

# Supporting Information for “Saturation of destratifying and restratifying instabilities during down-front wind events: a case study in the Irminger Sea”

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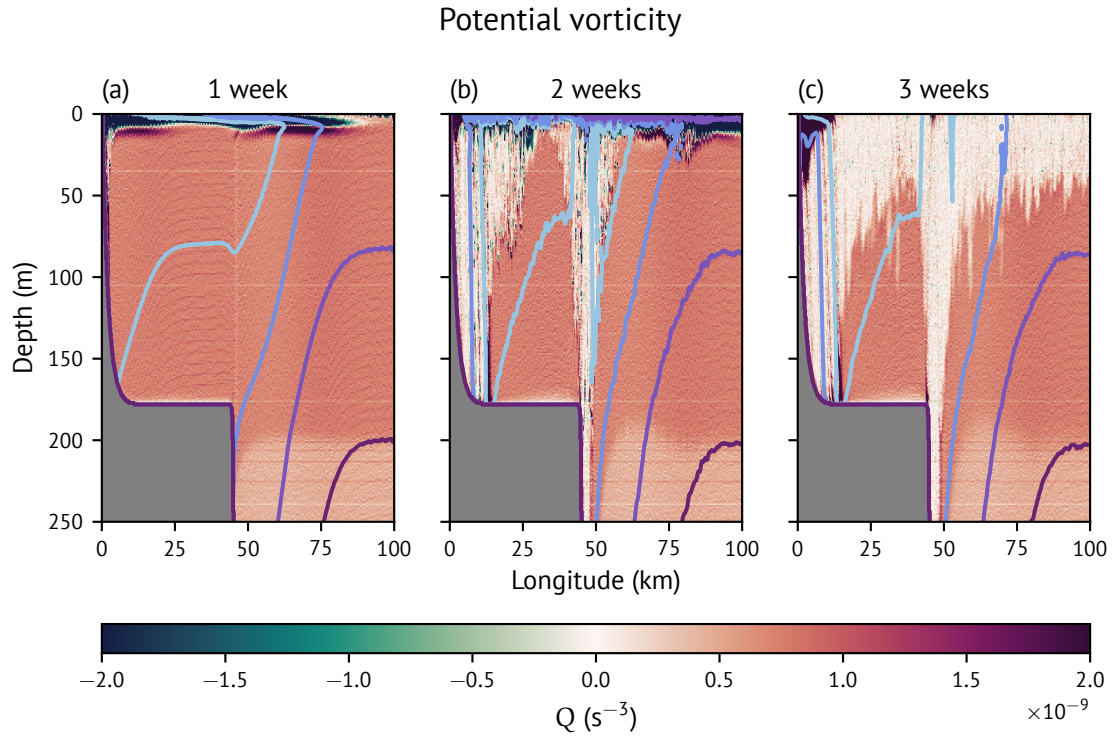
## Contents of this file

1. Text S1
2. Figures S1 & S2

**S1: Coarse two-dimensional model integrations** In order to evaluate how well the standard three-dimensional model captures small scale processes forced by down front wind events we integrated a two-dimensional version of the model for comparison with the standard two-dimensional model. The model integration is described in the methods section of the main text.

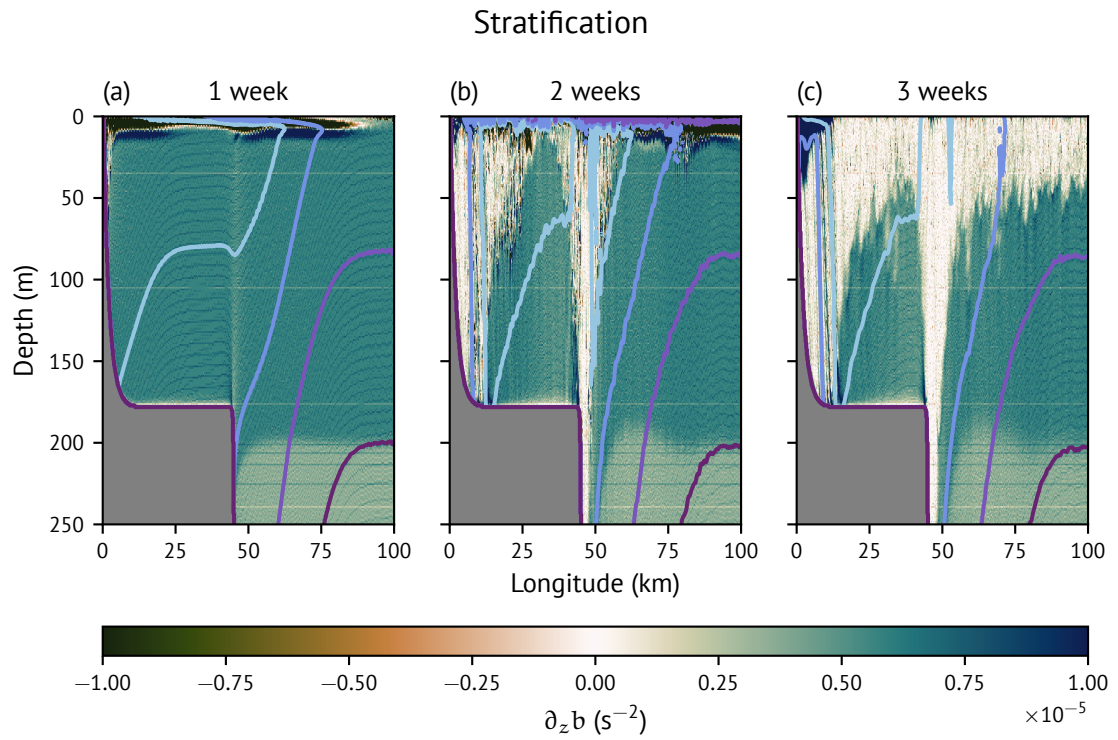
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**Figure S1.** Potential vorticity after (a) 1 week (b) 2 weeks and (c) 3 weeks in the coarse two-dimensional model integration.

Figures S1 & S2 should be compared with figure 3 of the main text. The potential vorticity fields look similar but with less near zero potential vorticity in the coarse model. The isopycnal structure in the coarse model is slightly distorted, relative to its high resolution counterpart but is broadly comparable. The stratification, like the potential vorticity, has slightly more negative values in the well mixed region for the coarse model than the high resolution model. The shape of the well mixed region remains broadly similar though. however the isopycnal structure in the coarse runs



**Figure S2.** Stratification after (a) 1 week (b) 2 weeks and (c) 3 weeks in the coarse two-dimensional model integration.