

Is the Antarctic ozone hole on the way to recovery?

Paul Newman[†]; Margaret Hurwitz; Eric Nash

[†] NASA, USA

Leading author: Paul.a.newman@nasa.gov

The Antarctic ozone hole was first observed by Farman et al. (1985). Subsequently, numerous publications showed the morphology, chemistry, and dynamics of the ozone hole, and demonstrated that it was caused by human-produced ozone depleting substances (ODSs). These ODSs are now regulated under the Montreal Protocol, and are now observed to be declining in both the troposphere and stratosphere. Antarctic ozone losses reached their deepest point in the mid-1990s, and have shown little sign of improvement over the period 1995-2009 (WMO, 2011). The ozone hole now covers an extensive area (values < 220 Dobson Units), reaches very low values in early October (< 150 Dobson Units), and shows virtually zero ozone in the altitude range from about 12-20 km by early October. Models and parametric studies have projected that the ozone hole will recover to 1980 ozone levels in the 2050-2070 period. These same studies have predicted that the first signs of recovery should appear in about 2020. However, recent work suggests that the ozone hole is already showing signs of recovery. In this presentation we will review the observations and techniques used to estimate the recovery of the ozone hole, and will present evidence on the uncertainties in Antarctic ozone trends over the last decade.