

Capturing passing hyperpycnal turbidity currents in a submarine canyon after a typhoon

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Two hyperpycnal turbidity-current events over 16 hours were captured by two moorings in a submarine canyon 650 m from the surface. One mooring was configured with temperature sensors, one acoustic current meter, and a non-sequential sediment trap. The other mooring was configured with an upward-looking long-ranger ADCP. The observed turbidity currents were triggered by typhoon floods of the river that feeds into the canyon. The thickness of the currents was 140 m having max. down-canyon velocity of 1.6 m at the head of the turbidity current. They carried warm water from the surface and terrestrial sediment and organic carbon. Our findings confirms the link between typhoon-triggered hyperpycnal plume at the mouth of a small mountainous river and the turbidity currents in a nearby submarine canyon that forms an efficient conduit to transport large amount of sediment and organic carbon to the deep-sea.

Keywords: typhoon, hyperpycnal turbidity current, small mountainous river, submarine canyon



