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The Antarctic Ozone Hole: unequivocal detection of the onset of ozone recovery

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An important aspect of human influences on climate concerns the Antarctic ozone hole, the strong thinning of the thickness of the ozone layer during springtime over Antarctica, first observed in the early 1980s. Antarctic stratospheric ozone is expected to fully recover in the second half of the 21st century because of policy measures to eliminate emissions of ozone depleting substances. Identification of the onset of this recovery would mark an important scientific and political milestone, but has remained elusive so far owing to natural climate variability and methodological ambiguities.

In this presentation, we will first give a brief introduction to methods that have been used in the past to try to identify the onset of recovery, and discuss their shortcomings and ambiguities. Secondly, we introduce and discuss a more different approach for ozone recovery detection in the Antarctic Ozone Hole, and explain why we believe it is more robust and circumvents the crucial pitfalls of the previously used methods.

Finally, we present our analysis, showing that satellite measurements unequivocally show that ozone destruction within the Antarctic Ozone Hole has significantly decreased with 20-30% since the year 2000, and which can be attributed to concurrently decreasing ozone depleting substances.