Abstract View

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Ekman Volume Fluxes for the World Ocean and Individual Ocean Basins

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ABSTRACT

Monthly climatological estimates of wind stress have been used to compute Ekman volume fluxes in the world ocean. Specifically, meridional and zonal Ekman volume fluxes have been computed and from the divergence of these horizontal components, the vertical Ekman volume flux at the base of the Ekman layer has been computed. We have zonally integrated the meridional and vertical components across the world ocean and individual ocean basins, and present maps of the time-latitude variation of these transports. The contribution of the Pacific Ocean dominates the global zonal integrals in the extratropics. lle Indian Ocean exhibits a large annual cycle in meridional Ekman volume flux. Ekman upwelling in the tropics of the Atlantic and Pacific occurs from June through November. The maximum upward vertical Ekman volume flux slightly exceeds 2.5 sverdrup in the Pacific and 1.0 sverdrup in the Atlantic and occurs centered around 10°N in each ocean.