

Calling for greater use of advanced GNSS capabilities to improve the performance of the European air navigation system

14.03.2016

Europe has been a pioneer in integrating Global Navigation Satellite Systems (GNSS) in the design of its air navigation routes and procedures: this has significantly improved the accuracy of air navigation, allowing the reduction of the lateral separation between RNAV (aRea NAVigation) routes and optimising airspace capacity. However, Europe is not yet using all the advanced technologies to deliver the full capabilities of satellite based navigation in improving airport access and increasing safety and efficiency.

These technologies and capabilities include a large range of airborne solutions and capabilities including RNP (Required navigation performance), landing systems using Satellite Based Augmented Systems (SBAS) such as EGNOS (European Geostationary Navigation Overlay Service), or ground based solutions such as GBAS - Ground Based Augmentation System.

All these technologies and capabilities allow more precise navigation, better access to airports and heliports, including direct trajectories towards the airfield, non-interfering operations between aircraft and rotorcraft, curved final approaches and better descent profiles adapted to aircraft and rotorcraft performances, reducing both the fuel burn and the noise footprint and therefore minimizing the impact of air traffic on the environment and improving efficiency for all users. They also allow the opening up of several landing locations including secondary and regional airports to safe all weather operations, thereby increasing European airport capacity and safety. Most of these solutions are already available on board the aircraft and rotorcraft and can be implemented anywhere in Europe, without the need for any additional airport-hosted infrastructure.

The 3 main areas of work should therefore be the following:

- Develop **GPS-based approaches to provide LPV** in order to improve access and safety in bad weather conditions to all airports or rotorcraft landing locations without ILS capabilities or similar precision navigation aids, and to maintain access at in case of work on ground infrastructure, to the benefit of Regional, Business, Rotorcraft and General Aviation, and hence to the European economy.
- Boost the development of **RNP procedures** that can significantly improve the performance of air navigation around the airports without the need for any additional investment.
- Work on **GBAS** to assess its performance with the stakeholders and determine if it could represent a cheaper and equally effective alternative to the existing infrastructures for CAT 2/3 operations.

ASD, EBAA and EHA call for safer and much enhanced airfield access in all weathers and all conditions through cost-effective and widely applicable advanced GNSS technologies. The PCP (EU 716-2014) goes in this direction since it specifically requires “RNP APP” meaning LNAV/VNAV and LPVs at all 25 European major airports.

The implementation of these advanced GNSS solutions should be based on a cost-benefit analysis and take into account the categories of users and the equipment of their aircraft and rotorcraft: any decision to withdraw an existing ground based facility should be taken locally after identification of the specific needs of the airspace users flying to this location. ASD, EBAA and EHA support all efforts that will make aviation communities collectively able to enhance safety and the global performance of the air navigation system, therefore improving European airports accessibility and capacity in all weathers.