

Towards a regional coupled ocean-atmosphere system using the regional coupled suit

Frank Colberg, Chris Bladwell and Greg Roff, Bureau of Meteorology

The Bureau is currently transitioning its global ocean forecasting system from the MOM (Modular Ocean Model) to the NEMO (Nucleus for European Modelling of the Ocean) code base. This strategic shift aligns us with ocean model developments at the UK Met Office, facilitated through the Momentum partnership.

This transition also presents an opportunity to explore a similar shift for our regional ocean systems, which currently rely on the ROMS (Regional Ocean Modelling System). By adopting the NEMO code base, we can utilize the Met Office's expertise in regional coupled modelling. Specifically, the Met Office has developed a regional coupled framework realized through the Regional Coupled Suite.

Here we present early results from a regional coupled system over the South Australian Bight. This system combines an existing atmospheric regional city type model with a NEMO regional ocean model, based on a pre-existing ROMS model configuration.

Results will firstly focus on a comparison of the regional ocean models (ROMS and NEMO) to available ocean observations. It will be shown that the applied boundary conditions determine to a large extent the model's ability to accurately represent the observations. Furthermore, results show that the NEMO model compares favourably to the existing ROMS model, and this suggests a transition to NEMO in the regional space is viable.

Results from the coupled system focus on the implementation of the RCS, discussing unsolved problems and demonstrate the effect of ocean coupling to the atmosphere and ocean systems.