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## A regional (land – ocean) comparison of the seasonal to decadal variability of the Northern Hemisphere jet stream 1871-2011

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Seasonal to decadal variations in Northern Hemisphere jet stream latitude and speed over land (Eurasia, North America) and oceanic (North Atlantic, North Pacific) regions are presented for the period 1871 – 2011 from the Twentieth Century Reanalysis dataset

Significant regional differences are seen on seasonal to decadal timescales. Seasonally, the jet latitude range is lower over the oceans compared to land, reduced from 20° over Eurasia to 10° over the North Atlantic where the ocean meridional heat transport is greatest. The mean jet latitude range is at a minimum in winter (DJF), particularly along the western boundary of the North Pacific and North Atlantic, where the land-sea contrast and SST gradients are strongest.

The 141-year trends in jet latitude and speed show differences on a regional basis. The largest increasing trends in jet latitude and jet speed are observed in the North Atlantic, with increases in winter of 3° and 4.5ms<sup>-1</sup>, respectively. There are no trends in jet latitude or speed over the North Pacific.

Long term trends are overlaid by multi decadal variability. In the North Pacific, 20-year variability in jet latitude and jet speed are seen, associated with the Pacific Decadal Oscillation which explains 50% of the winter variance in jet latitude since 1940.

In addition, current work on a lead/lag analysis of western boundary currents/ocean variability in the North Atlantic and North Pacific and links to the northern hemisphere jet stream will be presented.

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