



## The first ASCAT scatterometer winds

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The new Advanced Scatterometer (ASCAT) on board the Metop-A satellite was successfully launched on October 19 2006. In the framework of the EUMETSAT Ocean & Sea Ice (OSI) and Numerical Weather Prediction (NWP) Satellite Application Facilities (SAFs), the KNMI investigates scatterometer wind and stress products, and develops software. In particular, KNMI is responsible for the ASCAT wind product. We will present the first ASCAT wind data.

An advanced empirical methodology has been developed at KNMI to calibrate, validate and invert scatterometer measurements to winds using an empirically-determined geophysical Geophysical Model Function, GMF. The ASCAT triplets of local radar backscatter measurements in a Wind-Vector-Cell, WVC, describe a conical manifold in the 3D measurement space. Careful evaluation of this manifold results in a relative calibration of ASCAT with respect to the ERS scatterometer measurements, that were obtained at the same radar wavelength. Moreover, wind vector calibration by triple collocation of NWP model, in situ winds, and scatterometer is used for detailed geophysical analysis. Scatterometer measurements contain relevant information on the mesoscale and have proven important for the forecasting of dynamical weather, such as tropical cyclones. A good assessment of the information content of scatterometer winds is particularly important in order to obtain high-resolution surface wind analyses for weather nowcasting and oceanographic applications. The processing of scatterometer winds consist of three main steps: quality control (QC), inversion and ambiguity removal (AR). KNMI has conducted a thorough investigation over the years in order to improve the quality of the scatterometer wind products. Current research is focused on the development of high resolution scatterometer wind and stress products. A summary of the research in the QC and inversion steps are presented together with the most recent findings in the wind direction ambiguity removal.