Deep flow in the central tropical Pacific

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A recent (9/91) meridional section at 151W in the tropical Pacific shows evidence of deep westward flow between 2000 and 3000 meters, centered at 12S and 4-5N. A layer of reduced oxygen along with increased temperature on isohalines near 2500 meters it he primary indicator of the flow, based on CTD profiles at 30 nm spacing. The location of the westward jet at 12S was expected, based on helium data at 135W (Craig, personal communication), but the westward jet in the north suggested by the helium distribution at 135W was centered at 7N. Similar westward flow is also observed in the South Atlantic, possibly with a common dynamical basis.

Westward flow is also indicated near the ocean bottom close to the equator, manifested in a distinct isopycnal bulge and layering in dissolved oxygen and silicate north and south of the equator and in silicate distribution on an isopycnal just above the bottom. This is likely to be the flow suggested by Johnson and Toole (1991), based on silicate data at 10N.

Eastward abyssal flow along the Clarion Fracture Zone and deep basin to its north is suggested by the strong geostrophic shear and abyssal South Pacific water properties there.