# Comment on nhess-2022-147

Anonymous Referee #1

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Referee comment on "Development of black ice prediction model using GIS-based multi-sensor model validation " by Seok Bum Hong et al., Nat. Hazards Earth Syst. Sci. Discuss., https://doi.org/10.5194/nhess-2022-147-RC1, 2022

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In general this is an interesting contribution to the problem of black ice forecasting where where a system dynamics modelling is used, rather than a more traditional physcial based model that solves the energy and mass balances.

Generally, the paper is well-written, but the I recommend moving section 4.1 from the discussion to the method.

The use of the unit for the amount of black ice is confusing. The paper both uses g/m2 and g/m3. To me only g/m2 makes sense and this the most common way to express the amount of snow/ice contaminations on roads.

The amount of predicted black ice (presuming the correct unit is g/m2) seems unrealistically high, for the predictions made at 18$^{th}$ and 19$^{th}$ of December. (50 000 g/m2 equals 50 mm of black ice) Whether the predicted amounts are high, low, realistic/unrealistic are not sufficiently discussed.

Please find more detailed comments attached.

Please also note the supplement to this comment:
https://nhess.copernicus.org/preprints/nhess-2022-147/nhess-2022-147-RC1-supplement.pdf