

# **Mesoscale interactions and biological fronts across the Agulhas Current: First Results from ASCA**

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The Agulhas Current is the largest western boundary current in the southern hemisphere and plays an important role in heat and salt exchange between the Indian and Atlantic Oceans. The Agulhas System Climate Array (ASCA) project includes the planned deployment of seven tall (300 to 4500 m), two shelf (80 and 120 m) and five Current and Pressure Inverted Echo Sounders (CPIES) moorings in a minimum five year undertaking to monitor heat and volume transport of the Agulhas Current. In April 2015, the first ASCA cruise was completed onboard the RV *Algoa*, whereby six of the nine moorings were deployed, and an intensive CTD and Vertical Bongo transect was undertaken. Offshore of the ASCA transect was a large anticyclonic eddy which maintained its position for the entire duration of the cruise. On its landward side, southwestward currents potentially strengthened the already powerful western boundary current to over  $2 \text{ m s}^{-1}$ . Additional verification of this flow and the anticyclonic eddy are shown from the deployed satellite drifters, S-ADCP transects and satellite remote data. A comparison will be made with a composite of the three-year Agulhas Current Time-series (ACT) mooring data set, to determine the frequency of occurrence of offshore anticyclonic eddies and whether these influence the Agulhas Current by significantly increasing its velocity. Initial results from dissolved oxygen and chlorophyll concentrations show marked differences between the shelf, core Agulhas Current and anticyclonic eddy edge environments, and we investigate whether similar patterns are observed in the zooplankton communities.