



Altimetric observations of seasonal and interannual changes of slope currents off Atlantic Canada

G. Han

Fisheries and Oceans Canada, St. John's, NL, Canada (Hang@dfo-mpo.gc.ca;
1-709-772-4326)

Seasonal and interannual sea level and current variations over the Scotian and Newfoundland Slope are examined using ten years of TOPEX/Poseidon (T/P) satellite altimeter data. Geostrophic surface current anomalies normal to ground tracks are derived from the along-track gradients of sea level anomalies. The altimetric current anomalies are combined with climatological mean circulation field of a finite element model to construct nominal absolute currents. The seasonal-mean results indicate that the sea level is highest in late summer and lowest in late winter and the slope circulation is strongest in winter/fall and weakest in summer/spring. The present analysis also reveals prominent interannual changes of the sea level and current anomalies for the study period. For example, the winter circulation over the Scotian Slope was strongest (up to 30 cm/s in both the southwestward shelf-edge current and northeastward slope current) in 1998 and weakest (weaker and broader shelf-edge current) in 1996. The interannual slope circulation variability may be related to the fluctuation of the equatorward Labrador Current strength and of the Gulf Stream north-south position. The altimetric currents are consistent with frontal analysis data observations and numerical model results.