



Flow variations in the Strait of İstanbul (Bosphorus)

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The volume fluxes of upper and lower layers of the Strait of Istanbul are calculated by using monthly ADCP transects data collected in both exits of the strait, from June 1999 to December 2000. The interface variations along the strait are also examined by means of monthly CTD and ADCP data.

The upper layer thickness of the strait is about 20-30m in the southern part and 40-50m in the northern part of the strait during the period considered. The slope and thickness of the interface are reasonably variable depending on the atmospheric conditions and sea level differences between the Sea of Marmara and the Black Sea.

In the strait of Istanbul, the volume fluxes vary in an extensive range mainly due to the atmospheric conditions. The upper / lower layer fluxes are in the range of $88-1012\text{km}^3\text{year}^{-1}$ / $56-840\text{km}^3\text{year}^{-1}$ at the northern exit, and in the range of $22-1017\text{km}^3\text{year}^{-1}$ / $158-903\text{km}^3\text{year}^{-1}$ at the southern exit of the strait. During the period May to August, the volume flux of the upper layer in the southern part is generally higher than the northern part of about $630\text{km}^3/\text{year}$. In this period, the current speed of the upper layer increases in the southern part of the strait and flow is turbulent. On the other hand, at the northern exit of the strait, when the volume fluxes of the lower layer are greater than of about $300\text{km}^3/\text{year}$ the flow is more turbulent in the whole strait.