



## **Mode-S EHS derived wind and temperature: methodology, quality and availability**

Siebren de Haan (1), Jan Sondij (1), and Edmund Keith Stone (2)

(1) KNMI, the Netherlands (siebren.de.haan@knmi.nl), (2) The MetOffice, UK (ed.stone@metoffice.gov.uk)

New air traffic control surveillance technologies such as Automatic Dependent Surveillance – Broadcast (ADS-B) and Mode-Selective (Mode-S) are designed to help modernize the air transportation system. They provide foundational technology for improvements related to the Single European Sky Air Traffic Management Research program (SESAR), aiming to support a larger volume of aircraft more efficiently.

The changing environment offers great potential to derive wind direction, wind speed and temperature observations from aircraft in unprecedented numbers. The observation will be available in areas where an air traffic control (ATC) radar interrogates the aircraft on special Mode-S Enhanced Surveillance (EHS) registers. At present, meteorological information is derived from information from ATC radars in the regions around Belgium, Germany, Netherlands and the UK. In the near future, an operational service for collecting, processing and dissemination of Mode-S EHS observations will be deployed within the SESAR deployment project European Meteorological Aircraft Derived Data Center (EMADDC).

Here we present the methodology to obtain accurate wind observations and discuss the accuracy estimated using triple collocation (Mode-S EHS, SODAR and NWP). It will be shown that the quality of the wind observations is similar to that provided by AMDAR, which is consistent with the previous work. The significant potential for operational meteorology of these observations together with status and plans of EMADDC-project will be discussed as well, providing a step change in the number of aircraft observations available over Europe.