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Comment on "Reinterpreting aircraft measurement in anisotropic scaling turbulence" by Lovejoy et al. (2009)

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Abstract. Recently, Lovejoy et al. (2009) argued that the steep $\sim k^{-3}$ atmospheric kinetic energy spectrum at synoptic scales (≥1000 km) observed by aircraft is a spurious artefact of aircraft following isobars instead of isoheights. Without taking into account the earth's rotation they hypothesise that the horizontal atmospheric energy spectrum should scale as $k^{-5/3}$ at all scales. We point out that the approximate k^{-3}-spectrum at synoptic scales has been observed by a number of non-aircraft means since the 1960s and that general circulation models and other current models have successfully produced this spectrum. We also argue that the vertical movements of the aircraft are far too small to cause any strong effect on the measured spectrum at synoptic scales.

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