

Interactive comment on “On the permeability of barrier layers” by J. Mignot et al.

J. Mignot et al.

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The term “permeability” has clearly introduced some confusion. We used this term initially to characterize the BL distribution itself while the reviewer rather understood it as applying to its effect on turbulent heat exchange, in the sense of a permeable membrane, a thing that is continuous but that lets properties pass. The reviewer is right that this is not exactly what we describe. We address here the problem of BLs with holes, the later being potentially unevenly distributed. This is more like the situation in porous rocks, where water can pass through crevices and other openings but not through the rock itself. Therefore, rather than “uneven”, which we find a bit weak, we propose to replace the term “permeability” by “porosity”.

Note that the analogy with the term rocks porosity has an important limit: the BLs are “porous” regarding the space and time scales considered for the climatology. At

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shorter space and time scales, it could be that in a given area, a BL is not “porous” anymore because it persists sufficiently. Therefore, the statistics of porosity that we deliver with our revised climatology is closely attached to the space and time scales that are considered here. Rocks on the other hand remain porous over whatever the time scale.

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