

Scientific Assessment of Ozone Depletion: 2018: Meeting the needs of the Parties to the Montreal Protocol

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Under Article 6 of the Montreal Protocol, the Scientific Assessment Panel (SAP) is tasked with providing an assessment of the state of the ozone layer every four years, i.e. WMO/UNEP Ozone Assessment. In November 2015, the Parties to the Montreal Protocol agreed to the “terms-of-reference” for the “Scientific Assessment of Ozone Depletion: 2018” and requested the SAP to deliver this report no later than the end of calendar year 2018 (see Fahey et al., 2016). The Terms broadly resemble those for the previous Assessment written in 2014. They include requests for updates on ozone-depleting substance trends and emissions, current findings on ozone and trends, projections into the future, and new science findings related to stratospheric ozone. These terms have been broadly formulated into a series of science questions that the SAP has prioritized:

- How will the ozone layer change over the 21st century in response to atmospheric changes from sudden stratospheric warmings, an accelerated Brewer Dobson circulation, and other processes?
- What are the impacts of climate gases (CO₂, CH₄, N₂O, HFCs, etc) on the stratospheric ozone layer? Can we de-convolve their relative effects?
- Is the Antarctic ozone hole and Arctic winter/spring ozone depletion developing according to our understanding?
- Is the recovery of ozone in the upper stratosphere consistent with our expectations based on C_{ly}, temperature, and other factors?
- What is the impact of the changing stratosphere on surface climate (e.g., past Antarctic and Arctic ozone depletion and future recovery)?

The above questions are not exhaustive, and the Terms give wide latitude for additional questions and research findings. A solicitation to the community on the scope of the 2018 Assessment will be sent out in autumn 2016. In order to ensure the widespread and consistent use of model results in the next assessment, we have been appointed as a SAP modelling sub committee. Our aim is to liaise with the modelling community to ensure that robust model results can underpin the conclusions of the next assessment. Clearly, results from the Chemistry-Climate Modelling Initiative (CCMI) will provide an important component of these results (see Hegglin et al., 2016).

This poster will review the expected modelling needs of the next assessment, provide preliminary results for some of the above questions and indicate where new model experiments may be needed.

Fahey, D., et al., SPARC Newsletter no 46, January 2016.

Hegglin, M., et al., SPARC Newsletter no 46, January 2016.