

Highlighted Speaker - Black Carbon Measurements at Cape Grim, Tasmania

F. Reisen¹, J. Gras¹, J. Ward¹ and M. Keywood²

¹Commonwealth Scientific and Industrial Research Organisation (CSIRO), Oceans and Atmosphere, Aspendale, Australia; +61-3-9239-4435, E-mail: fabienne.reisen@csiro.au

²Commonwealth Scientific & Industrial Research Organisation (CSIRO), Aspendale, VIC 3195, Australia

Black carbon (BC) measurements have been made at Cape Grim, on the northwest coast of Tasmania, using a Mutli-Angle Absorption Photometer (MAAP) since 2007. In 2015 a Photoacoustic Extinctionmeter (DMT PAX-870 nm) that measures absorption and scattering at 870 nm and a Tricolor Absorption Photometer (TAP-NOAA/Brethel) that measures absorption at 467, 528 and 652 nm were installed at Cape Grim.

Here we report on the BC observations made at Cape Grim between 2011 and 2017. Monthly median BC concentrations ranged from 3-33 ng/m³ with lowest levels measured in summer and highest levels measured in winter. Daily BC concentrations ranged from 0.07 to 4483 ng/m³; the very high BC concentrations were measured during the Tasmanian fires in January and February 2016. As a result of the extensive fires in January and February impacting on the measurement site at Cape Grim, the yearly averaged concentration for 2016 was 61 ng/m³, approximately twice the yearly averaged BC concentrations measured in previous years. Taking into consideration all wind directions, the main contributors to BC at Cape Grim were northern Tasmania and Melbourne eastern Victoria, with low BC concentrations measured during baseline conditions (marked by white lines in Figure 1).

The presentation will also report on comparisons between BC concentrations measured from 2015 and 2017 using three different BC measurement instruments (MAAP, PAX and TAP).

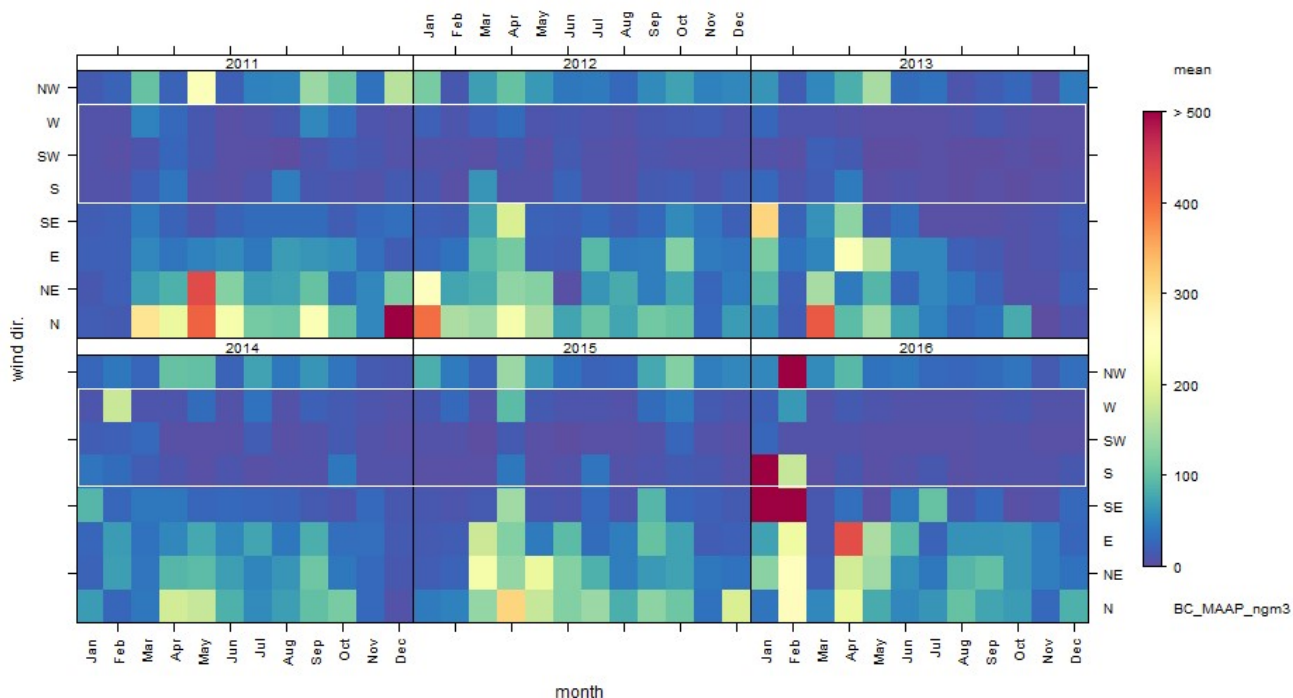


Figure 1. Monthly mean BC concentrations measured at Cape Grim between 2011 and 2017 as a function of wind direction. Baseline conditions are marked by white lines.