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Tidal fronts above Great Metor Seamount and evidence of associated sediment resuspension.

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We present a 19 days, high frequency record of temperature profiles above the eastern shelfbreak of the Great Meteor Seamount. We used a new "NIOZ-3" high sampling rate thermistor string developed at the Netherlands Institute for sea Research (www.nioz.nl), which consists of 100 independent thermistors sampling temperature at 1Hz with an accuracy of 1mK. Sensors were set 0.5m apart above a bottom-lander, allowing high resolution measurements of temperature both in space and time in the first 50 meters above the edge of the Great Meteor's shelf, at a depth inbetween 550m and 500m.

Seamounts are known to be efficient regions for internal tides generation, but also participate in the conversion of internal waves energy to mixing and transport through nonlinear processes. We measured strongly nonlinear fronts with evidence of overtunings up to several tens of meters high, that are systematically associated with the upgoing tidal flux that pushes cold water up the seamount's slope. The backscattered echo-intensity data from the ADCP (acoustic Doppler current profiler) mounted on the bottom-lander revealed an important sediment resuspension associated with the passage of the fronts, that is strongly correlated in space and time with the thermal fronts structures.