

## Internal Hydraulic Jump in the Tsugaru Strait

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In Sep. 2017, a fine- and micro-structure observation was conducted across a sill in the Tsugaru Strait in order to know the mixing processes of the throughflow, which flows eastward between the Hokkaido and Honshu Island, Japan. We observed that large depression of isopycnals near the downstream edge of the crest where the eastward cross-sill velocity was strongly bottom-intensified. In the vicinity of the edge, the layer Froude number became supercritical, indicating the occurrence of internal hydraulic jump. Energy dissipation rate was significantly elevated to  $O(10^{-6} \text{ W/kg})$  in the lee of the sill associated with the internal hydraulic jump. Turbulence was also enhanced via shear instability along the sloping isopycnals of large depression. The downstream stratification and nutrient concentration was largely modified in the subsurface layer, deserving further studies on the impact of upwelling and mixing through the hydraulic jump to the local and downstream environment.

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