

Safer airport approaches with 3-D satellite-based navigation

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Credit: AI-generated image ([disclaimer](#))

As air traffic grows in Europe's skies, so does the challenge to ensure that its airports are safely accessible at all times. BLUEGNSS, a project supported by the EU, has been developing global satellite navigation applications in selected European airports to increase safety and airport accessibility.

BLUEGNSS's focus has been on advancing the adoption of the European [global navigation satellite](#) system (GNSS) in Greece, Italy, Cyprus and Malta. The four countries together form the BLUE MED functional airspace block (FAB), airspace in which air traffic is managed irrespective of national boundaries. BLUE MED is one of the nine FABs formed in Europe in order to reduce the fragmentation of the European [air traffic](#) network.

Three-dimensional GNSS approaches are being designed for 11 airports in the BLUE MED FAB: 4 each in Greece and Italy, 2 in Cyprus and 1 in Malta. The primary aim is to harmonise the implementation of required navigation performance approaches among the four countries. This will enable aircraft to fly along precise flight paths with greater accuracy, and will make it possible to pinpoint aircraft position with precision and integrity.

So far, substantial progress has been made towards safety and airport accessibility in the target countries. Since the beginning of 2018, three new GNSS procedures have been validated for Italian airports Cuneo, Lamezia and Parma, followed by another two for Larnaca and Paphos in Cyprus. The poor weather conditions under which the Cyprus GNSS approaches were validated served to demonstrate the benefits of GNSS vertical guidance. Since its launch in 2016, BLUEGNSS has designed and validated 14 GNSS procedures.

Augmented performance of Europe's GNSS, Galileo, has been achieved through the European Geostationary Navigation Overlay Service (EGNOS). EGNOS is a satellite-based augmentation system that improves GNSS positioning. Its 3 satellites and network of more than 39 reference stations in 24 countries enable it to provide greater accuracy than Galileo alone.

EGNOS's safety advantages and lower investment costs greatly benefit

small and regional airports, which usually can't afford the high costs of installing and maintaining ground-based navigation aids. For this reason, BLUEGNSS has promoted its use in this geographically challenging Mediterranean region. "Today the southeast Mediterranean region lacks full EGNOS coverage," said GNSS expert Patrizio Vanni of ENAV S.p.A., project coordinator and Italy's air navigation service provider, in a news item posted on the European Global Navigation Satellite Systems Agency's website. "To make things even more challenging, each [airport](#) involved in the project presents a very different operational environment."

The project hasn't only focused on designing and validating GNSS approaches at airports where no such procedures have been available up to now. It has also provided the necessary training and monitoring in order to support implementation by the BLUE MED FAB countries.

Now close to completion, BLUEGNSS (Promoting EGNSS Operational Adoption in BLUEMED FAB) is the first project of its kind to be coordinated at FAB level. It may serve as a catalyst to spread required [navigation](#) performance approach know-how in the region and beyond, to the whole of Europe.

More information: BLUEGNSS project website: www.bluedmed.aero/

Provided by CORDIS

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