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An ozone depleting gas index for the polar regions

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For the past 30 years, the U.S. National Oceanic and Atmospheric Administration (NOAA) has monitored climate-forcing and ozone-depleting atmospheric gases. These global measurements have provided input to climate and ozone assessments (e.g., the quadrennial IPCC Climate Reports and WMO/UNEP Ozone Assessments). Recently, efforts to make these data more useful and available have been undertaken through release of the NOAA Annual Greenhouse Gas Index (AGGI), http://www.cmdl.noaa.gov/aggi, and the Ozone Depleting Gas Index (ODGI) http://www.cmdl.noaa.gov/odgi. These indices are designed to enhance the connection between scientists and society by providing normalized standards that can be easily understood and followed. The contribution of these long-lived gases to climate forcing and ozone depletion are well understood by scientists; nevertheless, the language of scientists often eludes policy makers, educators, and the general public. The atmospheric chemical indices are designed to help bridge that gap. This contribution will focus on the ODGI which uses the concept of equivalent chlorine and ozone-depleting gas lifetimes to arrive at an index between 100 (peak equivalent chlorine) and 0 (ozone recovery). Data on all the important ozone depleting chlorine- and bromine-containing gases are obtained through a combination of continuous measurements at Pt. Barrow, Alaska; Niwot Ridge, Colorado; Mauna Loa, Hawaii; American Samoa; and South Pole Station, Antarctica, and flask air samples collected through a global network and analyzed in the Boulder laboratory. Using WMO/UNEP Scientific Assessment of Ozone Depletion projections of ozone depleting gases, the times of ozone recovery for mid-latitudes and polar regions are estimated.