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The Brewer-Dobson circulation and higher latitude ozone changes

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The Brewer-Dobson Circulation (BDC) plays a major role in ozone transport from the tropics to the poles and by that it governs the global distribution of total column ozone. Climate models predict a strengthening of the BDC in times of climate change. This would lead to an accelerated recovery of ozone abundance in higher latitudes. However so far there is no clear evidence of this strengthening. The strength of the BDC is dependent on wave forcing which slows the meridional winds and by that disturbs the geostrophic balance of Coriolis force and pressure gradient force. A good measure for the wave forcing is the eddy heat flux in 100hPa. It is highly correlated with changes in the total ozone columns of the polar regions and the tropic.
Another major driver of the global ozone distribution is the photochemical destruction of ozone, due to ozone depleting substances (ODS) such as chlorofluorocarbons (CFCs). A special case of this is the rapid depletion of ozone in the presence of polar stratospheric clouds (PSCs). These clouds build up inside the polar vortices, are highly temperature dependent and strengthen the efficiency of ODS.
In order to analyse the evolution of the higher latitude ozone abundance as a function of dynamical changes and the change in the abundance of ODS it is necessary to quantify both effects separately.
This work focusses on the influence of the mid-latitude 100hpa eddy heat flux on changes in ozone in higher latitudes.