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PLANET-2: PLANE NETWORK FOR IN-FLIGHT WEATHER SERVICES AND PROVISION OF WEATHER OBSERVATION DATA TO/FROM BUSINESS AND REGIONAL AVIATION

Abstract

Near-Real-Time in-flight weather services for business and regional aviation are nowadays quite well developed in USA, but still very limited in Europe due to the lack of equivalent infrastructure and service offer.

The operators of the business and regional aviation in Europe would strongly benefit from in-flight weather forecasting and trajectory tracking in order to fly safely and to optimize the trajectory. On the other hand, weather agencies would greatly benefit from weather observations provided by regional and business aviation (e.g. temperature and wind speed data collected by the cockpit sensors, nowadays delivered only by commercial airlines) as they would drastically increase geographical coverage and number of measurement thanks to different routes w.r.t. commercial airlines.

Co-funded by the European Space Agency (ESA) and led by ATMOSPHERE-F (F) with ATMOSPHERE-D (G), DLR (G), TRIAGNOSYS (G) and METEO-FRANCE (F), the PLANET-2 project aims at developing a commercially sustainable in-flight weather service based on integrated space assets (i.e. SatCom and Navigation, with the support of Earth Observation data for some of the weather products) and terrestrial wireless networks (e.g. GPRS) to reduce service costs. Flight plans and weather forecast data are initially handled on the ground before take-off via GPRS, while in-flight weather updates and observation data are exchanged via the Iridium burst service (or equivalent SatCom solution). Certification aspects

are also tackled by the project activities, but the final certification for the integration of the Planet Electronic Flight Bag (EFB) into the cockpit will be with flight operators as this is very much related to the aircraft characteristics.

The paper presents the main findings of the work carried out to meet the requirements associated to the required state-of-the-art in-flight weather services and observation data of PLANET-2, as well as the selected trade-offs for the identification of the network architecture, the certification aspects and the business rationale.