# Answers to comments by anonymous referee #2 RC C2992

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We would like to thank you, anonymous referee #2, for treating our article with care and for giving us detailed and constructive feedback. Please find below our comments on your suggestions.

## General Comments

We accepted most of the suggestions as they improve the clarity and readability of the article. We accepted to reorganise and restructure the paper and further clarify points that were deemed vague. Below we only discuss the comments that we do not fully agree.

1. On page C2992 you state "The paper presents a simpler model called CranSLIK for oil spill tracking using stochastic methods instead of a La-grangian model."

   We would like to clarify that this is not a simpler or simplified model of MEDSLIK II. It is an extension of the method to account for stochastic inputs in the analysis.

2. On page C2992 you state *"The paper compares the output of the CranSLIK with an open-source Lagrangian model called MEDSLIK II"*

   CranSLIK incorporates the deterministic simulations of MEDSLIK II. Any comparison of the efficiency of the two methods is not possible as the approach and purpose is substantially different. The different of the two approaches will be discussed further in the paper.

3. On page C2993 you state *"I think the concepts and ideas presented il-lustrate the usefulness of a very simplistic model especially in the initial stages of tracking an oil spill."*

   The word simplistic is not representative of the approach. Development of the methodology adopts fully well established non-intrusive approxi-mation methods which allow employment of high fidelity (deterministic)

simulation tools such as MEDSLIK II, in order to probabilistically assess the problem with lower computational time and high accuracy.

## Specific Comments

As stated previously, we accepted most of the suggestions as they improve the clarity and readability of the article. We understand your concern on the presentation of the deterministic and the stochastic model. We accepted to reorganise and restructure the paper accordingly and provide clarifications where requested. Below we only discuss the comments that we do not fully agree.

1. On page C2993 you are concerned for what the success criteria are.

   The accuracy of the model is evaluated by the volume of oil captured, where this is calculated as the volume of oil explained by the developed model, divided by the total oil volume. The efficient prediction of the oil spill fate under stochastic consideration of inputs is another criterion of success.

2. On page C2994 you state that you would like to see more details about the polynomial.

   We cannot think of a neat way of including the equation (polynomial) information in the manuscript. We also do not see why the presentation of the polynomial pertinent to the test case is a valuable addition to the manuscript. Instead, we suggest to include this information as a separate file in the repository where the code for the model, along with the test case data and output, can be downloaded from. If our alternative suggestion is not acceptable, we will happily include the polynomial in the manuscript.