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Press Release

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Mysterious Currents Detected in Our Ocean

Nikolai Maximenko and Oleg Melnichenko at the International Pacific Research Center, University of Hawai'i, and colleagues at Scripps Institution of Oceanology and the Earth Simulator Center in Japan have confirmed the existence of mysterious ocean currents that flow alternatively in an east-west direction. In analyses of mean dynamic topography, estimated from drifter data, satellite altimeter measurements, and wind data, the currents give the appearance of striations on the ocean surface and are visible nearly everywhere in the oceans. The currents' existence was detected in 2004. The team has now confirmed them with data from direct ocean sampling. The currents appear as jets, a few hundred kilometers wide, extending over thousands of kilometers and flowing in an alternating more or less east-west direction. The jets were so hard to detect among other things because they are very weak. In the plot, the red lines indicate eastward flow at about 0.5 – 1.5 cm/s (or about 50 – 150 ft/hour), and the blue lines indicate westward flow at approximately the same speeds. The jets, which are also seen in high-resolution models like the Ocean General Circulation Model for the Earth Simulator, extend deep down, perhaps even to the ocean bottom. The mechanism that causes these “striped” jets has not yet been determined, though the authors discuss hypotheses to be tested in their long-term project. Whether these jets are important in climate change and its computer modeling will need to be also determined. The study has received with astonishing interest by the media ([see links](#)).

Citation: Nikolai A. Maximenko, Oleg V. Melnichenko, Pearn P. Niiler, Hideharu Sasaki, Stationary mesoscale jet-like features in the ocean. *Geophysical Research Letters*, VOL. 35, L08603, doi:10.1029/2008GL033267, 2008.

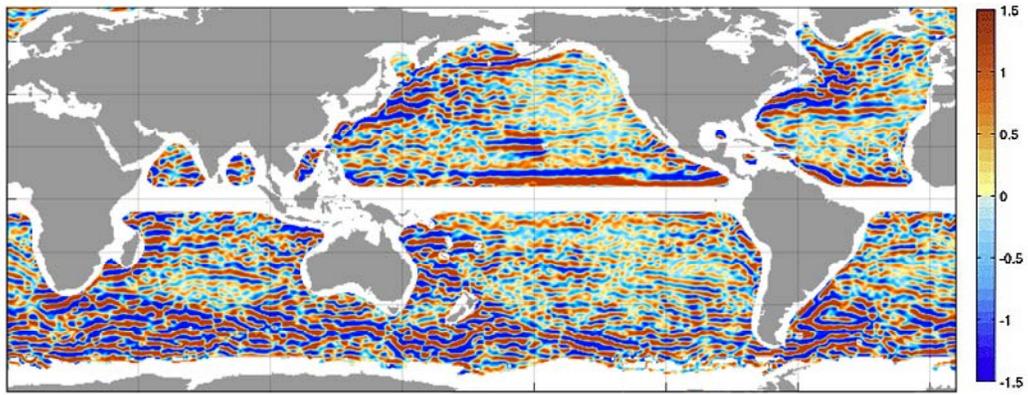


Figure: 1993–2002 mean zonal surface geostrophic velocity calculated from mean dynamic topography.