

GENERAL

This is a thorough study of the scaling characteristics of clouds as observed by satellites, both orbiters and geostationaries. The basic result is important confirmation of the relevance statistical multifractal studies of atmospheric variables. It is well worthy of publication.

COMMENTARY

Comments are located by line number.

14: The atmosphere is not materially closed. Water has large fluxes in and out, with a residence time of about 10 days. Fluxes of gases such as carbon dioxide, methane, nitrous oxide, halocarbons and ozone also occur, with lifetimes spanning days to centuries. Even the major constituents oxygen (10^4 years) and nitrogen (10^6 years) are not "materially closed". In addition, volcanology has intermittent effects, and aerosols are injected by various processes, including wave breaking and industrial activity.

15: Inspection of outgoing longwave radiation observed by satellites doesn't look isotropic to this reviewer.

54-56: Restricting characterization to D omits the roles of intermittency C_1 and Lévy exponent α . That matters especially for water, the material of clouds. See the departures from 5/9 in Figure 13 of <https://doi.org/10.3390/meteorology1010003>

69: Schertzer and Lovejoy, On the dimension of atmospheric motions, *Turbulence and Chaotic Phenomena in Fluids*, pp.505-508, T. Tatsumi ed., Elsevier North Holland, (1984) deserve at least equal credit with Hentschel and Procaccia and arguably precedence with a 1983 preprint.

Caption, Figure 1. The results of Alder & Wainwright (1970), *Phys. Rev.***1**, 18-21 suggest that isotropic molecular diffusion is never relevant in the atmosphere. See <https://doi.org/10.3390/meteorology1010003>

165: Large eddy simulation imposes a cubic symmetry on the air that it does not have. What it has is continuous translational symmetry.

248: The polar orbiters are moving at ~ 7 km/s, unlike the geostationaries.

261: Models assume local thermodynamic equilibrium, which has been argued not to apply. See Figure 3 of *Meteorology* **2023**, *2*(4), 445-463; <https://doi.org/10.3390/meteorology2040026>

284-286: See comment about line 261.