



Supplement of

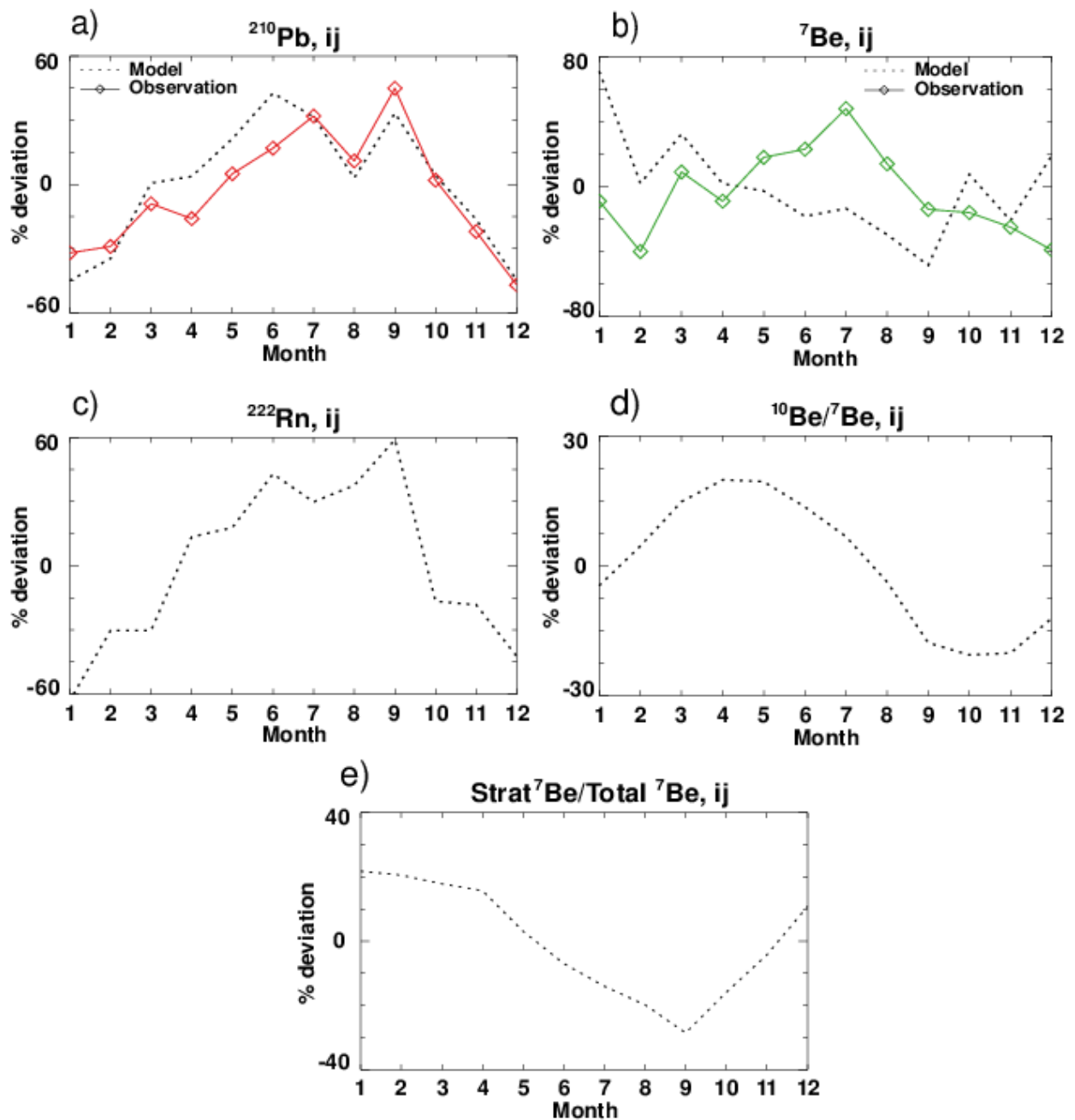
Processes controlling the seasonal variations in ^{210}Pb and ^7Be at the Mt. Cimone WMO-GAW global station, Italy: a model analysis

Erika Brattich et al.

Correspondence to: Hongyu Liu (hongyu.liu-1@nasa.gov)

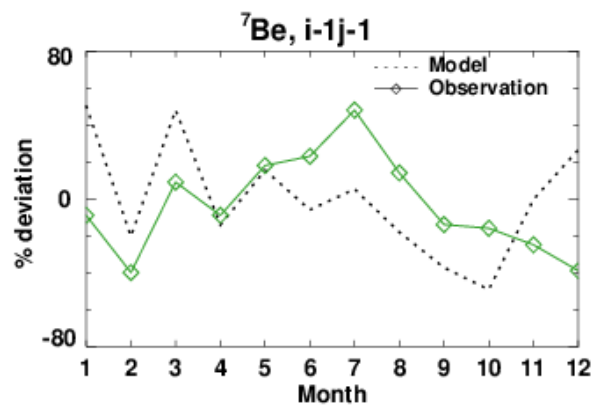
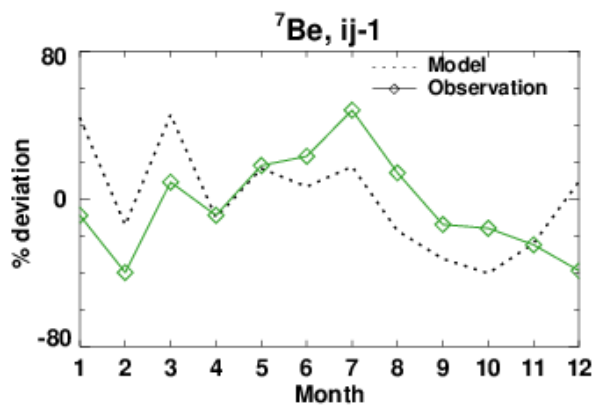
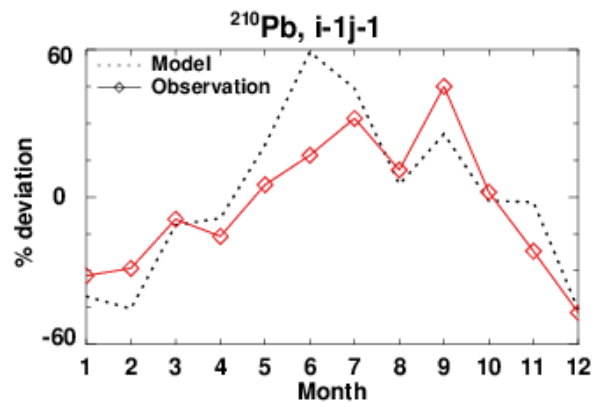
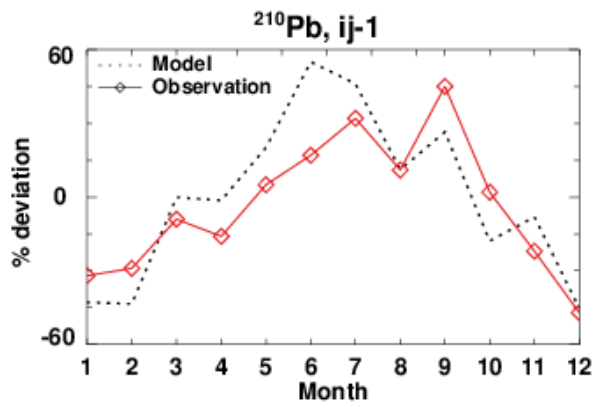
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1 Supplementary Material

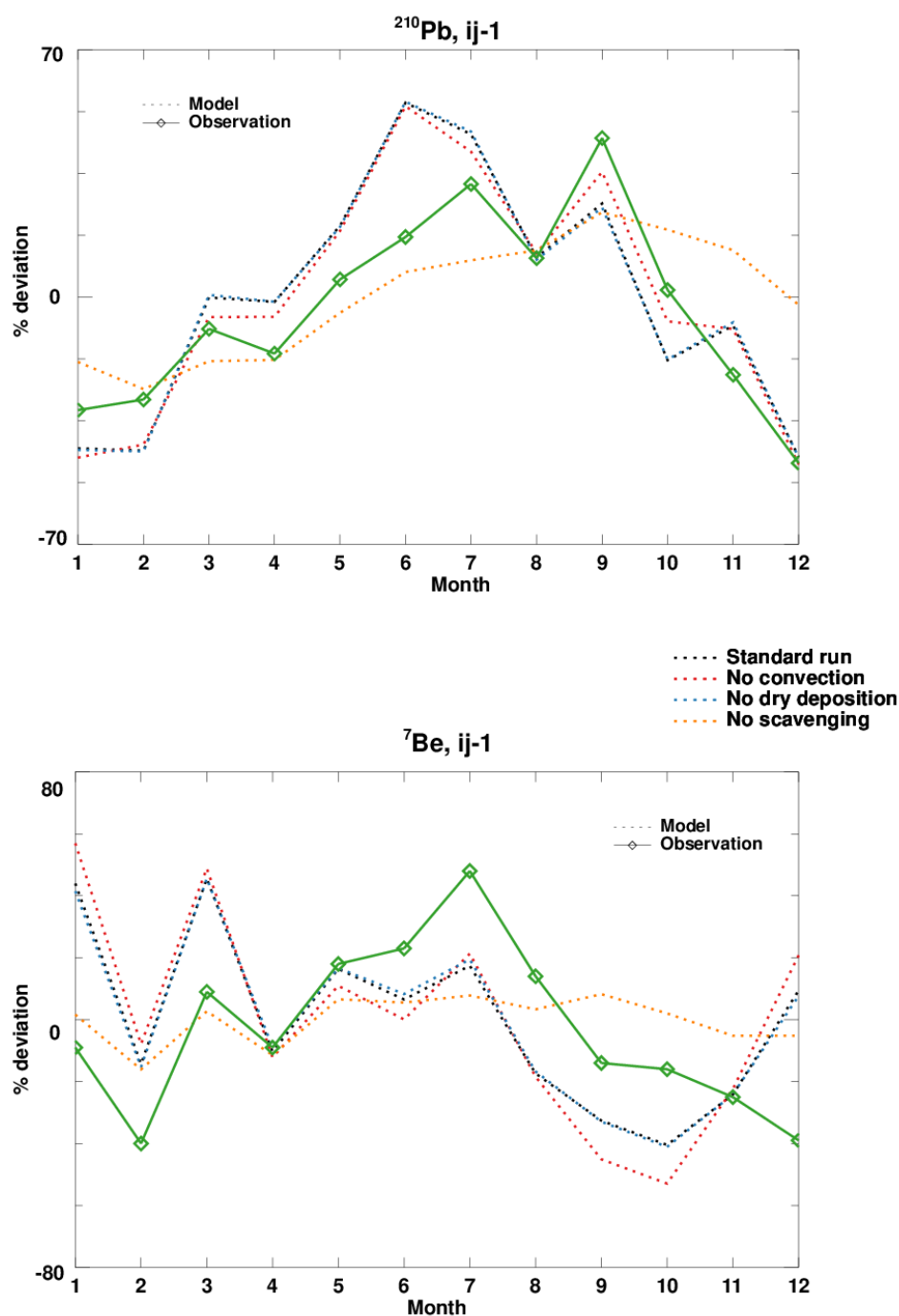


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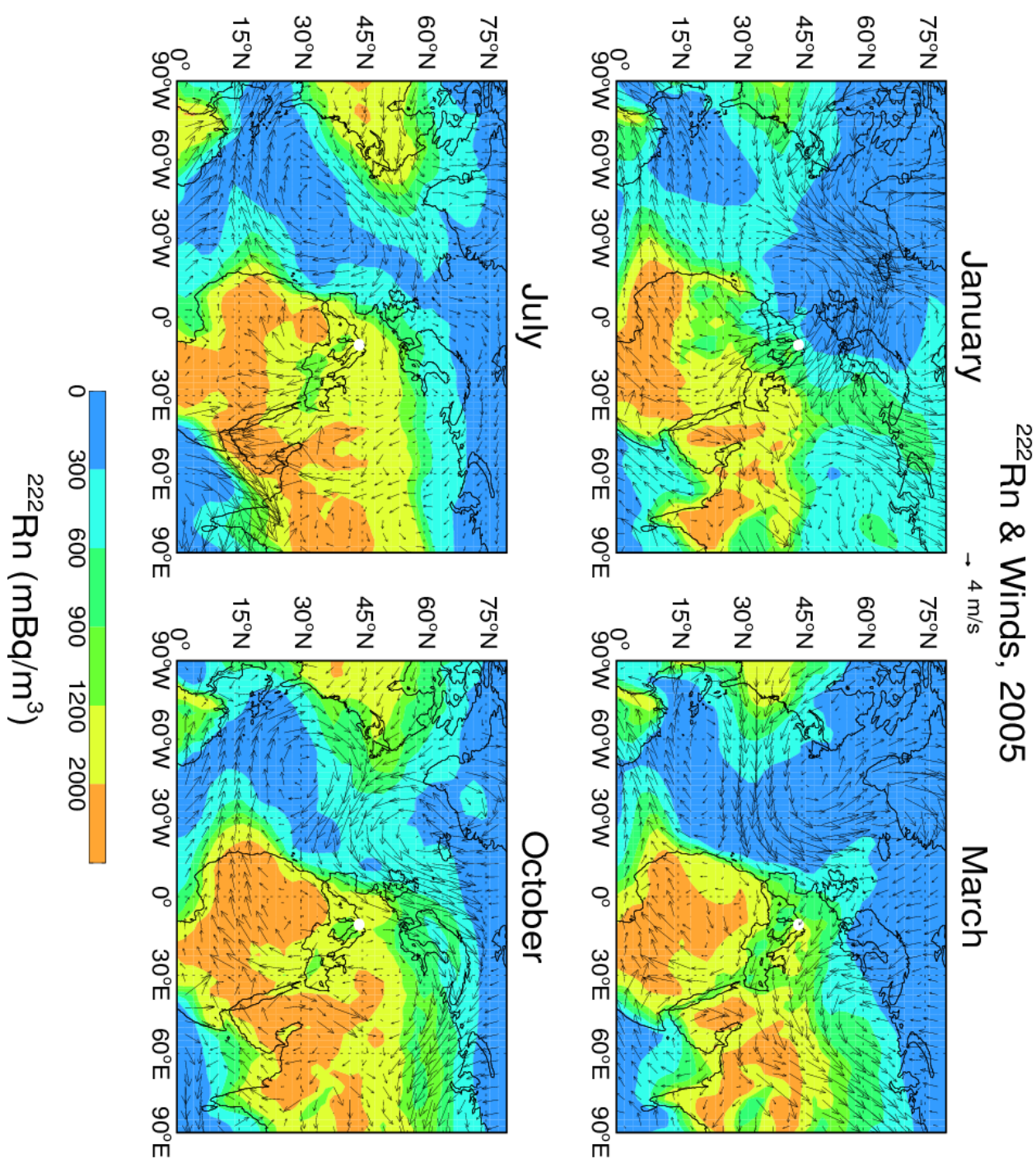
3 **SI Figure 1 (a,b,c,d,e).** Comparison of GMI simulated (black dotted line) percentage
 4 deviations from the annual means of (a) ^{210}Pb and (b) ^7Be concentrations with those observed
 5 at Mt. Cimone (solid lines). Model values are for the “ij” gridbox corresponding to the location
 6 of Mt. Cimone. Also shown are GMI simulated monthly fluctuations of (c) ^{222}Rn activities, (d)
 7 $^{10}\text{Be}/^7\text{Be}$ ratios and (e) strat ^7Be /total ^7Be ratios.



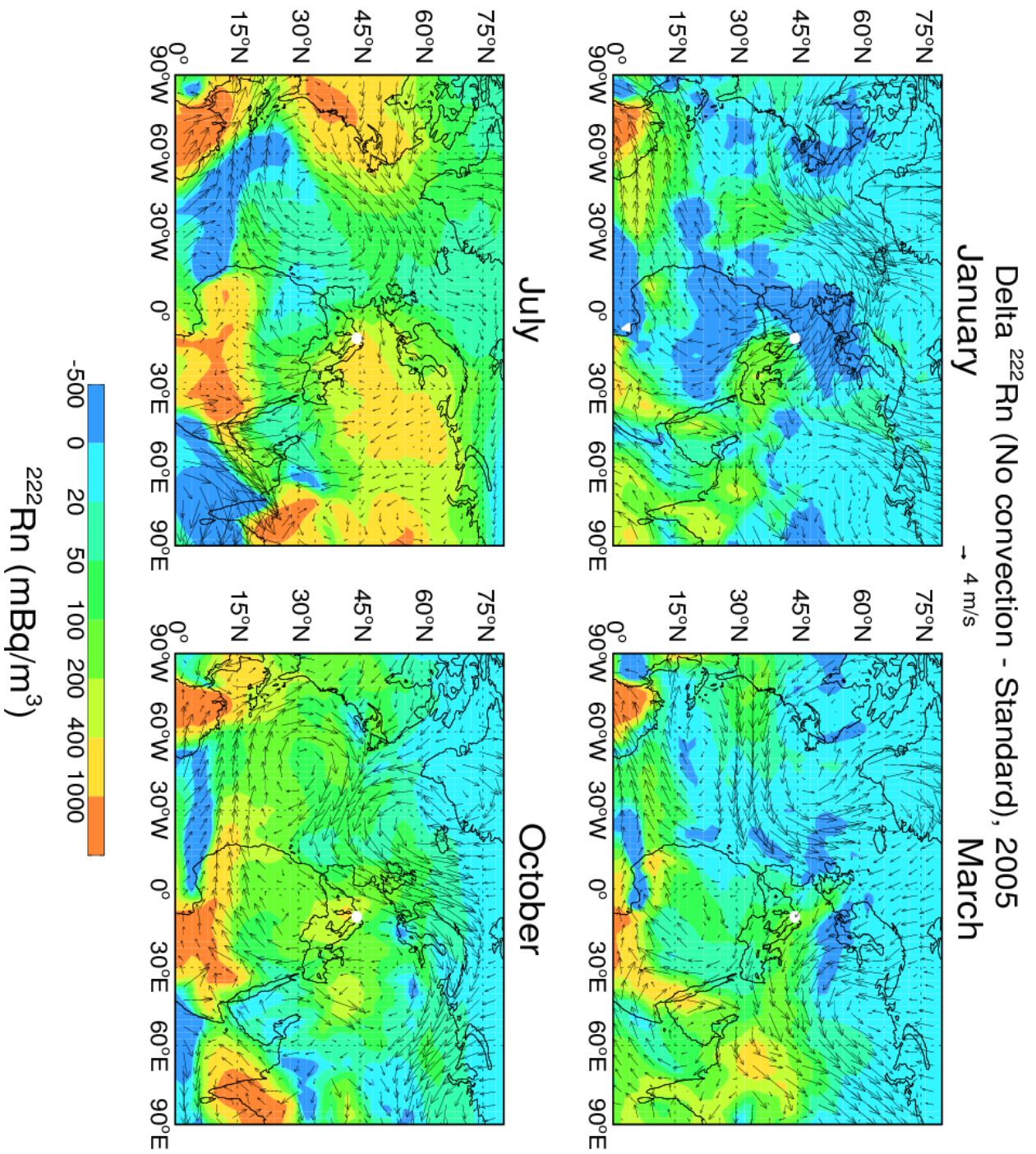
SI Figure 2. Same as SI Figure 1(a, b), but for the “ij-1” grid to the south of Mt. Cimone (left column) and the “i-1j-1” grid to the southwest of Mt. Cimone (right column), respectively.



SI Figure 3. Comparison of GMI simulated monthly percentage fluctuations of ^{210}Pb and ^7Be at Mt. Cimone (“ij-1” grid) between the standard (black dotted line) and the sensitivity runs. The sensitivity runs are those without convective transport/scavenging (red dotted line), without dry deposition (blue dotted line), and without scavenging (orange dotted line). The observations are shown as green solid line.



SI Figure 4. Simulated monthly mean ^{222}Rn concentrations, at the elevation of Mt. Cimone. Arrows represent the seasonality of winds in the MERRA meteorological data. The white dot indicates the location of Mt. Cimone (44°12' N, 10°42' E, 2165 m asl).



SI Figure 5. GMI simulated differences of ^{222}Rn concentrations at the elevation of Mt. Cimone between a sensitivity run without convection and the standard run. Arrows denote MERRA winds. The white dot indicates the location of Mt. Cimone (44°12' N, 10°42' E, 2165 m asl).