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Stratospheric ozone: a major (long neglected) anthropogenic forcing of the climate system

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As a consequence of the Montreal Protocol, the depletion stratospheric ozone by CFCs, which occurred primarily in the last decades of the 20th Century, has noticeably slowed down in recent years. For instance, the ozone hole in 2012 has been measured to be the smallest in 20 years. In view of this, it has long been thought that the ozone hole is a "solved problem." What has not been appreciated until very recently is that the large man-made perturbation of stratospheric ozone has had profound consequences on the climate system in the Southern Hemisphere. In fact, a lot of evidence is now at hand strongly suggesting that ozone depletion, not increasing greenhouse gases, have been been the major driver of observed atmospheric circulation changes in the Southern Hemisphere in the second half of the 20th Century. Furthermore, climate models robustly show that the closing of the ozone hole in the next half century will actually oppose the impact of increasing greenhouse gases, and project large cancellations between these two anthropogenic forcings resulting in greatly reduced future trends in the Southern Hemisphere.