

2.33 IRMA - IMPLEMENTATION OF A HIGH RESOLUTION 3D RADAR MOSAIC FOR AVIATION WITHIN SESAR

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Three dimensional mosaics produced from radar volume data at high spatial and temporal resolution (1 km, 5 min) are an enrichment for air traffic controllers as well as for operational forecasters. Provision of derived 2D products from 3D mosaics such as maximum reflectivity, echo top or vertical integrated liquid water, offer a focused and consistent view of precipitation and convection at a glance for users.

As part of SESAR1 Work Package (WP 11.2), a prototype code for generating hi-resolution 3D mosaics in real-time was developed and tested on two Terminal Manoeuvring Areas (400km x 400km horizontal at 2km resolution, 12km vertical on 24 levels) centred on Charles de Gaulle Airport in Paris and Heathrow Airport in London (Scovell and Al-Sakka, 2016).

Within SESAR Deployment Manager, a project to implement many SESAR1 initiatives has been undertaken. A new tool called “hi Resolution Mosaic for Aviation” (IRMA) will take weather radar observations from across Europe (via the OPERA hub) to produce 3D Radar products that can supply the aviation community, including air traffic controllers, with services via the MET-GATE. To achieve this, a set of preconditions must be fulfilled. This paper shows the cooperation with other projects as well as the requirements of the 3D mosaic such as data format, quality tolerance and pre-processing. In addition, the production environment is discussed and the data flow is presented in terms of the failover solution and archive.

References

Scovell, R and H. Al-Sakka, 2016: A Point Cloud Method for Retrieval of High-Resolution 3D Gridded Reflectivity from Weather Radar Networks for Air Traffic Management. *Journal of Atmospheric and Oceanic Technology* 33 461-479
