Response to report from the Associate Editor

In addition to the changes in response to the comments from the referees, we have made the following changes:

- Updated the affiliations of Andreas Stohl, Hamidreza Ardeshiri, and Anna Solvejg Dinger.

- Added an acknowledgement.

Below the referee's comments are in italic font. The responses to the comments are shown in roman font.

Response to comments from Referee #1

Comments

I am still not completely convinced about the circular boundary conditions in the radiative transfer calculations. Does it effectively mean that their are infinitely many plumes in the horizontal directions repeating themselves? Maybe I have misunderstood this, but it seems unnecessary. Maybe the authors could make this clearer by adding a few sentences to section 2.2.

In the manuscript we have changed from circular to periodic boundary condition which is the more commonly used term. The periodic boundary condition does mean that here are infinitely many plumes in the horizontal directions (effectively the domain keeps on repeating itself in the horizontal). However, the plumes outside the domain where the camera is placed gets smaller and smaller, as seen by the camera, the further away they are from the camera. Careful selection of domain size and camera angles mostly avoid the problem of "ghost" plumes (cameras B, C, and D). However, for camera A, which views close to the horizon, some ghost were present as mentioned in the manuscript. We have re-written parts of section 2.2 to hopefully make this clearer.

Response to comments from Referee #2

Comments

1. *Fig 4 caption → indicate the results are for Camera A*
   Camera A mentioned in caption of Fig. 4.

2. *Page 10, line 10 → I believe that "Fig. 5" should be Fig. 4*
   Corrected.

3. *Page 18, line 10 → two instances of lower case "ssa" should be changed to upper case SSA.*
   Change made as suggested. In addition, ssa was also changed to SSA in Table 3.