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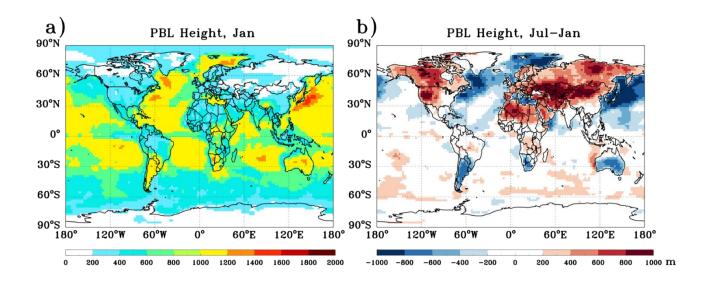
## Supplement of

## Simulation of radon-222 with the GEOS-Chem global model: emissions, seasonality, and convective transport

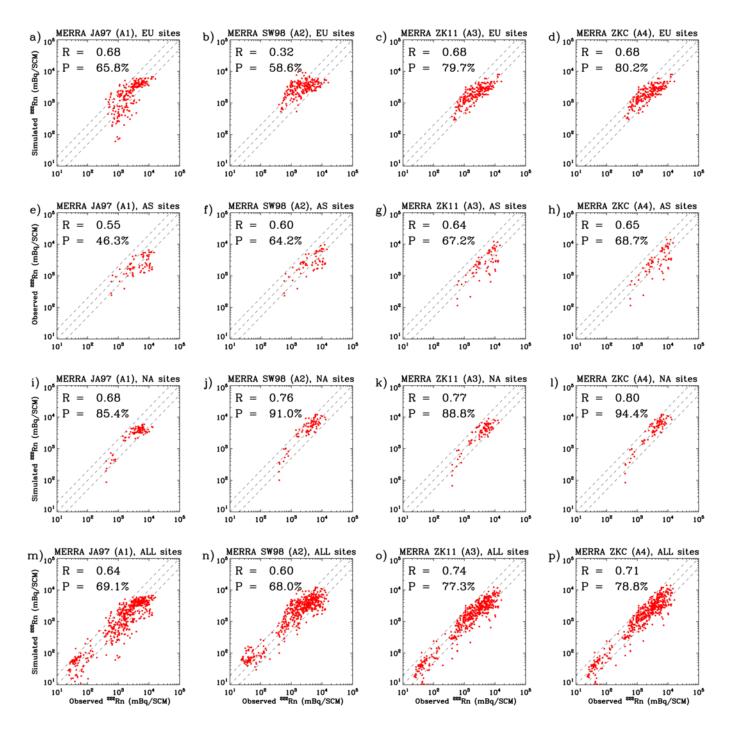
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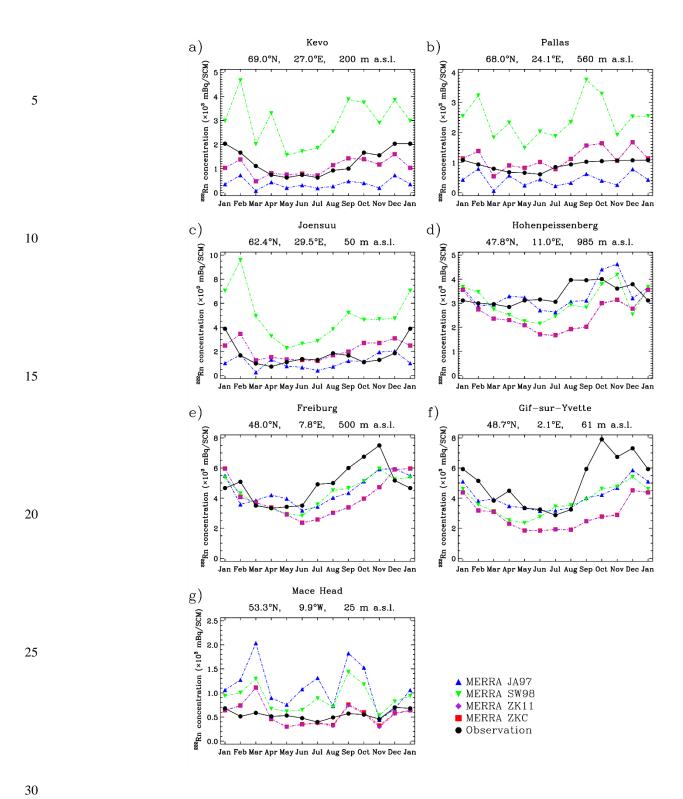
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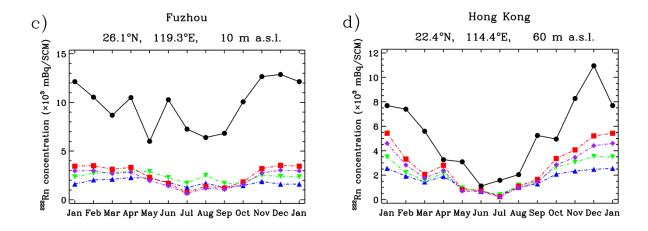
**Figure S1**. Monthly mean planetary boundary layer height (m) in MERRA for (a) January and (b) the difference between July and January 2013.



**Figure S2**. Same as Fig. 6, but the measured <sup>222</sup>Rn concentrations at European sites are applied with scaling factors suggested by Schmithüsen et al. (2017).



**Figure S3**. Same as Fig. 8, but the measured <sup>222</sup>Rn concentrations at European sites are applied with scaling factors suggested by Schmithüsen et al. (2017).



**Figure S4**. Same as Fig. 9c and 9d, but the simulated <sup>222</sup>Rn concentrations are sampled at the gridboxes corresponding to the site locations.