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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Exploring atmospheric blocking with GPS radio occultation observations" *by* L. Brunner et al.

R. Anthes (Referee)

anthes@ucar.edu

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This paper shows how approximately 800 radio occultation (RO) profiles per day globally can be used to detect and analyze atmospheric blocking events. The all-weather and high vertical resolution of RO observations, together with their accuracy and precision in the upper troposphere and lower stratosphere, make them ideal observations for analyzing atmospheric blocking, as shown by two major blocking events (Russia in summer 2010 and Greenland in late winter 2013).

The paper is succinctly and well written.

Aside from a few minor editorial quibbles, my major criticism is that the figures are far too small to be read in standard size page printout. I had to magnify them many times

to see them clearly.

A few suggested edits:

P. 35801 line 10: replace "preferably" by "preferentially" P. 35802 line 20: replace "horizontal resolution" by "horizontal footprint" P 35804 lines 10, 18, 20: replace "grid points" by "grid cells" P 35809 line 9: add "atmospheric" before "blocking" P 35809 line 10: Replace "Using an adequate sampling strategy," with "With about 800 global RO profiles per day," P 35810 line 14: The statement "RO events are equally distributed over the globe..." is not correct in general. One or two satellites cannot provide global observations. To get global observations, a constellation is required and at least some of the satellites have to be in polar orbit. Thus I suggest rewriting this as: "RO observations from constellations such as COSMIC cover the entire Earth, and can therefore...." (Note that even a constellation like COSMIC does not provide equal distribution or coverage, there are more in high latitudes than low latitudes.) P 35810 line 17: Rewrite to "Since RO profiles also sample the lower stratosphere, they can, moreover, provide..."

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 35799, 2015.