Ocean Science
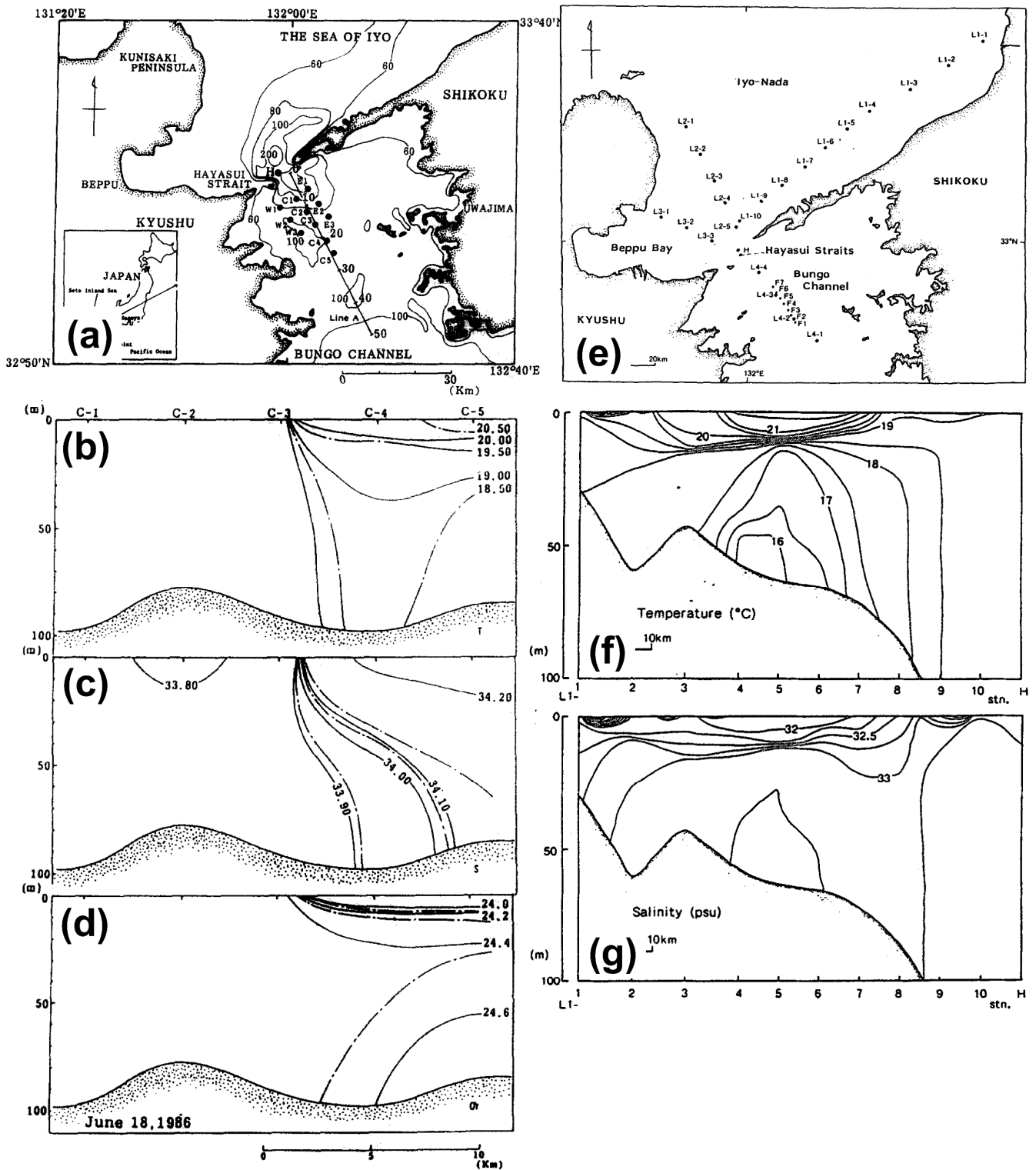
Supplement of

Multiple timescale variations in fronts in the Seto Inland Sea, Japan

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Figure S1. Observation studies of tidal fronts in Bungo Channel (left, after Yanagi and Tamaru, 1990) and Iyo-nada (right, after Takeoka et al., 1993). (a) Observation stations in Bungo Channel. Vertical distributions of water temperature (b), salinity (c), and density (d) along the observation line (from c1 to c5) in (a) across the front on 18 June, 1986. (e) Observation stations in Iyo-nada. Vertical distributions of water temperature (f), salinity (g) along the observation line (from L1-1 to L1-10) in (e) across the front on 3 July, 1991.

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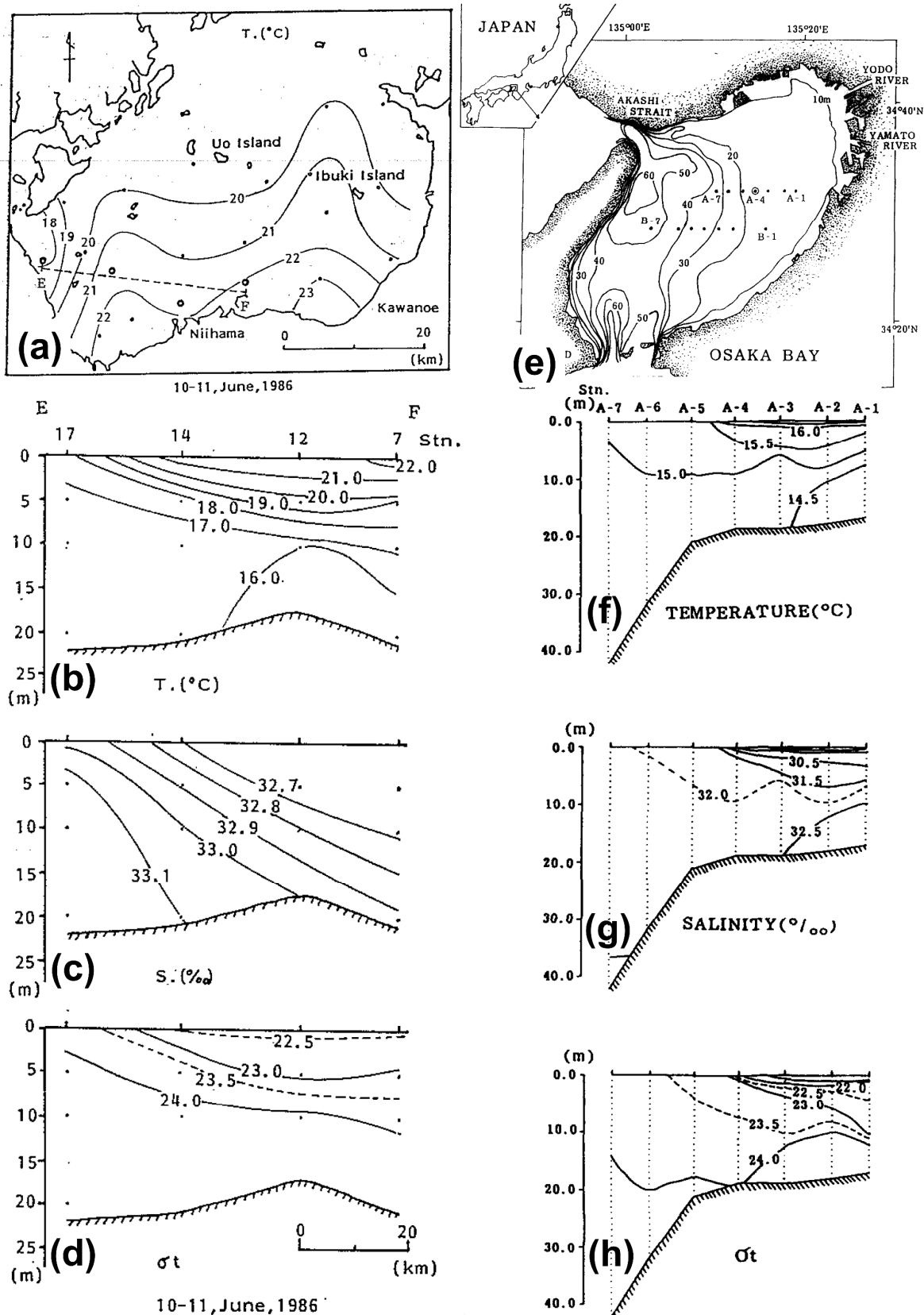
Figure S2. Observation studies of tidal fronts in Hiuchi-nada (left, after Yanagi and Yoshikawa, 1987) and Osaka Bay (right, after Yanagi and Takahashi, 1988). (a) Observation stations in Hiuchi-nada. Vertical distributions of water temperature (b), salinity (c), and density (d) along the observation line (from E to F) in (a) across the front on 10-11 June, 1986. (e) Observation stations in Osaka Bay. Vertical distributions of water temperature (f), salinity (g), and density (h) along the observation line (from A7 to A1) in (e) across tidal front on 17 May, 1987.
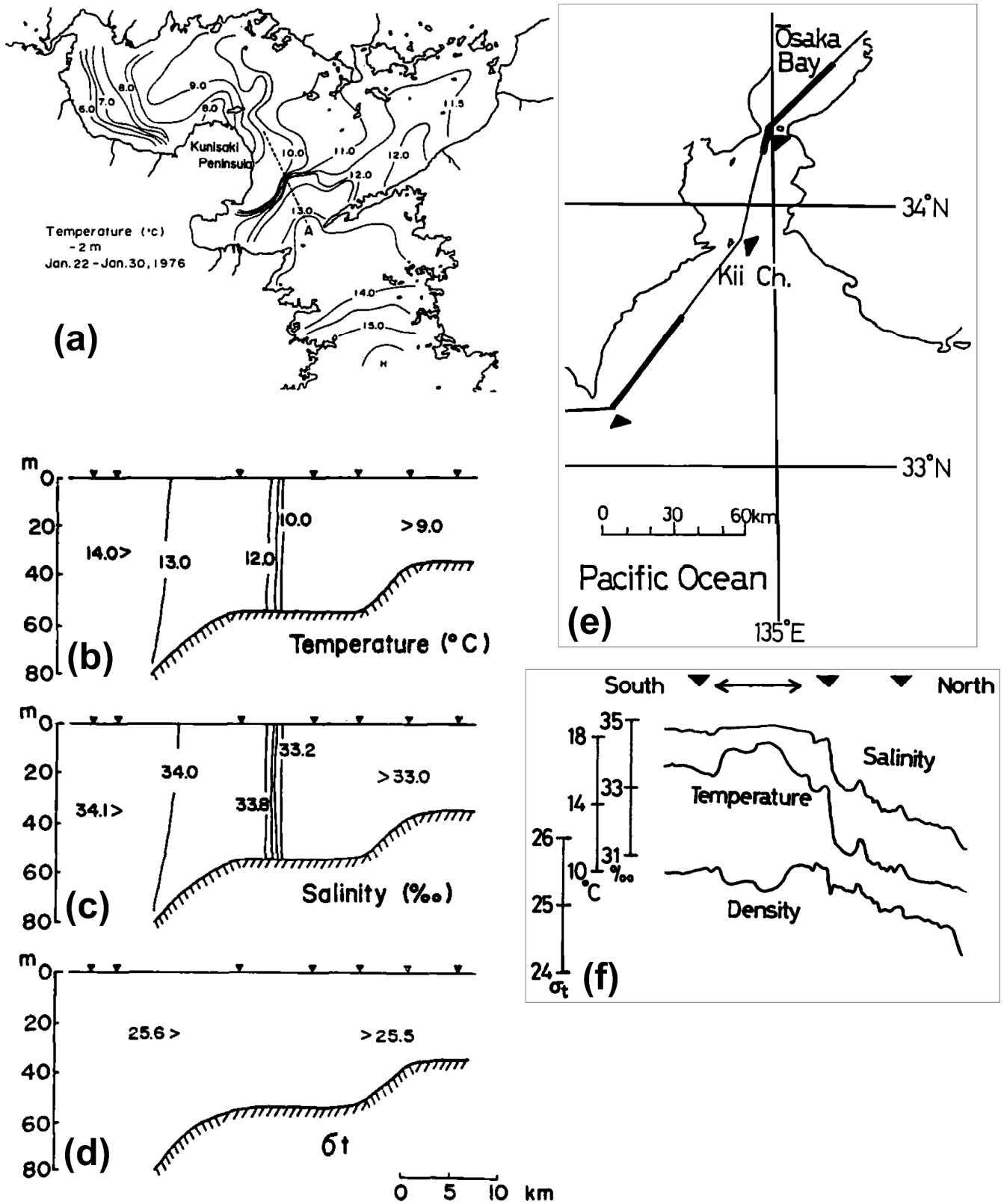
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Figure S3. Observation studies of thermohaline fronts in Iyo-nada (left, after Yanagi, 1988) and Kii Channel (right, after Toda, 1992). (a) Observation stations in Iyo-nada. Vertical distributions of water temperature (b), salinity (c), and density (d) along the observation line A in (a) across the front on 20-30 Jan, 1976. (e) Courses of observation ferryboat in Kii Channel on 8 February 1983. (f) Temperature and salinity recorded on the ferryboat mentioned in (e) together with density calculated from them.
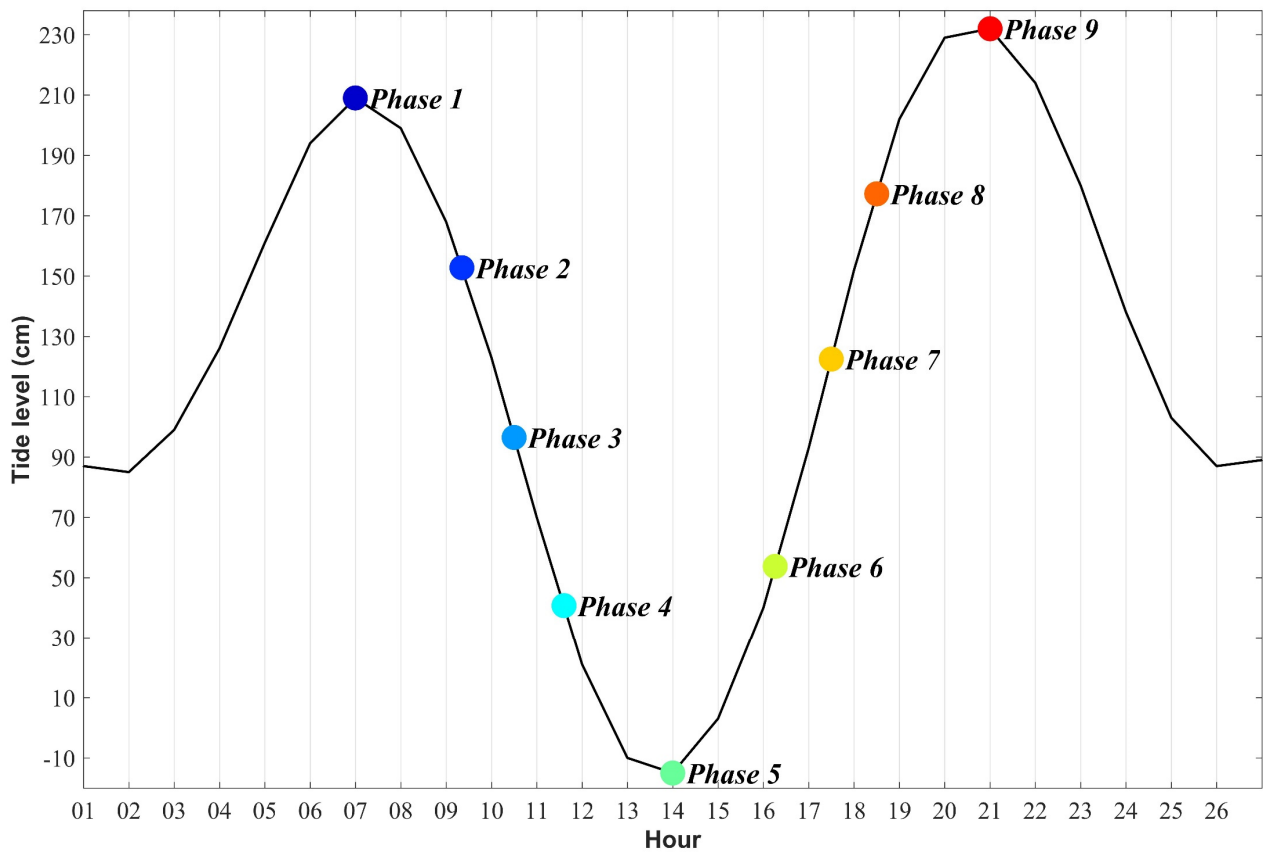
Figure S4. Tide level for 26 hours at G1 gauge data station. Nine phases, denoted as Indexes 1–9, were used to composite the SST data for the estimation of intra-tidal variations of the fronts.

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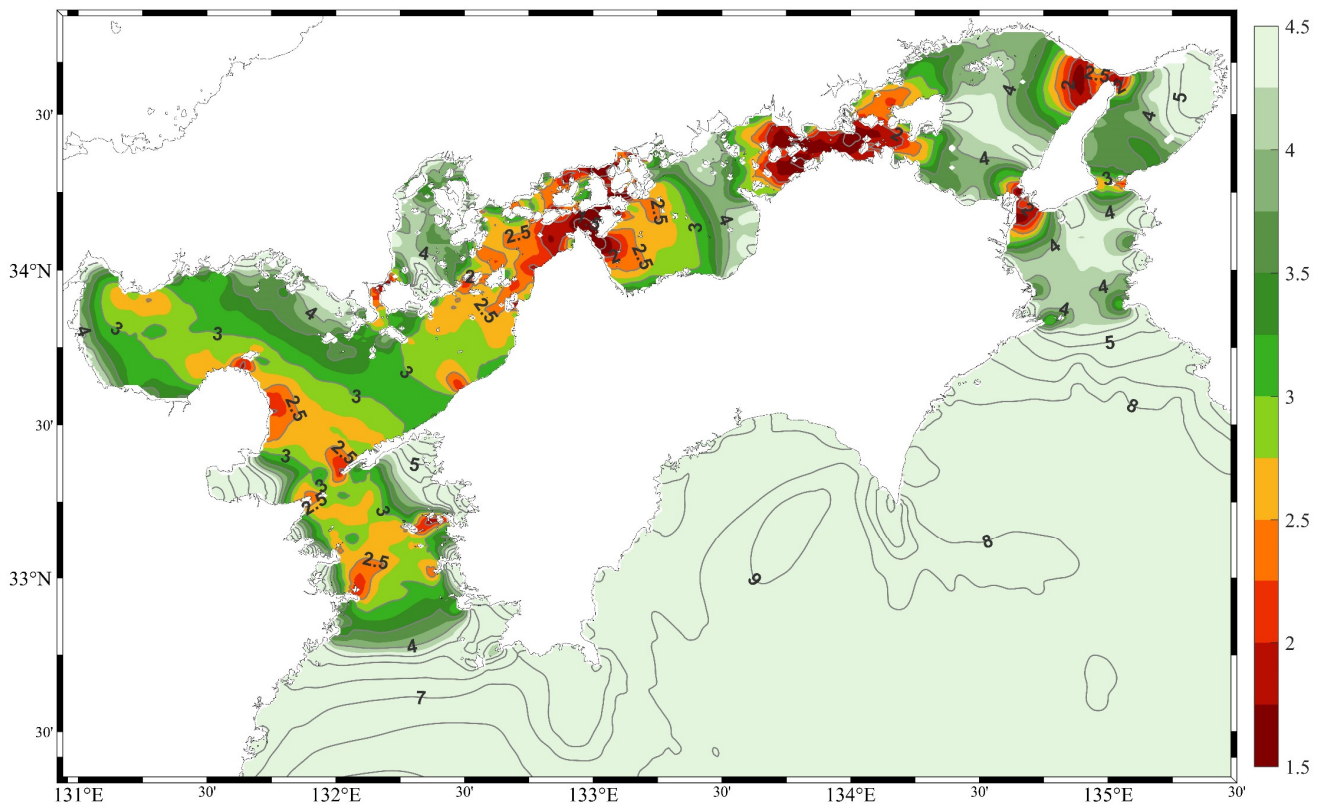
45 **Figure S5**. Distributions of $\log_{10}(h/u^3)$ in the Seto Inland Sea. h is the water depth and u is the amplitude of the M$_2$ tidal current.