



The Aleutian-Icelandic seesaw in ensemble GCM simulations

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There is recent evidence that climate variations over the North Pacific and Atlantic sectors are coupled in late winter, through an Aleutian-Icelandic Seesaw (AIS), linking dynamically a PNA-like (Pacific-North America) pattern and the NAO. This seesaw has potential impact on the predictability over the North Atlantic region.

We have investigated the formation and lifecycle of this AIS during the 1978-1993 in an ensemble of seasonal, troposphere-stratosphere hindcasts with the AGCM Arpege, forced by observed sea surface temperatures. In the ensemble-mean, we find a coherent AIS (peaking in February), which extends well into the stratosphere, where its presence modulates ultra-long planetary waves propagation and the polar night jet intensity. The AIS is correlated with the ENSO phenomenon. During AIS negative phase, El-Niño conditions correspond to a deeper than normal Aleutian Low, enhanced planetary wave vertical propagation and a weakened stratospheric polar vortex. Potential predictability of the hindcasts is examined.

Preliminary results are also shown on the seesaw signature in ensemble decadal simulations, with realistic SST and snow cover.