

## Characteristics and depositional processes of sediments off the Fuji River, Suruga Bay, Japan

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Suruga Bay is located at the plate boundary and has a steep topographic feature. The Fuji River has its source at Mt. Nokogiri (H=2685 m) in the Southern Alps and flows southwards through Kofu and the Southern Fossa Magna into Suruga Bay. The Southern Alps are one of the most uplifted regions in Japan, and the associated erosion is enormous. A lot of turbidity currents of flood origin are occurring. To clearly how this is transported and deposited, Around the mouth of the Fuji River, TOKAI university started a field survey to investigate the formation process of turbidite. We revealed the detailed topography and sediment distribution of the fan delta off the mouth of the Fuji River (Soh et al., 1995). At the top of the fan delta at the back of the bay, coarse to fine-grained sediments are distributed in a north-south reticulation channel over about 20 km. At the central of the fan delta, the reflection is dense and markedly, and at the edge of the fan delta, it changes into a thin streak. Sampling points (SFJ1~SFJ12) were set according to the water depth. The following a) ~e) were confirmed from the sediment samples and seafloor video. The bottom sediments were covered with light-olive silty sediments (including blackened plant fragments) at the top, middle and edge of the fan delta. Ripples mark (period 10-20 cm) were observed on the surface up to a depth of 700 m. Massive sandy sediments (around 2  $\phi$ ) with lamina development confirmed by soft X-rays were collected from seven sites located in the central part of the fan, from SFJ4 (560 m depth) to SFJ10 (1343 m depth). From the Centre to the edge of the fan delta near SFJ7 (1089 m depth), circular gravels larger than 10 cm were observed. At SFJ11 (1387 m depth) and SFJ12 (1418 m depth), which are located at the edge of the fan, pockets of black plant fragment a few centimeters thick were accumulated below the surface covered sediments. However, silt layer (12 cm) with multi lamination was developed below the surface in SFJ12. At SFJ7 (1089 m depth), the seabed video recorded the deposition of fresh plants with roots of around 20 cm on the seabed surface. Based on the above results, The gravels are found from the top of the fan to the central of the fan from the mouth of the Fuji River to a depth of 1000 m or more (about 7 km from the mouth of the Fuji River). At the central of the fan delta, massive sandy sediments are distributed, and at the top, fine-grained sediments consisting of silt cover the whole surface. From the characteristics of these sediments, it is inferred that the sediments off the Fuji River were formed by turbidity currents. The plant observed at SFJ7 (depth 1089 m) was a cattail native to the area around the mouth of the Fuji River. The fact that it was fresh and had not discolored on the seabed suggests that it had not been transported for a long time. Five days before the survey (1st October), The Typhoon No. 16 passed through the southern part of Suruga Bay, and it was confirmed that the water level increased by about 50 cm on 1st October. It was inferred that the vegetation along the river was carried away by the muddy current of the Fuji River swollen by the typhoon. The development of multiple laminae at SFJ12 suggests a change in sedimentation patterns. These results suggest that flood-derived turbidity currents originating from the Fuji River frequently occur in the inner part of Suruga Bay during typhoons and other events and may transport land-source sediments to the deep sea.

Keywords: Fuji River, Fujikawa fan delta, turbidity current, cattail, flood flow