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We present estimates of volume transport for the Southern Ocean for 2004-present based on zonal geostrophic velocity fields computed from sea surface topography from altimetry and Argo autonomous floats. The data are combined to estimate the current at 1975 dbar, and then the relative geostrophic currents are computed from the Argo data and integrated from 1975 dbar to the surface along with the reference current at depth and surface current from altimetry to determine the total transport. Transport is computed between 29.5°S and 58.5°S. Velocities at depth are first compared to those estimated from Argo drift trajectory at 1000 dbars available from the Asia Pacific Data Research Center (APDRC). The inferred velocities agree with those from the Argo drift within the estimated sampling error of the latter, but have fewer gaps in space and time. Transport means across two choke points – south of Africa (131.9 ± 29.2 x 106 m3 s-1) and Tasmania (124.3 ± 13.1 x 106 m3 s-1) - are in good agreement with previously published results. The true utility of this method is found in the capability of generating time series as well as means transports. These observed transport fields could be used to validate conclusions drawn from computational models to better understand climate dynamics.
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