Geophysical Research Abstracts
Vol. 15, EGU2013-5355, 2013
EGU General Assembly 2013

Recent Science from the Cape Verde Atmospheric Observatory (CVAO)

Katie Read (1), James Lee (1), Shalini Punjabi (1), Lucy Carpenter (1), Alastair Lewis (1), Sarah Moller (1), Luis Mendes Neves (2), Zoe Fleming (3), Mat Evans (1), Steve Arnold (4), and James Hopkins (1)

(1) NCAS, Dept of Chemistry, University of York, York, YO10 5DD, UK (katie.read@york.ac.uk), (2) INMG, Mindelo, Rep of Cape Verde, (3) NCAS, University of Leicester, Leicester, UK, (4) Institute for Climate and Atmospheric Science, School of Earth and Environment, University of Leeds, Leeds, UK

The Cape Verde Atmospheric Observatory (16,848°N, 24.871°W), a subtropical marine boundary layer atmospheric monitoring station situated at Calhau on the island of São Vicente, has been in operation since October 2006. Almost continuous measurements of the trace gases O_3, CO, NMVOC, NO, and NO_2 have been obtained. Other data from the CVAO, for example of greenhouse gases, aerosol (physical and chemical parameters), halocarbons, halogen oxides, are also available over various timescales (see http://ncasweb.leeds.ac.uk/capeverde/ for more details). Through the newly EU funded Global Mercury Observation System (GMOS) project, atmospheric measurements of mercury began in 2011. The observatory has hosted a number of field campaigns including Reactive Halogens in the Marine Boundary Layer experiment (RHaMBLe) in 2007 (Lee et al., 2010) which focussed on halogen chemistry and Seasonal Oxidant Study (SOS) in 2009 which looked at how the oxidation chemistry varied seasonally. The prevailing strong on-shore winds bring marine air masses with varying inputs of Saharan dust and of long range transport from North American Europe, thus the CVAO is an appealing location for both short and long term research into a variety of atmospheric phenomena.

Aged air masses from North America, Europe, and Africa influence the measurements at the observatory, but fresh emissions from coastal Africa and the ocean may also play a major role. Through the use of the UK Met office's NAME model (http://www.metoffice.gov.uk/research/modelling-systems/dispersion-model) it has recently been possible to classify the air received by the site and this has since been employed in further interpretation of the datasets (Carpenter et al., 2010).

Measurements from the last six years will be presented at the conference together with comparisons with the output of the CAM-Chem global chemistry transport model (Read et al., 2012).

The CVAO is a global GAW (Global Atmospheric Watch) station and so data is submitted regularly on daily, monthly and yearly timescales to the World Centre for the Greenhouse Gases (WDCGG) http://gaw.kishou.go.jp/wdcgg/ in addition to the British Atmospheric Data Centre (BADC) http://badc.nerc.ac.uk/home/index.html along with associated instrument metadata. The observatory has recently been audited by GAW for O_3, CO and the greenhouse gas species.

Lee et al., (2010) Atmos. Chem. Phys., 10, 1031-1055.
Carpenter et al., (2010), J. Atmos. Chem., 67, 2, 87-140.
Read et al., (2012), ES & T.,46, 20, 11028-11039.