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Finescale glider observations of submesoscale eddies in Central New Zealand

Khushboo Jhugroo | National Institute of Water and Atmospheric Research (NIWA), New Zealand + University of Auckland

Co-Authors

Joanne O'Callaghan | National Institute of Water and Atmospheric Research, New Zealand; Craig Stevens | National Institute of Water and Atmospheric Research, New Zealand and University of Auckland

Abstract (Oral Presentation)

Central New Zealand is a region of focal interest characterised by Oral permanent and variable signals, covering a wide range of dynamical scales from intense submesoscale and mesoscale to seasonal and interannual variability. The Greater Cook Strait (GCS) located between the North and South Islands of New Zealand consists of oceanographic processes at regional and local scales. One aspect of this doctoral research uses ocean glider observations to study submesoscale features characterised by low salinity observed in the GCS. Although intermittent upwelling on the north-west coast of the South Island forces higher salinity water into GCS, this shelf region also experiences near-surface water freshening from nearby rivers. Observations from seven glider missions completed within 2015 and 2018 on an established transect in GCS have identified 22 low salinity submesoscale features (LSSMFs). These LSSMFs were persistent irrespective of the seasons and were at least 0.4 psu lower than the ambient salinity in the subsurface (>35.1 psu). By sampling at scales of kilometres and hours, ocean gliders provided a better chance to continuously sample the transient LSSMFs than other platforms such as ships or moorings.