



## **Ozone flux profile estimates within and above polar coastal ozone depletion events.**

**P. S. Anderson** (1), A. E. Jones (1) and H. K. Roscoe (1)

(1) British Antarctic Survey

Ozone Depletion Events (ODEs) have been studied in both polar regions for a number of years. The broadscale mechanisms which govern their evolution is becoming clearer but the internal, near surface structure and regeneration of the ozone depleted air-mass is poorly understood.

Profiles of in situ ozone, wind vector and temperature have been taken at Halley Station, Antarctica (76oS 26oW), situated on a ice shelf in the south Weddell Sea. Halley is equipped with a Clean Air Laboratory (CASLab) and Instrument Clean Air Sector (ICAS), which provide additional measurements on the state of the chemistry and micro-meteorology of the boundary layer.

Two ODE case studies are presented which display similarity between the ozone and the temperature profiles, but with differing ozone structure. A combination of these profiles with ICAS turbulence measurements, acoustic radar data, and CASLab O<sub>3</sub> time series enables estimates of the ozone flux profile, both within the surface ODE and across the ODE-free atmosphere boundary. Measuring this entrainment flux across the top of the boundary layer is normally highly problematic: the top of the boundary layer is usually higher than typical mast based instrumentation, and other in situ platforms, such as aircraft, blimps or kites have their own difficulties. The O<sub>3</sub>(z) and surface O<sub>3</sub>(t) data provide valuable additional constraints to the flux estimates.