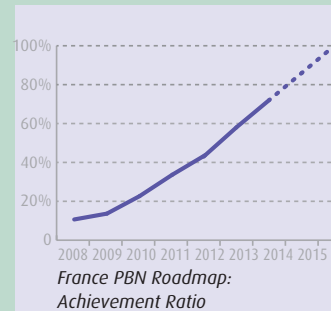


DSNA is implementing New Generation PBN Approach Procedures

The progressive implementation of innovative satellite-based navigation technologies supports **approach and landing operations without any specific airport-based infrastructure**. DSNA is one of the shareholders of the ESSP-SAS (European Satellite Service Provider) company which provide EGNOS-based operations.

Accelerating large-scale implementation of PBN Approach Procedures in France

ICAO recommends deploying satellite-based approaches with vertical guidance at all runway-ends by 2016. DSNA is accordingly committed to an ambitious roadmap aiming to provide GPS and EGNOS-based procedures over all France IFR runways, in close consultation with airports and airspace users. **DSNA will publish 200 PBN and EGNOS approach procedures.**



Initial implementation in Europe focuses on medium sized or light traffic aerodromes. The EGNOS signal is free for airspace users. Regional airlines are now encouraged to fit their fleet with EGNOS avionics. DSNA also expects a wider use of EGNOS as benefits are demonstrated, and also supports initiatives to further develop EGNOS avionics for large aircraft.

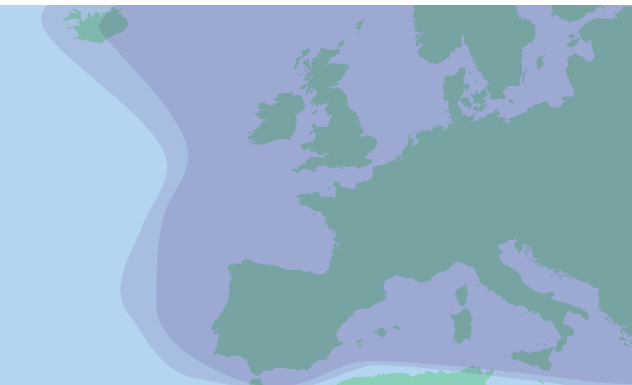
DSNA decommissions Cat. 1 ILS to reduce costs

EGNOS will soon provide a performance equivalent to Category 1 ILS with landing height minima of 200 feet (75 m). Through EGNOS procedures, equipped aircraft land safely and efficiently thanks to the additional vertical guidance (Localizer Performance with Vertical guidance) at runways not equipped with Cat. I ILS. Even on ILS runways, in case of outage, EGNOS is the best PBN backup to ILS.



In 2016, France will offer a minimum operating network with ILS (Red) and about a hundred PBN and EGNOS procedures (Blue)

High performance of EGNOS will allow DSNA to decommission about 50 Cat. 1 ILS while reducing its navigation infrastructure costs.



EGNOS Coverage Area in 2013 / ESSP-SAS



Landing at Brive aerodrome



Point of view of various stakeholders



SATELLITE PROCEDURES DESIGNER

Magali CAMUS
DSNA / West SNA - Nantes

EGNOS offers new possibilities for precision approaches at airports. In order to design satellite navigation arrival and departure trajectories, we must first take into account the operational needs of air traffic controllers and pilots. When these trajectories have been defined, I use the GeoTitan tool to establish the protection areas around these trajectories and to analyse the impact of obstacles on the ground which determine the minima for landings and overflights. The environmental impact of air navigation is also verified in order to evaluate noise envelopes. The technical file, safety study included, is then submitted to the National Supervisory Authority (DSAC) for acceptance. From conception to publication, it takes six months to a year. In 2013, my service, a regional structure in charge of aerodrome and approach control, published 11 satellite procedures.



PILOT

Jean-Christophe LAIR
Airbus Test Pilot

As a test pilot, I had the opportunity, very early on, to perform LPV (Localizer Performance with Vertical guidance) approaches based on the EGNOS constellation on three different types of aircraft - A300ST (Beluga), A350XWB and the ATR72-600.

The first observation, an unanimous one, is the ease of system acquisition because the pilot interface is designed like that of an ILS which is the best known and thus the most "intuitive" for use by an airline pilot.

The second is that the LPV has better performance than even Cat. 1 ILS because it is not sensitive to the "traditional" ILS disruptions, for example secondary LOC or Glide beams, or signal disruptions encountered when an aircraft overflies the Localizer antenna.

My experience on using LPV EGNOS approach systems is therefore fully satisfying!



AIR TRAFFIC CONTROLLER

Sébastien RAPHOZ
DSNA / SNA-RP / Paris-CDG

The installation, in 2011, of an LVP EGNOS approach procedure on runway 27 required acquiring several specifics linked to this new procedure, especially the action to take in case of deterioration of the EGNOS signals. But the radar guiding principle, the rules of separation regarding incoming aircraft to Paris-CDG, as well as the rules for intercepting the final axis, remain identical to those of an ILS procedure.

In 2013, around 50 LPV EGNOS procedures were performed by pilots arriving at Paris-Le Bourget Airport.

AIRLINE Airbus Transport International

Michel MARTI
Director of Operations

With its fleet of 5 Belugas, ATI, a subsidiary of Airbus, is a freight company of a size that makes it very interested in using LPV EGNOS satellite navigation procedures. Our mission is to transport airplane sections, wings and components at 12 airfields where Airbus plants are located. These airfields are equipped with widely varying ground radio navigation means (ILS, VOR, NDB) for making direct approaches, which demand rigid constraints for our flights in case of bad weather conditions.

Having LPV EGNOS approach procedures at each runway QFU will increase the accessibility of our airfields and will make our operations reliable and safe



Paris-Le Bourget,
1st European business
aviation airport



Loading of airplane
section in Beluga

About DSNA

DSNA (Direction des services de la Navigation Aérienne) is the French Air Navigation Service Provider.

Key Data: 5 ACCs & 81 Control Towers & 3 overseas regional structures / Staff: 7,700 / 2.8 million of flights controlled in 2013 / Absolute record in one week: 66,011 flights from 1st to 7 July 2013 (9,430 flights per day on average).

DSNA is a member of FABEC, SESAR JU and the A6 Alliance