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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Where do winds come from? A new theory on how water vapor condensation influences atmospheric pressure and dynamics" *by* A. M. Makarieva et al.

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Gary Lackman has pointed in his Short Comment to earlier papers on this subject.

Actually, there is an even much older paper available, in which such a hypothesis was already formulated but no mathematically based proof was given. It is a paper by Jean André Deluc from 1812 (Deluc, 1812) in which he summarizes his explanation on the formation of clouds and rain. So far, being interested in the history of meteorology, I have always rated Deluc's paper as a curiosity from the beginning of meteorology when it evolved as a separated discpline in science. But given the manuscript by Makarieva et al., I now see Deluc's work from a slightly different perspective.

On page 176 of Deluc (1812) it is said: "...; if it [the rain] falls locally, (...), it is accompanied by more or less heavy gusts, which come into existence, (...) that where the water vapour turns into rain a kind of airfree space originates. This is the reason for sudden changes in wind direction which cease again when the air has reached its original density." (personal translation from old-fashioned German).

I suggest to mention this paper in the introduction in order to show that such thoughts have emerged by and then throughout the history of meteorology. This, in no way discredits the work of Makarieva et al.

Reference

Deluc, J.A, 1812: Einige meteorologische Erscheinungen, zu deren genauern Kenntniss die electrische Säule als Luft-Electroscop führen kann. Gilberts Ann. d. Phys., 41, 162-194.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 24015, 2010.