

## ***Interactive comment on “Simulating lightning into the RAMS model: implementation and preliminary results” by S. Federico et al.***

### **Anonymous Referee #1**

Received and published: 15 June 2014

In this paper the authors have implemented in RAMS model a methodology, previously implemented in COSMO model, for the simulation of lightning activity. The authors show detailed results of the model application for 2 case studies, while they also verify the methodology for a total number of 6 cases. The paper is very well organised and well written. The results are interesting and therefore I propose the publication of this paper subject to some minor corrections given below.

#### Minor comments

- Page 12, lines 15-17: Are you using any observational data set that you assimilate in the model? If not I guess that you are just nudging the lateral boundaries towards the ECMWF analyses. Please specify.

C1090

- Page 13 line 7: are you discussing the model simulated fields or your graphs are base on ECMWF analyses? Please clarify.

- Page 14 line 4. Why are you showing a subdomain of the inner domain of your simulations? The same holds also for the verification procedure presented in the following section.

- Page 17, line 23. I would like to draw your attention in a recent paper by Lagouvardos et al (2013): Study of a heavy precipitation event over southern France, in the frame of HYMEX project: Observational analysis and model results using assimilation of lightning. Atmospheric Research, Volume 134, 1 December 2013, Pages 45-55. The authors also showed how the assimilation of lightning improved the simulation of a heavy precipitation event and the improvement of the spatial distribution of convection and rainfall.

- Page 18. Section 3.3: It might be preferable to calculate the Equitable threat score instead of the TS

- Page 24, lines 29-32: please revise the titles of the first of the two papers that are now identical

- Figure 1b does not give any additional information except the location of Lazio Region. Can't you draw Lazio region in Figure 1a and omit 1b?

- Figure 3 shows a domain that it does not coincide with either the coarse or the inner model domain. It is preferable to keep consistency with the domains so that the graphs could be comparable.

---

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 3351, 2014.

C1091