

Interactive comment on “Surface-to-mountaintop transport characterised by radon observations at the Jungfraujoch” by A. D. Griffiths et al.

Anonymous Referee #1

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General comments¹ Radon has previously been used to study vertical mixing in the atmosphere. This research paper developed a new analysis method of radon indicator to quantify the Surface-to-mountaintop transport at Jungfraujoch. Comparing to the existing indicators of other atmospheric compositions, this method of Radon indicator could better detect the presence of anabatic winds with a radon threshold for the atmospheric background condition and be used to improve the aerosol scavenging scheme. As an excellent manuscript, it could be published in the ACP after a minor revision as follows: Specific comments² 1¹ in Sect. 2.4.1: the method is for anabatic mountain winds, how are non-anabatic winds recognized? Please clarify it and give more interpretation on Fig. 2² also in Sect. 2.4.1, a run with the steps 5 and 6 could loss an input set for a diurnal composite, which could lead to an inaccurate estimation and

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the higher radon level in the last period in Fig. 3. 3³ Why are the diurnal changes in radon at Bern so high in Fig. 5? Which impact could the diurnal changes at Bern exert the estimations of anabatic winds? 4⁴ The Sects of 3.4 and 3.5 are a little beyond the topics of manuscript. Please shorten them. Editorial corrections⁵ P18085, line 15, please delete “to” 1⁵ P18085, line 22, change “The three” to “Three” 2⁵ P18086, line 27, change “months they” to “months, they” 3⁵ P18087, line 28, change “towers” to “, towers” 4⁵ P18088, line 4, change “(Zahorowski et al., 2004)” to “Zahorowski et al.(2004)” 5⁵ P18090, line 1, please clarify the “23 pressure levels (6 between 1000–850 hPa)” 6⁵ P18090, line 19, please change “constraints” to “constraint” 7⁵ P18094, line 6, please delete the repeating “direction” 8⁵ P18096, line 4, change “there” to “those” Not all. Please edit the manuscript carefully to correct the English usage.

Please also note the supplement to this comment:
<http://www.atmos-chem-phys-discuss.net/14/C5495/2014/acpd-14-C5495-2014-supplement.pdf>

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 18083, 2014.