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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Numerical modeling of the 2013 meteorite entry in Chebarkul Lake, Russia" *by* Andrey Kozelkov et al.

Anonymous Referee #1

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Paper is focused on the numerical simulation of meteorite impact on the Chebarkul Lake in winter 2013. In simulation, the cases of lake covered by ice and lake without ice have been considered. The Navier-Stokes equations were used for two-component fluid, and numerical simulation were based on the software package LOGOS.

A details description of cavity formation, induced surface wave and ice cover destruction were given. Reviewer remarks on paper:

1. Paper is interesting for hydrodynamics community as it concerns the real case of quite recent meteorite impact. Therefore, this paper should be published in the Nat. Hazards Earth Syst. Sci. journal. However, the present form of the paper requires some improvements.

2. Paper is very difficult to read due to many unclear statements dealing with too many

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Discussion paper

details of calculations. This is particularly seen in Section 3. As the solution of the boundary-value problems was obtained using the package LOGOS, it will be sufficient to define the initial governing parameters and present the results of simulation in a more condense form.

3. Hard copies of figures is very poor visible, especially Figs. 3, 8, 9 (scattering waves for particular time steps are almost non-distinguishable).

4. Small remarks:

a) page 4, line 15: ... “bottom deformable”, it means that bottom depth is not-uniform?

b) page 5, line 5: remark in the second sentence is not needed in terms of the first sentence

c) page 5, line 20: ... “meteorite covered a distance”, probably it should be ... meteorite moved a distance?

d) page 7, line 21: should be Fig. 10, not Fig. 8.

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