Can Arctic sea ice loss drive teleconnection patterns into the midlatitudes?

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The dramatic decrease of Arctic sea ice extent in recent times (Simmonds 2015) has prompted questions as to what the *direct* of effect this might be on midlatitude weather and climate. At present there are a number of disparate views on this (Screen et al. 2013; Simmonds and Govekar 2014; Luo et al. 2016a, b; Chen et al. 2016; Luo et al. 2017a, b; Yao et al. 2017; Blackport and Kushner 2017)).

We are using simple ray tracing techniques to explore the possibility of robust Rossby wave trains being forced from within the Arctic. The key to this is not surface temperature (*T*s) or fluxes *per se* but rather whether there is a link between *T*s and precipitation (and hence convective heating). We have correlated the detrended seasonal means of ERA-Interim *T*s and Global Precipitation Climatology Project (GPCP) precipitation. Fig. 1 shows that these correlations are, at best, modest particularly in summer. They cast into doubt the possibility of the Arctic region driving robust teleconnections into the midlatitudes.

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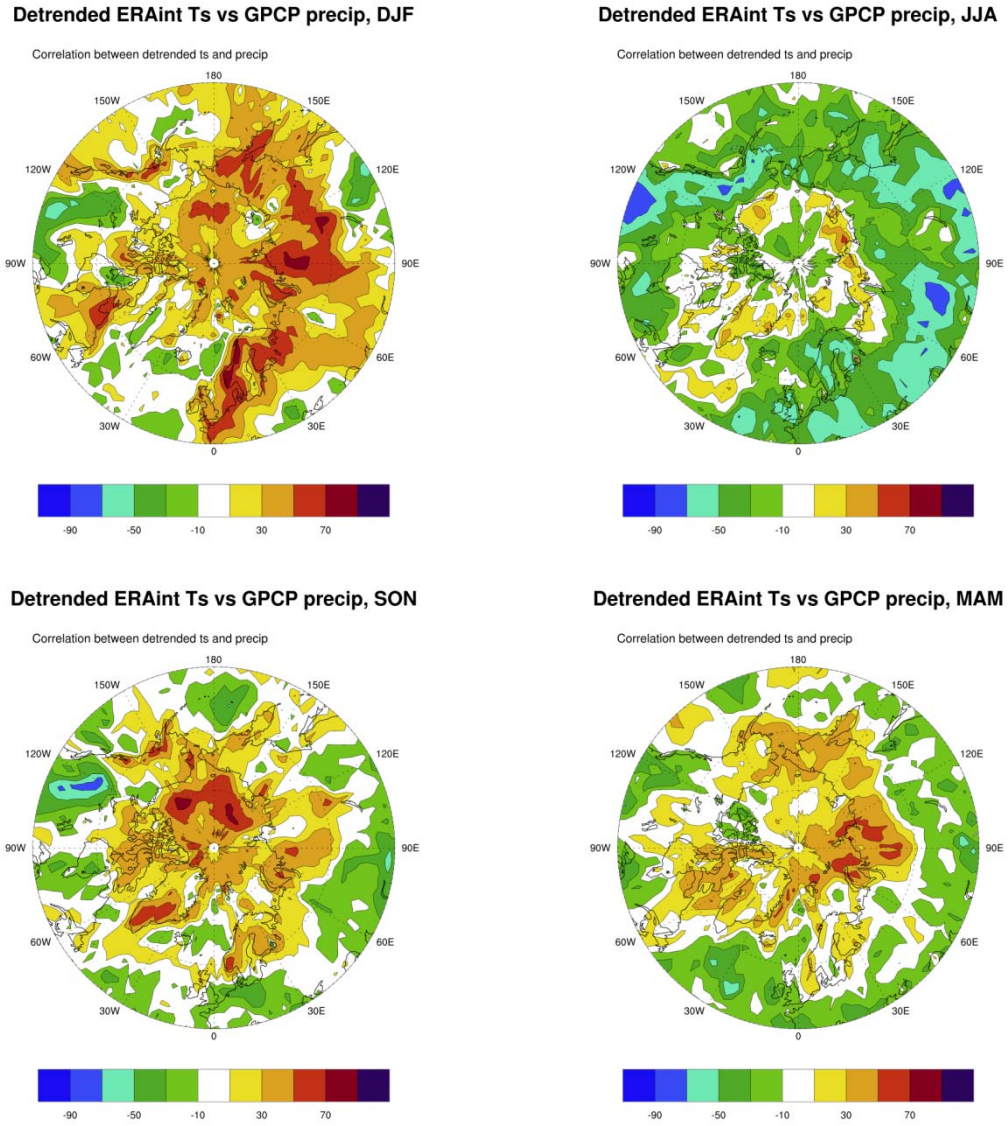

Fig . 1: Correlations of detrended seasonal means of ERA-Interim *T*s and GPCP precipitation