



## **The interaction between atmospheric and oceanic fronts – the junction between weather and climate**

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To first order in the middle latitudes, observations have traditionally suggested that it is the atmosphere that forces the ocean, with the ocean responding passively. Recently however, modelling studies performed at high resolution have shown that the impact of oceanic fronts can in fact extend throughout the entire depth of the troposphere. I will be presenting recent work across the Gulf Stream region that suggests the key physical process to understanding the impact of the extra-tropical ocean on the large-scale atmospheric circulation is the interaction of the atmospheric fronts (i.e. the synoptic weather system) with the underlying sea-surface temperature distribution (primarily set by the large-scale ocean circulation). Crucially, I will discuss how this process may have been previously underestimated due to models running at insufficient resolution. As such, I argue that the impact of the ocean on mid-latitude climate will likely increase as we move towards higher resolution general circulation models.