THE 2002 ANTARCTIC MAJOR WARMING

W. Lahoz (1), A. O’Neill (1), R. Bannister (1), R. Brugge (1), S. Migliorini (1)
(1) Data Assimilation Research Centre, University of Reading, RG6 6BB UK

During September 2002, the stratospheric polar vortex in the southern hemisphere split into two vortices. This was accompanied by a split in the developing ozone hole. The event qualifies as a major stratospheric warming (according to the WMO definition of major warmings), and appears to be unprecedented in the observational record, extending from the late 1950s. Global meteorological fields from the Met Office and ECMWF will be used to present a dynamical analysis of the event, focusing on the evolving three-dimensional structure of the polar vortex, and the vertical extent of changes in the large-scale flow. Possible mechanisms for the split of the vortex will be considered. Accompanying changes in the distribution of ozone will be discussed, making use of GOME total column ozone data assimilated into a chemical-transport model (publicly available from the KNMI/GOME web-site). In addition, a preliminary "Envisat view" of the event will be presented.