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Towards an operational lidar network across the UK

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The Met Office has been operating a ceilometer network since 2012. This network consists of 11 Jenoptik Nimbus ceilometers (operating at 1064 nm) and 32 Vaisala ceilometers (25 CL31, operating at 910 nm and 7 CT25 operating at 905 nm). The data are available in near real time (NRT) (15 min for Jenoptik and 1 h for Vaisala). In 2014, six additional stations from Met Éireann (Ireland) were added to the network (5 CL31 and 1 CT25). Visualisation of attenuated backscatter and cloud base height are available from http://www.metoffice.gov.uk/public/lidarnet/lcbr-network.html. The main customers are the Met Office Hazard Centre which provides a quick response to customers requiring forecast information to manage a wide variety of environmental incidents and the London Volcanic Ash Advisory Centre (VAAC), also based at the Met Office, which monitor volcanic ash events.
As a response to the strong impact of the Eyjafjallajökull eruption in 2010, the UK Civil Aviation Authority (CAA) financed a lidar – sunphotometer network for NRT monitoring of the volcanic ash. This new network will consist of nine fixed sites and one mobile unit, each equipped with a lidar and a sunphotometer. The sunphotometers were acquired from Cimel Electronique (CE318-NE DPS9). The lidars were acquired from Raymetrics. They operate at 355 nm and have receiving channels at 355 nm (parallel and perpendicular polarization) and 387 nm (N2 Raman). The first two lidar systems were deployed in November 2014 at Camborne (SW England) and the data are under evaluation. The network is planned to be operational in 2016. Initially, the NRT data will consist of quick look plots of the total range corrected signal and volume depolarization ratio from lidar and aerosol optical depth from sunphotometer (including 355nm, through interpolation).
During EGU presentation, the following features will be emphasized: IT considerations for the operational network, data quality assurance (including error estimates) for the ceilometer network on one hand and for sunphotometer and lidar network on the other hand, technical presentation of the lidar, first results from lidars and sunphotometer, future considerations about other potential NRT data products (aerosol extinction and backscatter coefficients, particles linear depolarization ratio), NRT ceilometer data within the Hazard Centre and VAAC framework.