



For immediate release

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Egis studies the impact of solar activities on GNSS-based aviation applications over Europe

GNSS operations from the En-route to the Approach and Landing are going to be widely implemented over Europe in the coming years. Taking into account upcoming high solar activity, there is a need for EUROCONTROL – the European Organisation for the Safety of Air Navigation – to study ionosphere effects on global navigation satellite systems (GNSS) applications in order to plan mitigation measures in the context of future GNSS-based aviation applications.

Egis was awarded a contract with EUROCONTROL for this purpose and a team within Egis Avia subsidiary will conduct the study over the ECAC area (Europe) in partnership with the French Air Navigation Service Provider (DSNA), the French Space Agency (CNES), the Civil Aviation University (ENAC) as well as CLS and M3 Systems companies.

Variations in the solar activity and space weather significantly affect the propagation of electromagnetic signals in the upper layers of the atmosphere or ionosphere. The specific characterisation of the ionosphere effects over the ECAC area, the linkage between solar weather observables and ionosphere disturbances as well as their impact on aviation applications are to be better investigated in the context of a future multi-signal and multi-constellation environment. Civil aviation operations will be increasingly dependent on the use of GNSS in Europe for navigation or surveillance purposes. It is therefore necessary to understand these interactions. The objectives are at first to assess the impact of ionosphere on GNSS based applications for different phases of flight; then, to develop and validate mitigation techniques in order to ensure and maintain the safety and performance requirements for aviation operations.

In a first step, this project provides a preliminary analysis and guidance material in order to:

- ⊙ define a set of options for the monitoring and characterisation of ionosphere impact on aviation operation during the next peak of solar activity and collect GNSS data impacted by the ionosphere;
- ⊙ use these data to develop a model of the ionosphere impact on an aeronautical receiver over the ECAC area as well as adequate mitigation actions to complete the ionosphere effect analysis on civil aviation operations.

A second step will consist in undertaking the proposed work and thus develop, validate and assess performance of mitigation actions for the different operations impacted.

This initiative will extend other studies previously started by some European countries. It will allow the development of a genuine ionosphere model suitable for aviation operational needs.

About Egis

Subsidiary of the Caisse des Dépôts Group, Egis, with a workforce of 7,300 worldwide, is an engineering and consulting firm specialised in the construction of transport systems and infrastructures, local and territorial development, water and the environment. Egis is also involved in project development and road and airport operations.

With a workforce of 8,400 worldwide and a turnover of €563m in 2009, it is active in more than 100 countries and has some 50 entities in France.

In 2009, Egis announced the creation of an alliance with Iosis, specialised in building and civil nuclear engineering, to launch a new global engineering offer to their French and international clients. Both groups form now the French leader in construction engineering.

The alliance between the two groups results in the deployment of a joint industrial and commercial strategy. It is underpinned by Egis' acquisition of a 34% stake in the capital of Iosis Holding.

The new entity should benefit from a turnover in excess of €724m in 2009.

For more information, visit www.egis-group.com

About Egis Avia

Thanks to a 40-year experience in a demanding sector, Egis Avia is today a key expert in the Civil Aviation industry. Egis Avia joined the Egis Group in 2006 and offers a multifaceted expertise covering all aspects of airport, air operations and air traffic management activities. With a current workforce of 181 employees and a 31.4M€ annual turnover in 2009 Egis Avia has been, since its creation in 1969, successfully managing more than 1000 projects in 140 countries.

Egis Avia provides research and technology, consulting and engineering services, operations and turnkey solutions adapted to each client's business needs. With its unique position on the market, Egis Avia provides bespoke solutions aiming at increasing operations safety and efficiency, the compliance with international regulation and offering an optimum use of advanced technologies.

For more information, visit www.egis-avia.fr

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