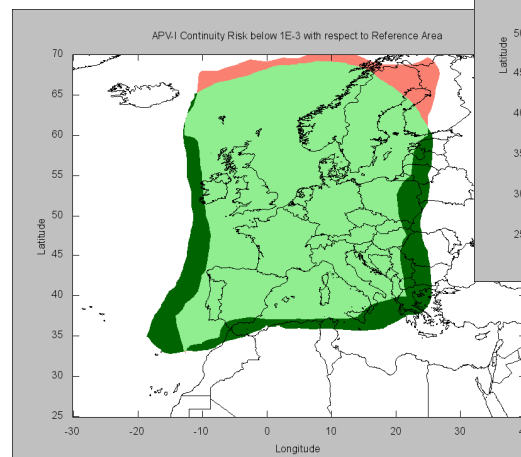
- ESSP has consolidated a methodology with EASA reflected in this new SDD to use real data to ensure the SDD performance commitment is closer to the actual system capabilities and performance
- Future EGNOS SoL SDDs publication target: 6 months after deployment

New EGNOS SoL Service Def Document

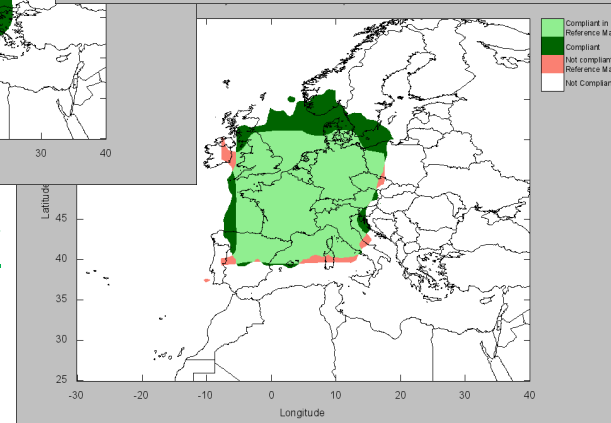
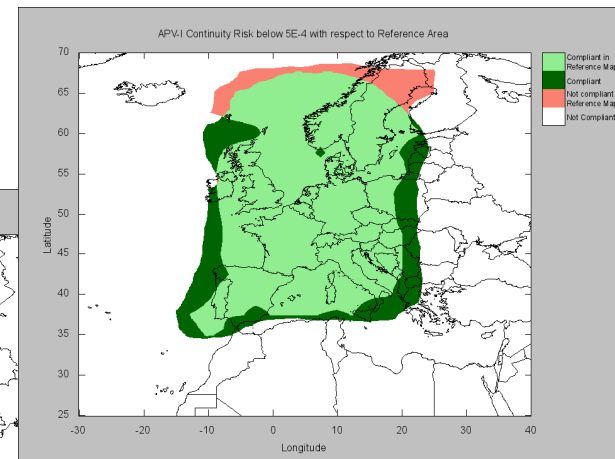
- Performance improvement wrt previous SDD



APV-1 Availability



APV-1 Continuity



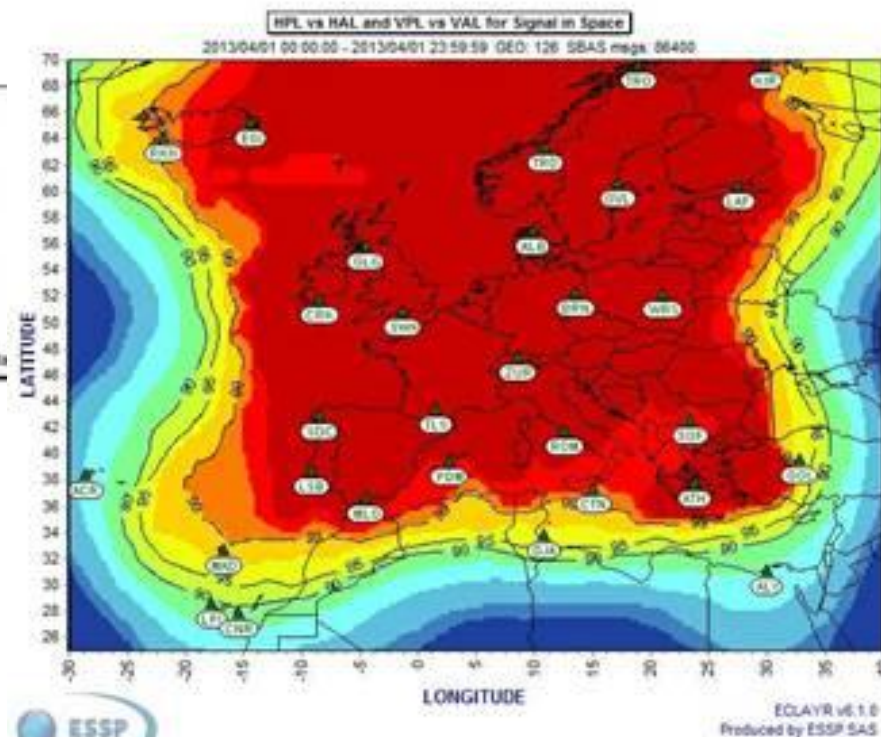
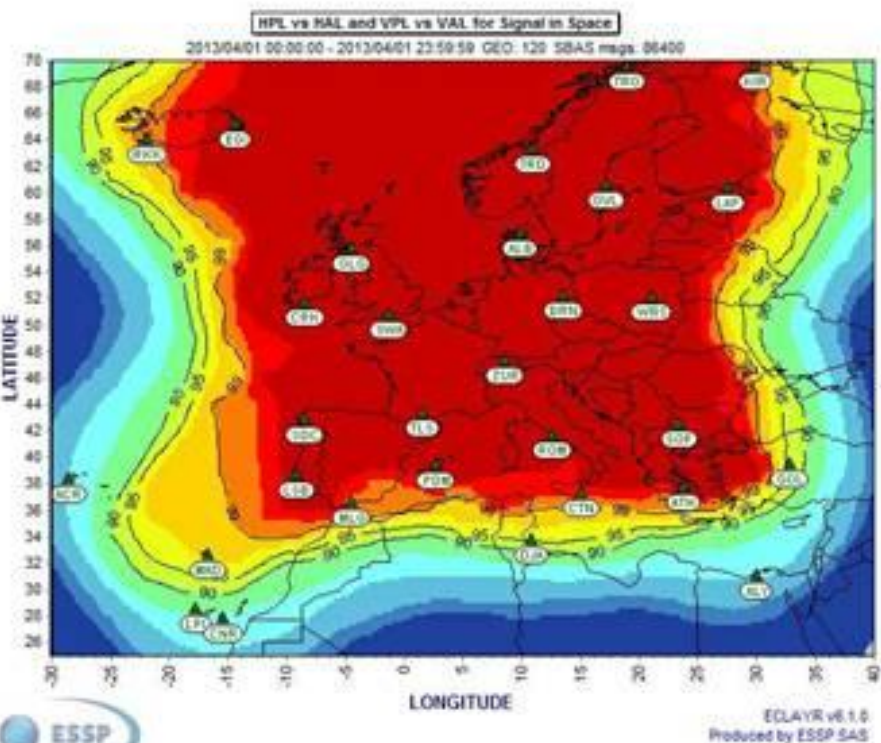
EGNOS v2.3.2 deployment

- **Main improvements included in v2.3.2**
 - 2 new RIMS: Agadir & Abu Simbel
 - Improved Iono monitoring capabilities
 - EGNOS wide area network (EWAN) improved robustness
 - Performance improvements: NW and SW APV-I availability & continuity minor improvements (no relevant coverage improvements)
- **Deployment timeline:** October 2013

EGNOS v2.3.2 availability

01/04/2013 PRN 120 (2.3.1i)

01/04/2013 PRN 126 (2.3.2)



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SDCM – EGNOS coordination

- **SDCM 2 first GEOS:**
 - **Luch-5A:** Launched on the 11/11/11
 - **Luch-5B:** Launched on the 02/11/12, positioned 0.5° away from the Inmarsat 3F2 EGNOS GEO satellite (PRN120)
 - **Risk of interference (no safety impact)**
- **EGNOS SoL Service availability** ensured by the 2nd EGNOS GEO (PRN 126)
- **EGNOS users informed** through the EWA interfaces
- **ESSP, ESA and the EC in close coordination with the Russian Space Agency** (situation monitored and specific tests being performed) → SN to be published if relevant impact detected.

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Introduction (I)

The **Customer Satisfaction Process** has been defined to cover **all ESSP customers** on a yearly basis:

- European Commission (ESP contract)
 - EGNOS SoL Users
 - EGNOS OS Users
 - EDAS Users
 - GSA or others (specific projects/contracts)
- **How** do we **assess** the level of **satisfaction** of this **heterogeneous** group of **Users and Customers**?

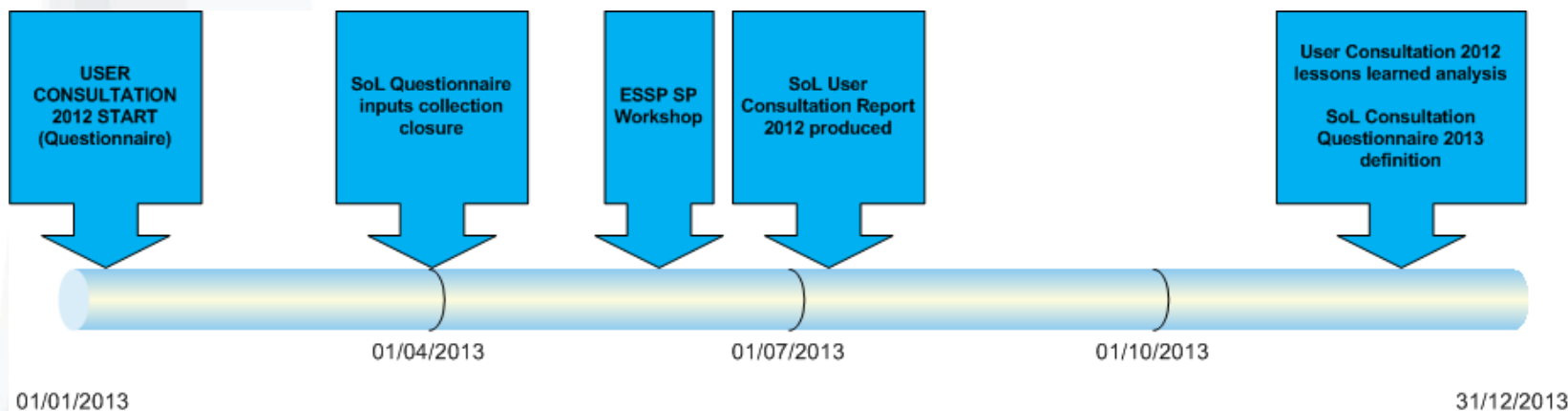
SES Regulation
“User Consultation Process”

SPECIFIC CUSTOMER/USER ORIENTED SATISFACTION SURVEYS

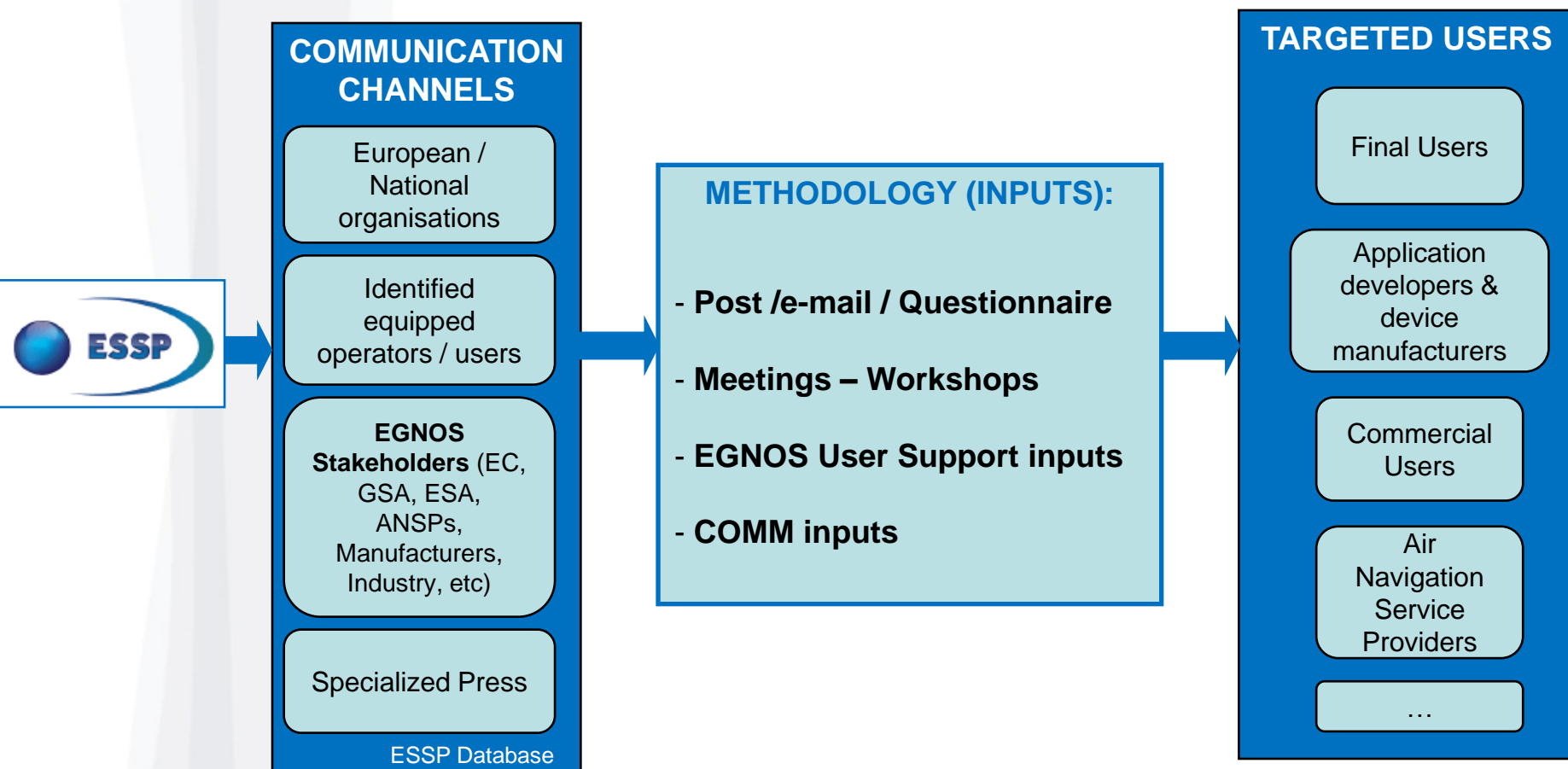
Introduction (II)

Customer Satisfaction Process:

- To identify **improvement areas for ESSP and EGNOS services.**
- To comply with the **applicable regulation/quality requirements**
- Covering each **calendar year**
- Input to the company **Annual Report**



EGNOS SoL Users Consultation Process



SPECIFIC TAILORING PER TARGET SERVICE AND YEAR

EGNOS SoL Users Consultation Process 2012

- Includes **EGNOS SoL User's feedback** from:
 - EGNOS Helpdesk
 - EGNOS Service Provision Workshop 2012
 - Relevant aviation fora/working groups/events
 - **EGNOS SoL Questionnaire** launched in **December 2012**:
 - **9 questions** available online covering:
 - ✓ EGNOS SoL service SDD, performance and coverage
 - ✓ General ESSP performance
 - ✓ ESSP performance with respect to EWA commitments
 - **380 SoL users** contacted (**102 answers** received):
 - ✓ ANSPs
 - ✓ Supervisory authorities
 - ✓ Airlines/operators
 - ✓ Airports
 - ✓ Pilots

EGNOS SoL Users Consultation Process 2012

Recommendations

Increase ESSP presence/support to multimodal domains to provide the required support and increase EGNOS awareness

Increase ESSP support/link with EGNOS SoL Service final users: More efforts seem to be needed towards these communities to succeed in a wide-scale LPV implementation.

EGNOS Helpdesk and User Support features improvements: To improve structure and provide additional contents. Further awareness with respect to the EGNOS Helpdesk.

EGNOS SoL SDD required improvements: To increase its usefulness and simplicity. Moreover its update cycle should be reduced significantly.

Improve ESSP support to ANSPs in EGNOS based operations implementation: Need for support and guidance to boost EGNOS based operations implementation

More effort on guidelines / awareness material generation and dissemination: To improve ESSP support/link with general and business aviation communities. Simple and clear service/system roadmaps are also required.

Improve EGNOS APV-I continuity and availability: especially in the South and Southwest of Europe and, more generally, in the borders of the service area.

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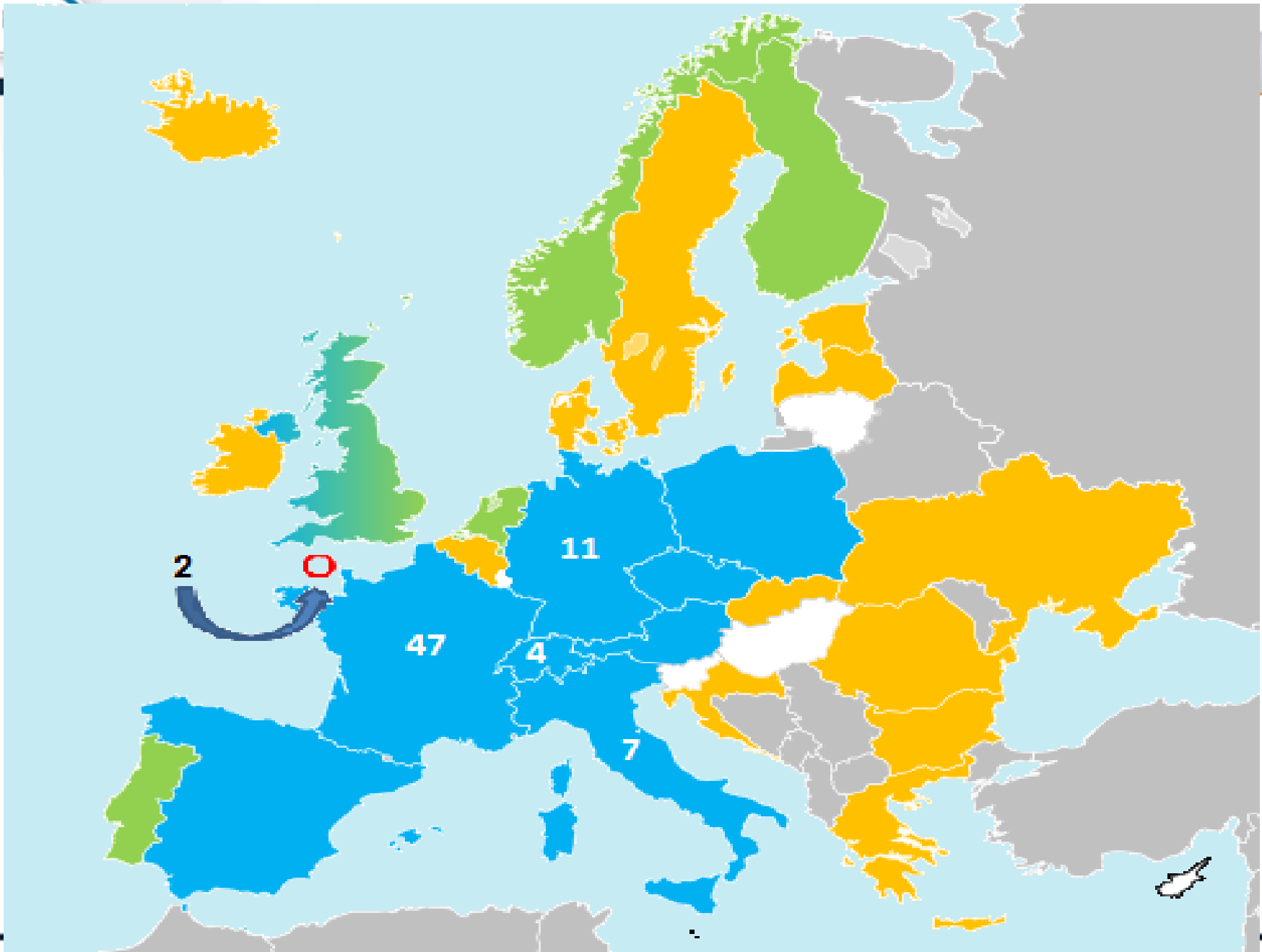
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LPV implementation status (I/IV)

- **EGNOS Working Agreements (EWA) signed:**
 - **2011: DSN**A (02/03/11), **Skyguide** (14/11/11), **Guernsey Airport** (05/12/11) and **DFS** (09/12/11)
 - **2012: ENAV** (16/05/12), **NATS** (14/06/12), **Austrocontrol** (14/06/12) and **AENA** (20/12/2012)
 - **2013: PANSA** (28/02/13), **Exeter & Devon Airport Ltd. (EDAL)** (26/03/2013) and **ANS CR** (12/06/13)
- **Many interest shown by different European ANSPs**
 - **Almost concluded:** NAV (Portugal) and HIAL (UK)
 - **Conversations on-going with:** LVNL (Netherlands), LPS (Slovakia), Avinor (Norway), LFV (Sweden), Romatsa (Romania) and Finavia (Finland).
 - **Interest shown:** EANS (Estonia), Bulatsa (Bulgaria), Jersey (Channel Islands - UK) and some other ANSPs



LPV Implementation status (II/IV)

Country	Airports – LPV procedures	# LPV Procedures	Airports – “EGNOS enabled” APV baro	# “EGNOS enabled” APV baro
France	37	47	1	1
Switzerland	4	4	0	0
Guernsey	1	2	0	0
Germany	7	11	32	73
Italy	4	7	0	0
Total	53	71	33	74

TABLE - LPVs implementation status (31 August 2013)

LPV Implementation status (III/IV)

□ May 2013

- 7 new LPVs in France: (1) Colmar Houssen (LFGA), (1) Nancy Essey (LFSN), (2) Paris Orly (LFPO), (2) Rennes (LFRN) and (1) Epinal Mirecourt (LFSG)

□ June 2013

- 1 new LPVs in France: Amiens Glisy (LFAY)

□ July 2013

- 1 new LPV in Switzerland: Grenchen (LSZG)

□ August 2013

- 3 new LPV in France: (2) Brive Souillac (LFSL) and (1)Castres Mazamet (LFCK)

LPV Implementation status (IV/IV)

- **EGNOS-based procedures implementation map and detailed list included in the ESSP website**

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

- **All information coordinated with Eurocontrol's PBN Approach Map Tool available at:**

<https://extranet.eurocontrol.int/http://prisme-newgis.hq.corp.eurocontrol.int/pbn/>

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EGNOS NOTAM Proposals Provision Status

- **Service Level 2 available since the 26th of June 2013:**
NOTAM proposals resulting from
 - GNSS (GPS and EGNOS) scheduled events notified minimum 72 hours in advance.
 - GNSS unscheduled events notified within:
 - 2h during working hours.
 - 16h00 at maximum, during non-working days (3 checks a day on GNSS inputs).
- **Reaction time in case of unscheduled GNSS events reduced** to 2 hours during working hours.
- **EGNOS NOTAM Proposals evolution roadmap distributed to the group**

EGNOS NOTAM Proposals Provision Status



Figure 1- NOTAM Proposals Service: evolution plan³

- EGNOS NOTAM Proposals evolution roadmap distributed to the group

EGNOS NOTAMs for warning

- **NOTAM Proposals duration:** 1 week
- **No cancellation/replacement NOTAM will be issued**, a new NOTAM proposal will be sent if the contingency is not finished (NOF won't need to cross check)
- **NOTAM proposals will be sent through AFTN (AFTN-AFTN or EAD).**
- **NOTAM proposals content:** These “EGNOS contingency” related NOTAM proposals will be based on the following template proposed by Eurocontrol:

Q) **LFBB/QGAXX/I/NBO/A/000/999/4100N00200E005** where red fields are FIR & coordinates of ARP
A) **LFBO** where red field is ICAO code of the airport
B) **120417**0000 where red field is start date
C) **120423**2359 where red field is end date (1 week after the start date)
D) ~~0000~~-2359 (not required as fields B & C above will be completed)

E) 00xx/12 NOTAMPN

**“LPV FLIGHT PLANNING POSSIBLE DESPITE POSSIBLE EGNOS UNAVAILABILITIES
FOR MORE INFORMATION PLEASE REFER TO XXXX¹”**

¹[ref of National “EGNOS based RNP APCHs related” AIC and ESSP Service Notice / Website or any additional source of information, to be included by the NOF before to complete the final NOTAM content]

EGNOS NOTAMs for warning

CURRENT STATUS

1. Initial request from DSN/DSAC to increase pilots “awareness”
→ to be harmonized at EU level. “A la carte” solutions are not an option.
2. Negative feedback received after first implementations
 - Not understood by pilots (willing “available/not available” notices)
 - Interpreted as a “not available” notices by default.
 - Not providing additional “awareness” to the operations
 - Requiring additional information to be understood (e.g. AIC, pilot-ATC training, etc.)
3. **EASA supports the current approach** even pushing to extend it to cover additional cases.
4. **Reflected in the GNSS NOTAM “state of the art” distributed for comments. No feedback received except from ENAV**

EGNOS NOTAMs for warning

PROPOSED WAYFORWARD

ESSP explicit request to the ANSPs/users in the group to express their position/rationale on the topic

- **If the feedback is positive/no explicit feedback** the current approach will be consolidated.
- **If the feedback provided is not in line with the current approach**

A specific workshop will be proposed to EASA on this topic to try to consolidate both users and regulator approaches.

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“FINAL USER FORUM”



“Support ad-Hoc to Eastern Region with Pre-operational Actions on GNSS”

SHERPA proposes a regional collaborative approach in support to European Eastern countries, towards the implementation of GNSS enabled operations in the civil aviation sector, and in particular enhanced by EGNOS.

It is a “collaborative project” aligned with ICAO and Eurocontrol recommendations in support to the implementation of APV procedures.

SHERPA objectives

- ❑ To support Eastern countries to understand the pre-operational actions to be undertaken by their relevant stakeholders (ANSPs, regulators ...) to adopt EGNOS;
- ❑ Map the implementation of EGNOS into the States PBN strategy in a coordinated manner with their national Regulatory Authorities.





“FINAL USER FORUM”



Join us in our SHERPA Final User Forum !!!

16th-17th October 2013 in Dubrovnik (Croatia) →

Save the dates !!!

Info and registration at: <http://sherpa.essp-sas.eu/>

- EU LPV implementation initiatives / projects review
- SHERPA project outcomes and lessons learned
- EU Regional plans and needs;
- Future European initiatives towards EGNOS adoption:
call for ideas (future projects / funding schemes)



[Call for participation to be distributed in the coming days](#)

How to Contact ESSP?

ESSP Website:


www.essp-sas.eu

EGNOS User Support Website:

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

EGNOS User Helpdesk:

Egnos-helpdesk@essp-sas.eu

 +34 911 236 555 (24/7)

Others:

communication@essp-sas.eu



The logo for EGNOS, featuring the letters 'EGNOS' in a bold, yellow, sans-serif font. The letter 'O' is replaced by a blue compass rose with a white center and a blue needle pointing upwards. The background of the entire image is a composite of space and Earth imagery, including a satellite in the upper left, a yellow and orange satellite footprint over the Earth, a white airplane in the lower right, a purple truck in the bottom left, and a red and white ship in the bottom right.

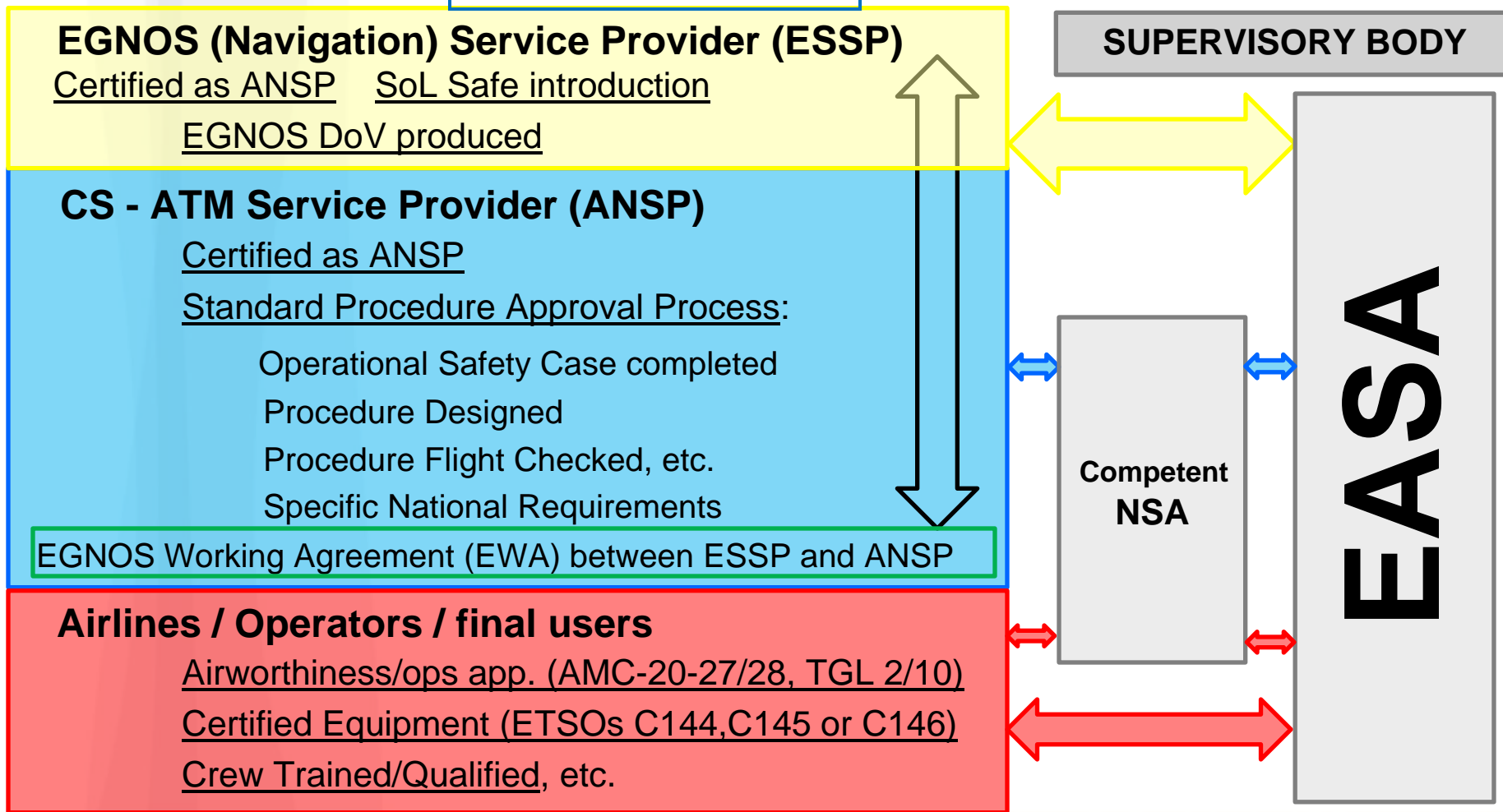
EGNOS

Thanks!

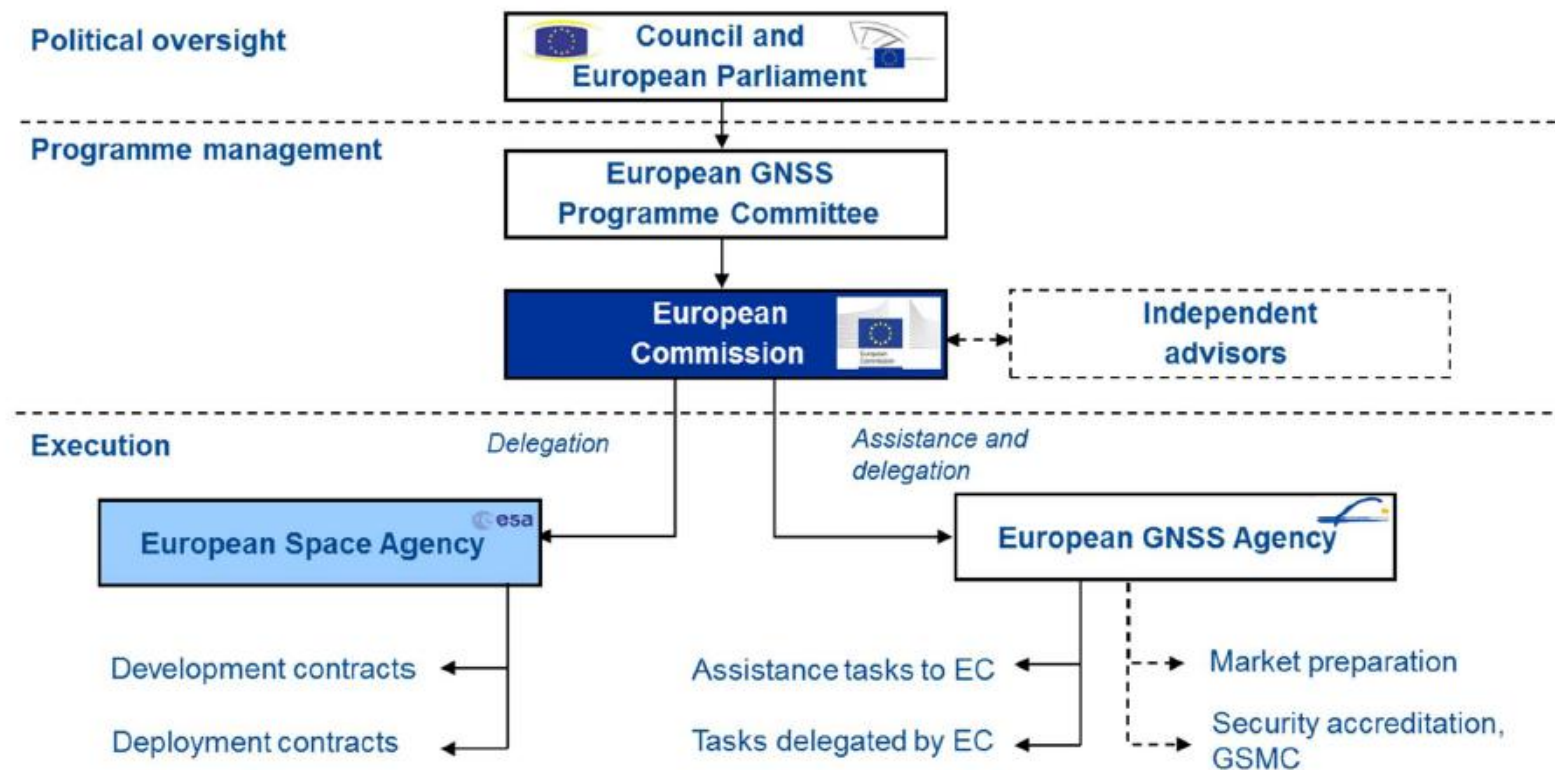


Future LPV Implementations: WHO WILL DO WHAT?

7 NOVEMBER 2012

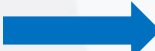


EGNOS Service Provision Contract 2014-2021



Information provided to ANSPs: EWA committed information

– **ESSP Contingency Communication Plan:**

- **Communication defined when relevant impact on APV-I Availability is identified:** SoL Service is not available or its availability is significantly reduced in any percentage of the coverage area for a period higher than **14 days**
Communication = information about the corresponding contingency event/s which have led and are expected to lead to this impact → **Weekly Performance Reports**
- **EWA Annex II → NOTAM proposals provision (SL1+) covering:**
 - GPS, RIMS and GEO predicted outages: minimum 72 hours in advance
 - GPS, RIMS and GEO unplanned outages: handled after detection (maximum of 15 hrs delay), every calendar day (7/7)
- **DSNA request → increase pilots awareness** to face a potential missed approach:
 - Users (pilots) to be notified of current/foreseen APV-I availability degradations (APV-I availability lower than 99% or other agreed threshold) independently on the cause.
 - Level of information currently provided by ESSP considered by DSNA not enough.
 **Working group established: ESSP, ECTL, DSNA and DSAC.**

Improved contingency communication

ESSP: to provide to all ANSPs under EWA

1. **Communication trigger**: EGNOS **APV-I (99%)** service degradations.

- ESSP to monitor performances wrt. specific performance indicators at airports with published procedures

2. **Communication delay**: **3 working days** associated to required analyses

3. **Communication content & distribution**:

1. **Ad-hoc report** to EWA PoCs distributed via e-mail

- Contents: severity, identified cause, expected duration...

2. **Specific NOTAM proposal** to the NOF (AFTN or EAD)

3. **Additional information** such as APV-I availability service area maps and performance per airports with LPV procedures (covering last 14 days) to be available at ESSP website

Improved contingency communication

ANSP: to provide to users (pilots)

- 1. Publication of NOTAM** (pointing at applicable AIC or other reference)
- 2. Issuance/update of generic AIC** addressing EGNOS-based RNP APCH (including the different communications to be potentially published through NOTAMs) with possible reference to the additional information at ESSP website

Improved contingency communication

- **NOTAM Proposals duration:** 1 week
- **No cancellation/replacement NOTAM will be issued**, a new NOTAM proposal will be sent if the contingency is not finished (NOF won't need to cross check)
- **NOTAM proposals will be sent through AFTN (AFTN-AFTN or EAD).**
- **NOTAM proposals content:** These “EGNOS contingency” related NOTAM proposals will be based on the following template proposed by Eurocontrol:

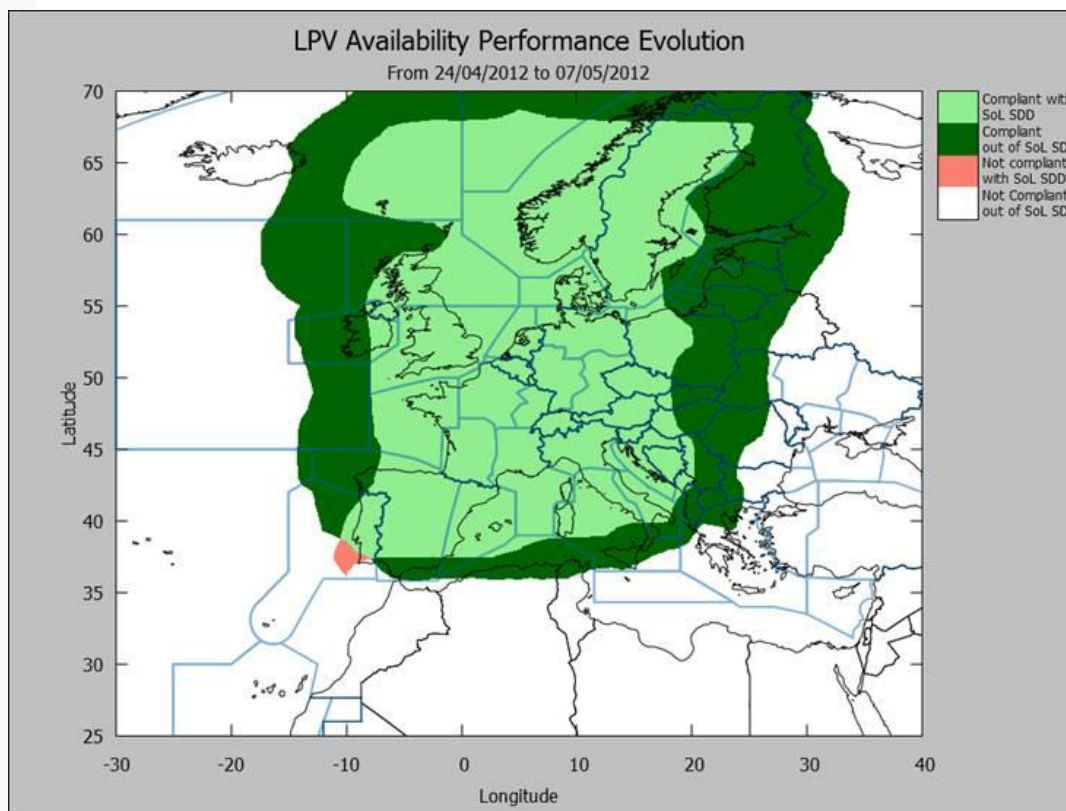
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A) **LFBO** where red field is ICAO code of the airport
B) **1204170000** where red field is start date
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Improved contingency communication

- **Additional info in ESSP website:** performance maps and availability at airports with published procedures over the last 14 days



Improved contingency communication

- **Final agreement:** ESSP proposal discussed and agreed with Eurocontrol and DSNA.
- **Target ANSPs:** Concept is offered to all ANSPs with EWA signed (**no “a la carte” solutions from ESSP**).
- **Notification:** EWA ANSPs notified on 8th August 2012.
- **Availability:** 2nd October 2012 (minor EURONOTAM Tool evolution was required)
- **Harmonization process:** If needed, outcomes of initial service could be used by Eurocontrol to define an harmonized approach at European level updating the European GNSS NOTAM Concept

Remark:

No operational impact (flight planning for LPV approach still possible) **derived from the NOTAM publication**