



Temperature changes along the path of the Gulf Stream and North Atlantic Current using two datasets with contrasting resolution

Zoe Jacobs, Jeremy Grist, Simon Josey, Robert Marsh, and Bablu Sinha

National Oceanography Centre, Southampton, United Kingdom (zlj1e13@noc.soton.ac.uk)

European climate and weather is strongly influenced by the Gulf Stream and the North Atlantic Current (GSNAC), which bring warmer surface waters from the Tropics to the mid-latitudes and further north. Changes in the GSNAC characteristics (path, strength) can also modulate regional weather and climate by altering sea surface temperature (SST) patterns and the associated air-sea interaction that influences the atmospheric storm track. Two different datasets of SST observations are analysed to establish recent changes in GSNAC characteristics. An objectively analysed product at 1° resolution (EN3) spanning 1950-2010 is compared with a satellite dataset (AVHRR) at 4km resolution, spanning 1985-2010. The maximum SST gradient for selected latitudes and longitudes is calculated and used to define the path of the GSNAC, to establish temporal variations associated with anomalous air-sea interaction. Preliminary results of the lower resolution data reveal low frequency, multi-decadal variability at 50°N. These results are guiding a study of drivers of GSNAC variability in eddying (1/12° NEMO) ocean model hindcast spanning 1988-2010 including computation of model water parcel trajectories to investigate the effects of GSNAC variability on the wider North Atlantic circulation.