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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Methodology for prediction and estimation of consequences of possible atmospheric releases of hazardous matter: "Kursk" submarine study" *by* A. Baklanov et al.

Anonymous Referee #1

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The paper represents the type of research needed to get a more complete picture of possible damages in case of accidental atmospheric release due to various reasons, such as natural hazards, human errors or other high risk operations. The paper consists of two parts. The first part is methodological one describing two approaches for risk assessment, I would say, "climatological" and "operational" ones; both based on trajectory and dispersion calculations. The climatological approach leads creation of possible risk maps and pollution patterns due to fixed point accident after long-term integration using analyzed meteorological information. Lots of statistical parameters and indicators are defined by the authors proposing a set of procedures for using these

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statistics. The second approach is well known and is based on forecast and evaluation of possible contamination and consequences for the environment and population using operational dispersion modeling. More or less, all these procedures are exploited for many years, but here we have an integrated system for preliminary (preparedness) estimation of the possible risk together with real time forecast of pollution concentration and deposition.

In the second part of the paper, all tools discussed in the methodological part are applied to the particular case of the sunken Russian submarine "Kursk" lifting and demounting operations. All operational stages - lifting, transportation, decommissioning etc., taking part manly in 2002, are estimated in details from point of view of the air pollution risk assessment. Meteorological data for the respective seasons and the particular periods are used in the study.

The paper sounds scientifically and is very well written. The illustrations and tables are necessary, but personally I would omit the Kola NPP plots and comments. First of all, in the paper title and abstract, only "Kursk" operations are pointed out as examples for implementation demonstration of developed methodology. Secondly, this will decrease in some extent the paper, which is somewhat big. This last fact makes the authors to introduce big number of abbreviations (used in the figure captions as well) and it is difficult to follow all estimates and discussions. I am not very pleased also with the presented maps, but all this depend on the graphical software used.

RECOMMENDATION

Summarizing the above, I would recommend the paper to be published. And it will be good, if the authors took into account the matters raised above.

Interactive comment on Atmos. Chem. Phys. Discuss., 3, 1515, 2003.