Catastrophic Equatorial Icing events crash aircraft with increasing frequency
By Carl H. Gibson

Referee 1:
The author suggests an explanation for three recent aircraft crashes. Its argument is based on turbulence and turbulent mixing about extreme equatorial icing mechanism.
The `theory' section recalls some basics of turbulence but with personal views on turbulence and unnecessarily provocative statements. The `model of CEI events' section gives the argument about rare columns containing super-cooled water vapor (there are probably some errors about figure numbers).

The definition of turbulence given is no longer a personal view but is an established fact, proved by extensive observations, including the overwhelming evidence given in the revised manuscript that MH370 must have crashed in the South China Sea and not in the South Indian Ocean where the search is still going on based on unwarranted Pilot Error or Rogue Pilot hypotheses.

In the section `Air France 447 and MH370 CEI events' some information about these two flights are given but mixed with considerations about cosmology and big-bang theory.
The paper is interesting but it not easy to read because of too much extra considerations.
I suggest the author leaves considerations about cosmology, particle physics and `personal income' for another publication and, in this paper, focus on the CEI.

The referee seems to think he has an option about what is turbulence and what is not. He does not. He is many papers behind in necessary reading in cosmology, astrophysics and particle physics that will remove his misconception that the definition of turbulence is optional.

FYI:
Fossil Turbulence J. D. Woods, V. Högström, P. Misme, H. Ottersten, O. M. Phillips
First published: December 1969
Fossil turbulence is the name given to the three-dimensional microstructure of temperature, humidity, or some other scalar property that is advected by the mean flow. (The first use of the expression seems to be attributable to Woods, but the physical phenomenon that it represents has been recognized for some time by fluid dynamicists.) The fossil turbulence was produced by a turbulent field that has since decayed; its scalar fluctuations occur at an intensity and on a scale that cannot be accounted for by the existing velocity field.

Turbulence MUST be defined in terms of the inertial vortex force to agree with observations, and therefore MUST always cascade from small scales to large, contrary to the standard model. Turbulence is a solved problem. See

http://journalofcosmology.com/JOC25/indexVol25CONTENTS.htm

The fossil turbulence concept was first introduced by Gamov, but with old turbulence in mind rather than new turbulence based on the inertial vortex force. See

http://journalofcosmology.com/JOC25/SchedPres2016.pdf

The relevance to this colloquium of fossil turbulence in the atmosphere is that it may produce appreciable radar backscattering, provided that it contains significant three-dimensional refractive-index structure on a scale equal to half the radar wavelength (typically 5–50 cm). Similarly, fossil turbulence may be of importance in radio forward-scattering, although the relevant scale sizes here are larger (typically 3 meters or more) and depend on radio wavelength and scattering angle. Fossil turbulence, if it exists in the atmosphere, will also affect line-of-sight radio propagation and the propagation of optical and acoustical waves, its effects depending on the propagation geometry and the frequency of the propagating waves.

The relevance to the Turbulent Mixing and Beyond series is that it fatally flawed by an obsolete definition of turbulence. Nearly all published papers from the series are wrong or flawed, and should be modified.

Gibson, CH. 1999. Fossil turbulence revisited. Journal of Marine Systems. 21:147-167.
A theory of fossil turbulence presented in the 11th Liege Colloquium on Marine Turbulence is 'revisited' in the 29th Liege Colloquium 'Marine Turbulence Revisited'. The Gibson [Gibson, C.H., 1980. Fossil temperature, salinity, and vorticity turbulence in the ocean.: Nihoul, J. (Ed.), Marine Turbulence. Elsevier, Amsterdam, pp. 221-257] theory applied universal similarity theories of turbulence and turbulent mixing to the vertical evolution of an isolated patch of turbulence in a stratified fluid as it is constrained and fossilized by buoyancy forces. Towed oceanic microstructure measurements of Schedvin (1979) confirmed the predicted universal constants. Universal constants, spectra, hydrodynamic phase diagrams (HPDs) and other predictions of the theory have been reconfirmed by a wide variety of field and laboratory observations. A, (turbulent activity coefficient) vs. C (Cox number) HPDs classify microstructure patches as active, active-fossil, and fossil turbulence. So do Froude-Reynolds number Fr/Fr-o vs. Re/Re-F plots. Both HPDs show most oceanic microstructure patches are fossilized. The oceanic microstructure community has not yet adopted the fossil turbulence paradigm, for reasons that include a variety of misconceptions about stratified turbulence and turbulent mixing. Confusion of fossilized microstructure with turbulent microstructure leads to vast underestimates of average dissipation rates of kinetic energy epsilon and scalar variance chi, and therefore vast underestimates of vertical fluxes in most ocean layers. Fossil turbulence theory has many applications; far example, in marine biology, laboratory and field measurements suggest phytoplankton species with different swimming abilities adjust their growth strategies differently by pattern recognition of several days of turbulence-fossil-turbulence dissipation and persistence times above threshold values, signaling a developing surface layer sea change. In cosmology, self-gravitational structure masses are interpreted as fossils of primordial hydrodynamic states. (C) 1999 Published by Elsevier Science B.V.