QOS2016-309, 2016
Quadrennial Ozone Symposium of the International Ozone Commission

Comparison of ozone profiles from Broadmeadows and Macquarie Island, 1999-2016.

M.B. Tully (1) and A.R. Klekociuk (2)

(1) Bureau of Meteorology, Melbourne VIC, Australia (m.tully@bom.gov.au), (2) Australian Antarctic Division, Kingston TAS, Australia

The Australian Bureau of Meteorology maintains two long-standing programs of weekly ozonesonde flights in southern hemisphere mid-latitudes, at Macquarie Island (55°S 159°E) and Broadmeadows (38°S 145°E). Ozonesonde flights at Macquarie Island began in 1993, while Broadmeadows, a suburb of the city of Melbourne, continues a program dating back to 1965 originally located in Aspendale, and later relocating to Laverton, before moving again to Broadmeadows.

Here, only the period from 1999 to 2015 is considered, over which time changes in equipment and procedures have been minimal, in particular the same type of ozonesonde (Science Pump Corporation ECC6A) has been in continuous use. The model of radiosonde flown, however, was upgraded in 2006 from the Vaisala RS80 to the RS92.

We compare the annual cycle between the two sites at different heights and the interannual variability in different seasons.

In particular, the variations from year to year in winter and spring build up in ozone around the peak in the profile (at approximately 20 km in height) are remarkably consistent between the two sites, despite their geographical separation.

At altitudes above 30 km, the time-series at both locations shows some suggestion of a step-change corresponding to the time of the transition in radiosonde model.