橘湾における赤潮センシングおよび潮流解析によるアラートシステムの開発

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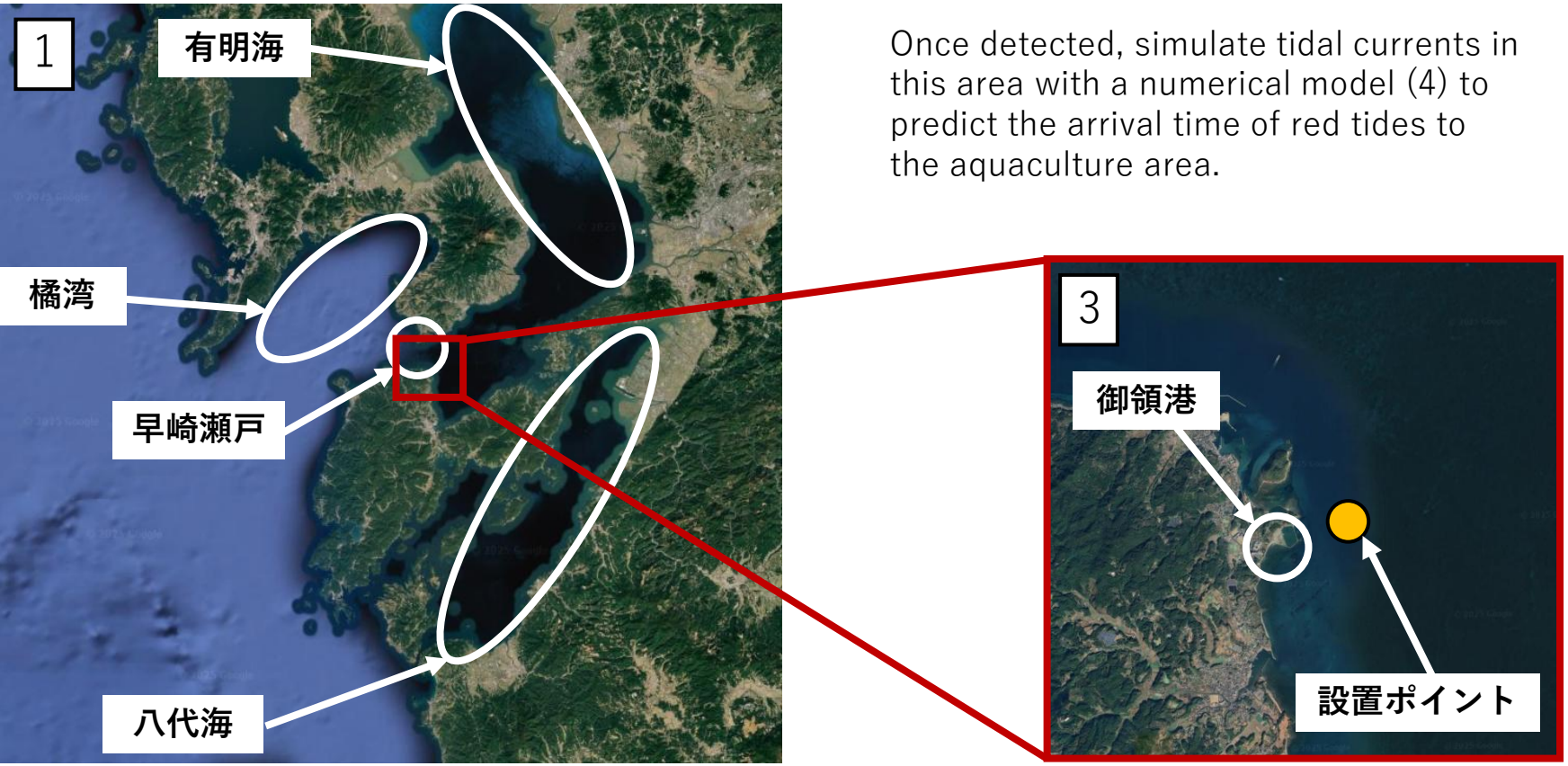
Background

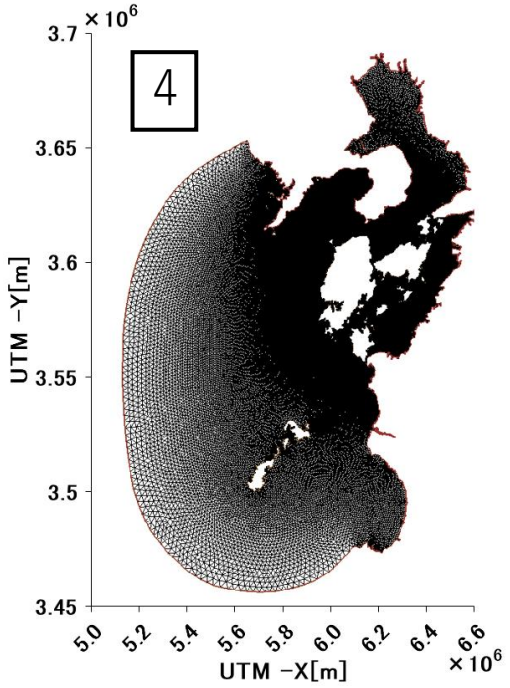
Red tides generated in the Ariake Sea and the Yatsushiro Sea flow with tides towards Tachibana Bay (1), affecting the aquaculture industry.

Approach

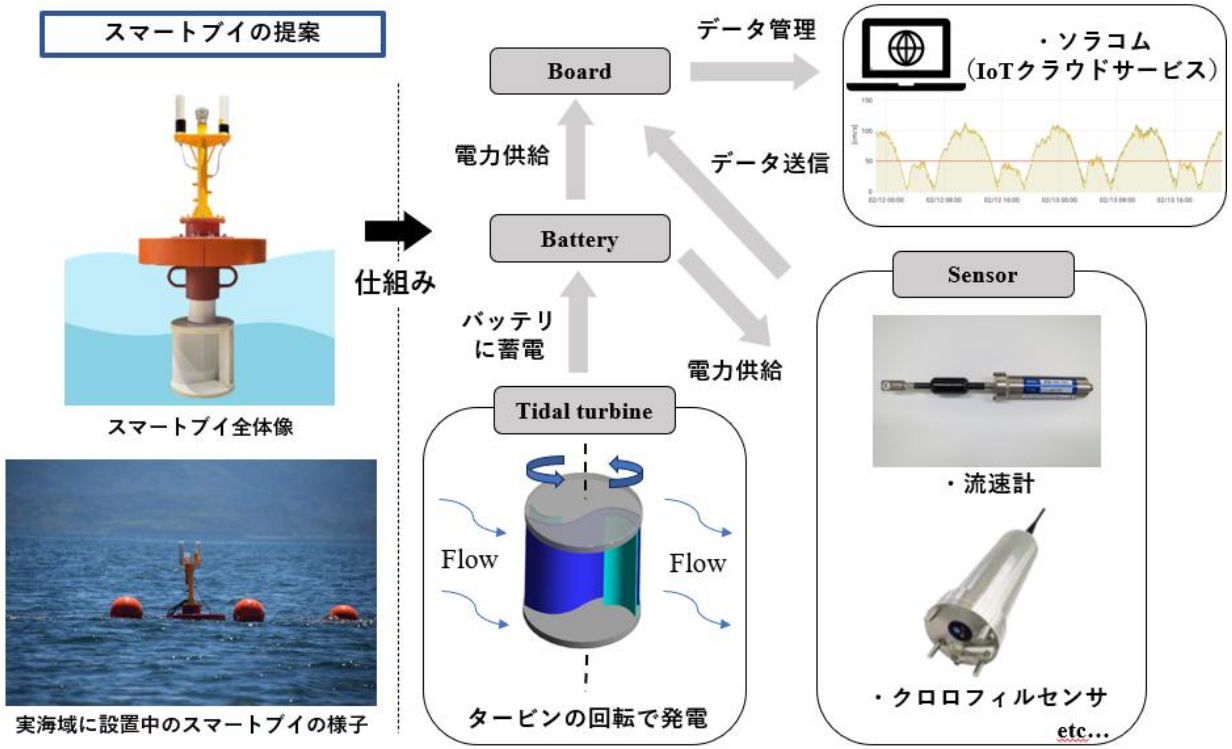
Detect red tides with a smartbuoy (2) installed in a location (3) between the red tide generation area and the aquaculture area.

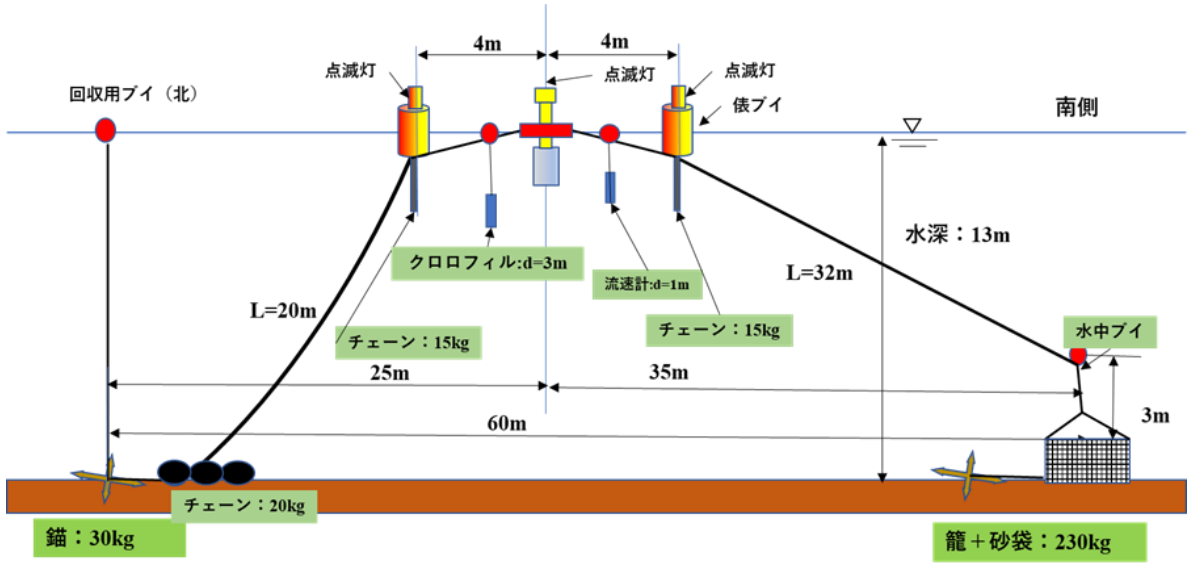
Once detected, simulate tidal currents in this area with a numerical model (4) to predict the arrival time of red tides to the aquaculture area.

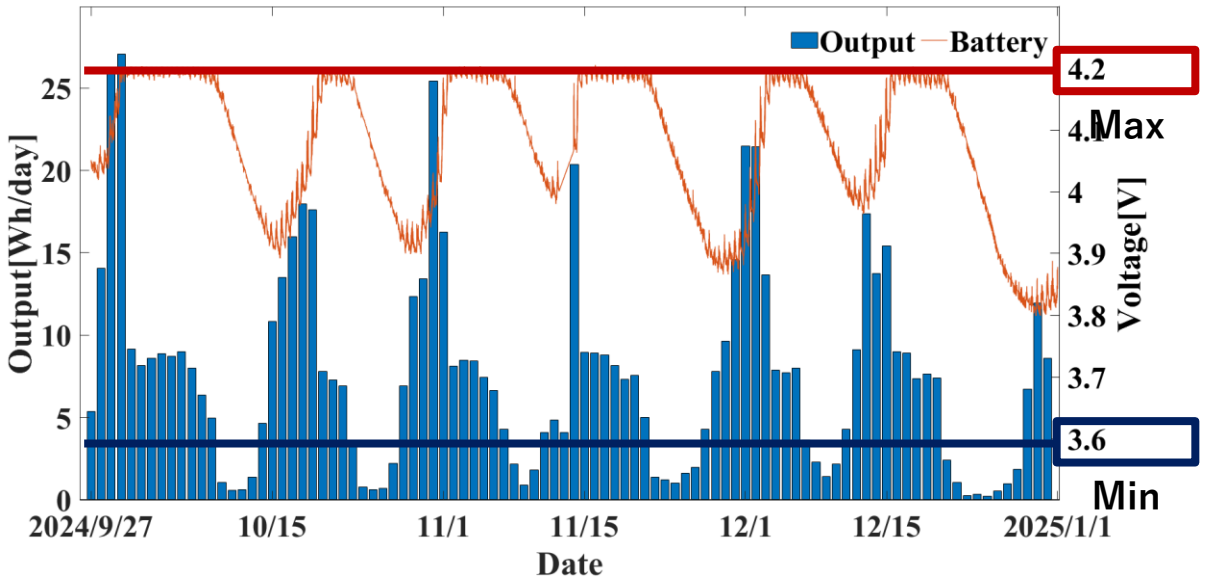




Smartbuoy



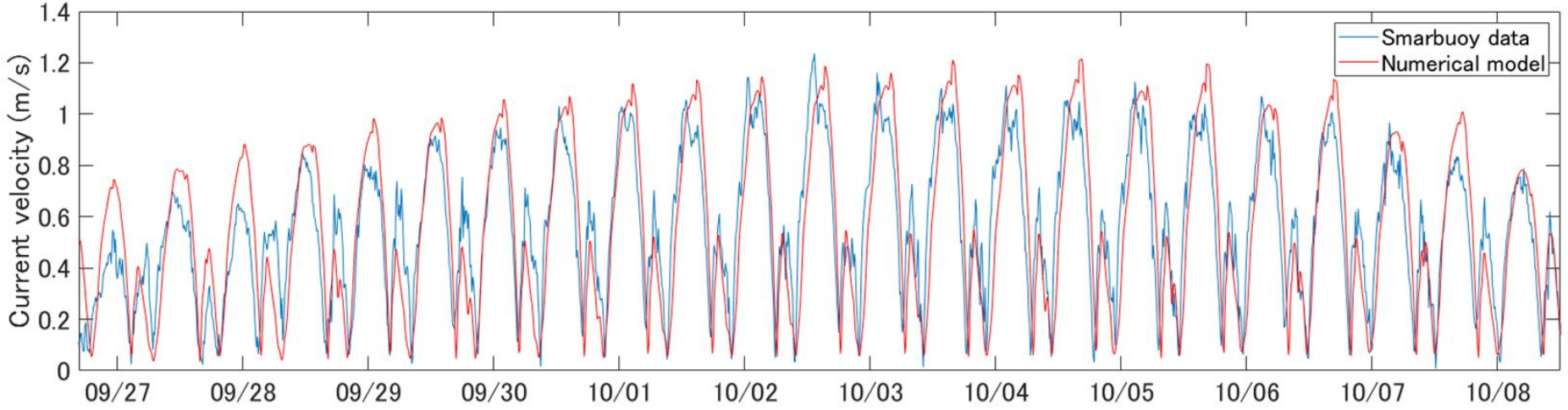




Sensors powered with tidal energy + battery

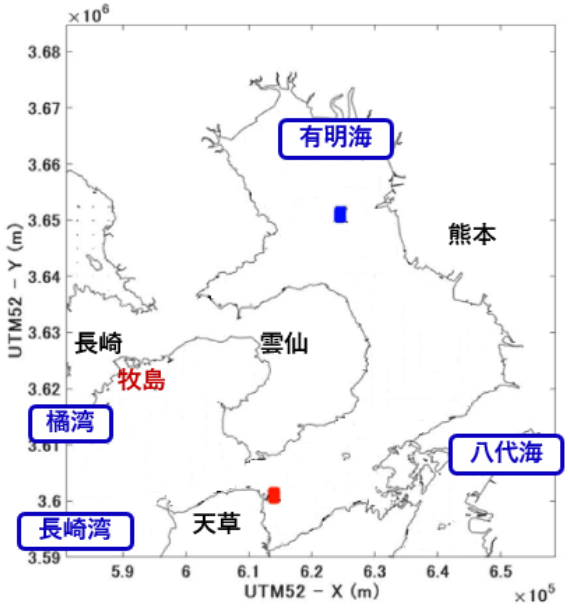
Continuous operation for 7 months

Numerical modelling

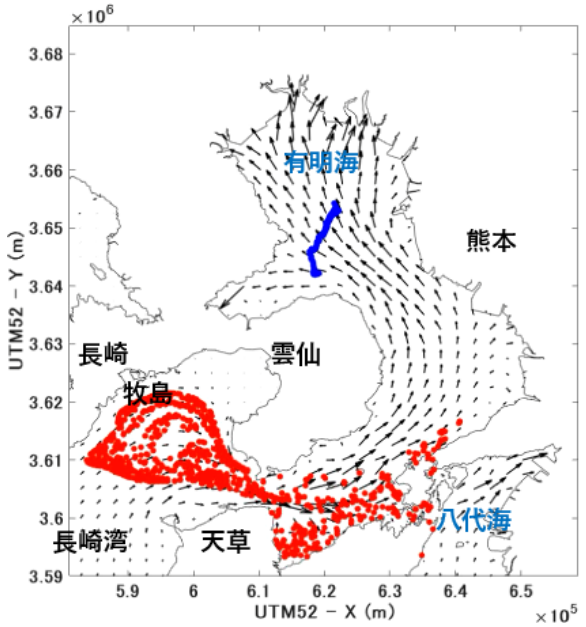


Model validated with the current velocity measured by the smartbuoy

Initial location



Time = 5 days



Time = 20 days