

FESD Ozone and Climate Web meeting, Friday 19th May, 2 until 3.30
Representatives from JHU, Columbia and MIT were in attendance.

There were two presentations (presentations attached):

1. Ed Doddridge spoke about:

Impact of the Southern Annular Mode on the seasonal cycle of Antarctic sea ice extent.
Abstract is below

Through analysis of remotely-sensed sea surface temperature (SST) and sea ice concentration data we investigate the impact of the Southern Annular Mode (SAM) on sea ice extent around Antarctica. The wintertime sea ice extent maximum is not correlated with SAM from year to year, but we find a clear signal of SAM in the growth phase during autumn. We show that positive SAM anomalies in the austral summer produce anomalously cold SSTs that persist and lead to anomalous ice growth in the following autumn. Negative SAM anomalies in the summertime lead to anomalously warm SSTs and a reduction in the rate of sea ice growth. While exhibiting some regionality the anomalous patterns of sea ice growth are largely annular and are not localised to one sector. The imprint of SAM appears to be seasonal: SST and ice extent anomalies do not persist from one year to the next, with the system resetting itself each winter. Our analysis shows the marked reduction in Antarctic sea ice extent during is likely associated with the strongly negative SAM during the 2016/17 austral summer. This study suggests that Antarctic sea ice extent exhibits some seasonal predictability.

2. Darryn Waugh spoke about ozone response functions.

He reviewed which calculations had been carried out by the group so far:

MITgcm [Ferreira et al. 2015]

CCSM3.5 [Ferreira et al. 2015]

GFDL [Seviour et al. 2016, 2017]

GFDL-highGM unpublished

GISS unpublished

together with relevant analysis of CMIP5 pre-industrial runs, e.g., SAM CRFs [Kostov et al. 2017]

He discussed whether they to tell a consistent story and paid particular attention to the possible importance to the fast timescale response of cloud feedbacks due to jet shifts emphasized in the Grise and Polvani paper.

The group thought that the (bare-bones) outline of a paper should be written and circulated which draws together what we are finding. The JHU group agreed to take the lead.

We ended with a discussion on whether we should get further CRFs calculations carried out with high-end models such as WACCM.