**Geoscientific
Model Development
Discussions**

Interactive comment on "MEDSLIK-II, a Lagrangian marine oil spill model for short-term forecasting – Part 2: Numerical simulations and validations" *by* M. De Dominicis et al.

Anonymous Referee #1

Received and published: 3 May 2013

1 General Comments:

In their manuscript "MEDSLIK-II, a Lagrangian marine oil spill model for short-term forecasting - Part 1: Numerical simulations and validations," the authors De Dominicis *et al.* describe the application of an oil spill model that uses Lagrangian tracers coupled with Eulerian circulation. The manuscript describes the validation of simulated trajectories for point and cloud tracers in comparison to single-drifter experiments and satellite observations of oil slicks. The manuscript is generally well-written and technically correct. It is the opinion of this reviewer that this manuscript **should be accepted pending minor revisions**.

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2 Specific Comments

The manuscript would benefit from the following clarification:

- Page 2000, lines 18-19; page 2012, lines 6-7; page 2013, lines 4-9; page 2014, lines 1-2; page 2018; lines 17-19: The authors state repeatedly that forecast error is acceptable when it is less than three times the mesh resolution. From where does this guideline originate?

- In Section 4.2, which ocean model is used to simulate the current velocities? In Figures 11-12, it seems the transport is insensitive to the oil concentration, number of particles, and tracer mesh resolution. This behavior would support the authors' claim that "the forecast skill of Lagrangian trajectories largely depends on the accuracy of the Eulerian ocean currents" (page 2000). It would be interesting to see this analysis repeated with a higher-resolution ocean model.

3 Technical Corrections

This reviewer did not find any writing errors of note.

Interactive comment on Geosci. Model Dev. Discuss., 6, 1999, 2013.