

## **Solar Variability and its Links to Ozone-Climate Interaction**

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After the middle 1990s, ozone levels have been increasing particularly in the northern hemisphere after a long-term downward trend. An increase of ozone can be expected following the peaking of stratospheric halogen loading in the late 1990 and the slow decline afterwards as a consequence of the implementation of the Montreal Protocol and its amendments banning ozone depleting substances. However, stratospheric ozone at middle and high latitudes show large inter-annual variability related to ozone transport (atmospheric dynamics) and ozone chemistry that are intimately linked. Using satellite total ozone data starting in 1979 (SBUV, TOMS, GOME) it can be shown that the recent increase in ozone in both hemispheres has a rather minor contribution from changing halogen levels, but are in large part related to the increasing strength of the Brewer-Dobson circulation governing ozone transport into high latitudes and the rise of solar cycle 23. Since the direct radiation impact on lower stratospheric ozone (as represented by total ozone) is rather small, solar irradiance variability must alter ozone via dynamical feedbacks as will be discussed in this talk.