The comments of the referees have been presented *in blue italic* below, and our response as plain text.

Response to the comments of anonymous referee #2, Report #1

"The data of measurements are presented as black dots, and predictions as solid and dotted lines." becomes "The data of measurements are presented as black dots, and predictions as solid and dashed lines."

Corrected (i.e. the caption of Fig. 7).

Response to the comments of anonymous referee #3, Report #2

I found the organization of the paper to be rather cumbersome. I would recommend describing the model before talking about the prescribed fire cases. This way one can move directly from the model description to a description of a fire event and the results for that event, rather than giving a brief fire event description, model description then model results.

This is a good suggestion. We have moved the model description before the overviews of the prescribed fires.

In the model description the numerical solution description appears quite weak. Does this description provide a reader with all the information needed to implement and test their methodology? I think some information is missing. To the authors much of the solution method may appear self-evident but it may not be to all readers.

We have expanded this section, as suggested. In our view, in the revised form, it contains the information necessary for re-coding the program.

The 'numerical core' of the model is the set of the ordinary differential equations (ODEs) (Eqs. (9), (11), (12), (14) and (15)). Numerically the most challenging task of the model is to solve this set of ODEs. The remainder of the model formulation consists of analytical expressions, except for the vertical atmospheric pressure profile, which requires a numerical integration (described in more detail by Martin et al., 1997).

The 2 prescribed fire cases presented represent a small fraction of potential conditions for prescribed fires. For many fires approximating the fire as a simple circular source is not appropriate due to how fire is distributed across the landscape, particularly in areas of complex terrain. While for BUOYANT the most important parameter for determining plume rise is convective energy release, this may not be the case for all wildland fires (http://www.srs.fs.usda.gov/pubs/38407). Convective heat release is always important, but how that heat is distributed across the landscape is also important (http://www.mdpi.com/2073-4433/3/3/352).

We agree with these comments. We have added a short paragraph on this matter to the conclusions (the next to the last paragraph), including two references listed below.