

# Why you should be careful crossing the Equator in an airplane

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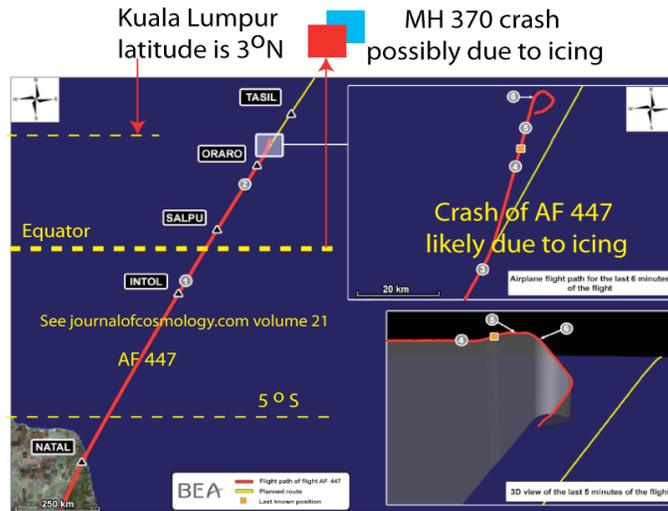
## ABSTRACT

An accumulation of evidence suggests several aircraft crossing the Equator have suddenly crashed into the sea from massive icing events. Why? Most of the heat transfer from the Sun to the Earth is by radiation at equatorial latitudes. The energy is mostly (98%) used to evaporate water rather than heat it. Buoyancy forces from the water vapor and extremely intermittent turbulence drive plumes upward until the water condenses. Near the equator during hurricane season so much rain occurs that condensation nuclei may be depleted. Equatorial beamed zombie turbulence maser action (BZTMA) mixing chimneys occasionally transport supercooled steam with sufficient horizontal scales and mass flux that any plane entering the mixing chimney is doomed to crash from catastrophic equatorial icing before it can escape.

## INTRODUCTION

Evidence of extreme turbulence and fossil turbulence mixing chimneys at equatorial latitudes is shown by AF 447 and MH 370 crashes that imply catastrophic icing conditions. BZTMA mixing chimneys may transport supercooled water vapor and strong turbulence to unusually high altitudes. At mid-latitudes pilots can usually change their flying altitude to escape an icing layer. Near the equator with global warming, the number of such death traps may be increasing. The AF 447 plane passed through a region of strong thunderstorms on the first day of hurricane season. The MH 370 plane may have encountered not only clear air turbulence but the clear air icing conditions of high altitude supersaturated water vapor.

Equatorial latitudes have extremely intermittent turbulence\* that can cause icing altitude layers to become dangerously thick



\* Baker and Gibson (1987)

Latitude of MH 370 crash by this mechanism coincides with Chinese satellite (object?) sightings at 6.7 ° N

Fig. 1. Both the AF 447 and MH 370 crashes were at near equatorial latitudes. MH 370 departed from Kuala Lumpur, and likely crashed in the South China Sea soon after leaving land. It should still be easy to recover.

The following Chinese satellite image was displayed for only two hours on March 9, 2014, between 9 am and 11 am. The image was removed as a "mistake" but so far has not been repudiated or explained. The mistake appears to be that the longitude was written down as 105.63 E rather than 103.63 E, which is far off the flight path. The reported objects matched the size of a broken aircraft, but were gone when two search planes looked for them on March 11 at the 105.63 E longitude and found nothing. Three images were displayed from different times, judging from the different clouds and different object dispersions. Signals from MH 370 detected by satellite persisted until 8:11 am, 1.5 hrs beyond the expected flight time. No attempts to detect black box flight recorder signals with underwater sensors on the flight path have been reported as of March 17, 2014.

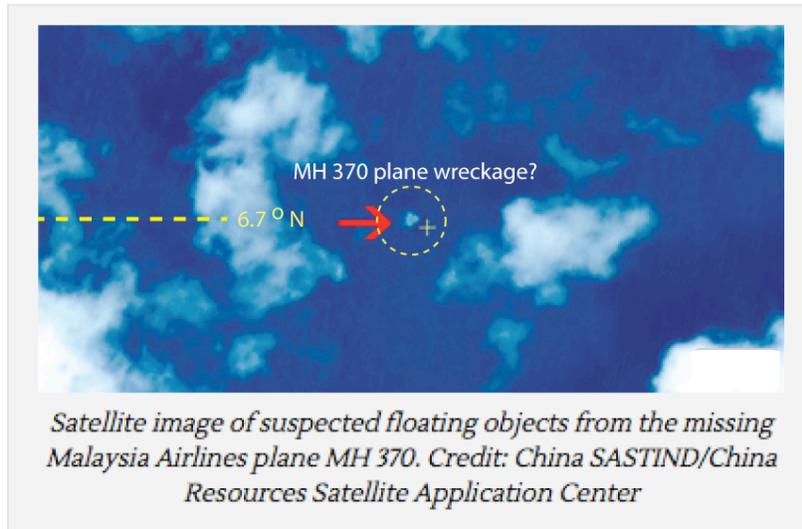


Fig. 2. Chinese satellite image with likely mistaken longitude, misleading the search for MH 370.

## Air France 447 suffered death by icing, ignorance of equatorial turbulence

Pitot tubes ice up Tail ices up Icy wings lose lift Doomed plane hits water



## No pilot errors and no hope

Fig. 3. Newspaper account of AF 447 crash suggests the pilot of the heavily iced plane could still control its angle of attack.

The AF 447 catastrophe clearly indicates the plane was doomed from the moment it hit the extreme-equatorial-intermittency BZTMA mixing chimney. A similar fate is indicated for MH 370. Present clear air turbulence models have no latitude dependency, which is the fault of ignorance of equatorial turbulence by the scientific community, not the pilots. Planes are not equipped with the necessary Lidar turbulence sensors needed. The following is from a front page Wall Street Journal clipping in 5/2011, blaming the pilots. There is no evidence whatsoever to suggest pilot confusion, or pilot error, in the 4 minutes it took for the icing events shown to debilitate the plane and force it to rapidly fall to the sea surface and crash. Because of the icing, the three experienced AF pilots in the cockpit lost all control of the plane except for its engine power, which the pilots properly reduced to idle just before it hit the water.

Catastrophic Equatorial Icing Hypothesis Published by Signal Magazine



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This chart plots the location of Southeast Asia airline crashes. Note the proximity to the equator. Because the AF447 flight was lost in the equatorial Atlantic Ocean, its location is shown as an insert in the upper right hand portion of the chart. The equator is correctly located for all events.

Pilots Face Brick Wall-Like Icing Along Equator

May 1, 2015
By Dr. R. Norris Keeler

A freak weather condition that spoofs sensors and controls may be the cause of airliner disappearances.

A spate of commercial airliner crashes along the equator in Southeast Asian waters has taken the lives of several hundred passengers and cost hundreds of millions of dollars in aircraft equipment. A lack of concrete evidence of mechanical causes often results in a default decision of pilot error. Yet, the aircraft may have been done in by an unavoidable freak atmospheric effect unique to the equatorial region. The airline flights involved include: Air France AF447, lost June 1, 2009, over the Atlantic near the equator; Adam Air DHI 574, January 1, 2007; Malaysia Airlines MH370, March 7, 2014; and most recently, AirAsia Flight QZ 8501, December 28, 2014.

These flights cited do not include other equatorial crashes or disappearances that involved only a few casualties, and for which in most cases there were no major investigations nor available detailed flight track information.

The only final decision of any possible cause was in the case of AF447, in which a report says ice crystals in vital pitot tubes generated false sensor information ultimately leading to pilot error. This conclusion was reached with the recovery of aircraft wreckage and the flight data recorder. The mystery surrounding missing Malaysia Airlines flight MH370 persists. Engine-to-satellite communications suggest the airliner flew for several hours off course after losing radar contact, ending up crashing in the ocean. No wreckage was found.

That all these events took place in equatorial regions causes Carl Gibson of the Scripps Institution of Oceanography to rely on earlier research. A widely recognized turbulence specialist, Gibson's research, together with that of Mark A. Baker of the Applied Physics Laboratory/Johns Hopkins University, involves the behavior of air turbulence in equatorial regions.

The Coriolis effect is caused by the rotation of the Earth and the inertia of the mass experiencing the effect—in this case, water and air. On Earth, one way it manifests itself is in the circular motion of cyclonic storms—counterclockwise in the Northern Hemisphere, clockwise in the Southern Hemisphere. Because Coriolis forces vanish on the equator, the horizontal scale of turbulence extends from centimeter Kolmogorov scales to hundreds of kilometers. These effects vastly increase the amplitude and power of extreme turbulence events in equatorial regions.

The Earth completes one rotation per day, making the Coriolis force quite small. The resulting effects generally become noticeable only for motions occurring over large distances and long periods of time, such as large-scale movement of air in the atmosphere or water in the ocean. Gibson and Baker's work (Journal of Physical Oceanography, October 1987) shows that the mean-to-mode ratio of turbulence dissipation rate on the equator is 30,000-to-1. This ratio probably has increased in recent years, according to Gibson.

As a result, a deadly combination of turbulence, waves and wind is causing aircraft crossing the equator to crash with increasing frequency because of higher ocean temperatures, according to Gibson. His research states that conditions along the equator cause extreme and rapid icing to occur in rare instances, even though most aircraft cruising at the same altitude pass through unharmed. The complex mechanism, termed Catastrophic Equatorial Icing, involves extreme mixtures of stratified turbulence in natural fluids such as the ocean, atmosphere, astrophysical and cosmological flows. This icing phenomenon would explain the ice crystals clogging the pitot tubes in AF447.

A major oceanographic experiment in 2005 in Hawaii showed that the generic mechanism of stratified turbulent mixing involves mixing chimneys powered by fossil turbulence waves in the vertical direction. Combining extreme turbulence events of the equator with a mixing chimney of supercooled water vapor provides the equivalent of a brick wall to aircraft cruising at altitude. Within about four minutes, all pitot tubes and control surfaces would ice over, and the doomed plane ultimately would hit the water. Nothing can be done by any pilot once this condition is established. The loss of the aircraft is not pilot error.

Fig. 4. First publication of Catastrophic Equatorial Hypothesis by R. Norris Keeler in Signal Magazine May 1, 2015, as the futile search continues in deep waters off Australia.

### Engines fail due to high altitude icing at equatorial latitudes

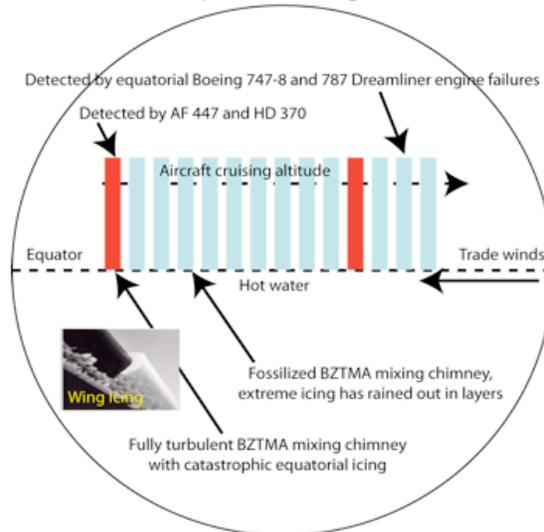


\*journalofcosmology.com volumes 21 and 23

A Boeing 747 "Dreamliner" takes off in this file picture. AP photo

\*Catastrophic equatorial icing is likely cause of MH 370 crash  
(not pilot error, not terrorist capture, not engine failure)

### Extreme equatorial icing mechanism



Equator is latitude of maximum turbulence intermittency,  
Baker and Gibson (1987)

Fig. 5. Clear evidence that icing conditions exist at aircraft cruising altitudes. See Journal of Cosmology Volume 23.

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## Catastrophic Equatorial Icing Caused the Air France 447 and Malaysian 370 Crashes: Risks of More Such Disasters Are Increased By Global Warming

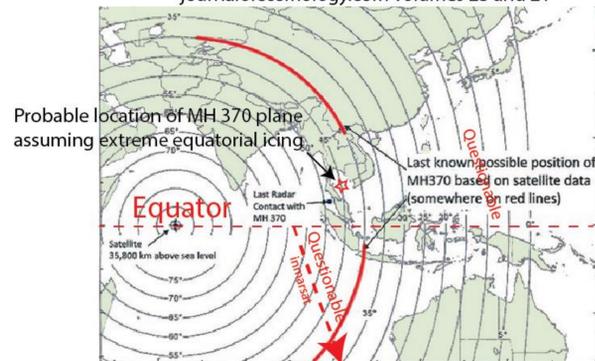
Carl H Gibson, University of California San Diego, La Jolla, CA, United States

Dangerous icing conditions near the equator have been observed, and may account for the tragic crashes of Air France 447 in 2009 and Malaysian Airlines 370 in 2014, not pilot error in either case. Six cases of engine failures from icing were reported in 2013 at high altitudes for 747-8 and 787 Dreamliner planes at tropical latitudes (journalofcosmology.com volume 23). Lack of horizontal Coriolis forces accounts for the extreme intermittency of equatorial turbulence and turbulent mixing, Baker and Gibson (1987). Intermittency factors inferred from the available microstructure data sets were much larger than those at higher latitudes, reflecting the wide range of scales of the turbulence cascade from small scales to large in the horizontal direction. Lognormal statistical analysis implies mean values of dissipation rates are likely to be 30,000 times larger than mode values at the equator, compared to only 2000 times larger at midlatitudes. Modern stratified turbulence theory (journalofcosmology.com volume 21) shows turbulent mixing of heat, mass, momentum, and chemical species in natural fluids such as the ocean, atmosphere, and cosmological fluids is dominated by mixing chimneys directed perpendicular to vertical and radial layers of gravitational stratification by the inertial vortex forces that define turbulence. Rarely, thick columns of supercooled steam reach cruising altitudes of jet aircraft. After entering such a column, the plane is doomed.

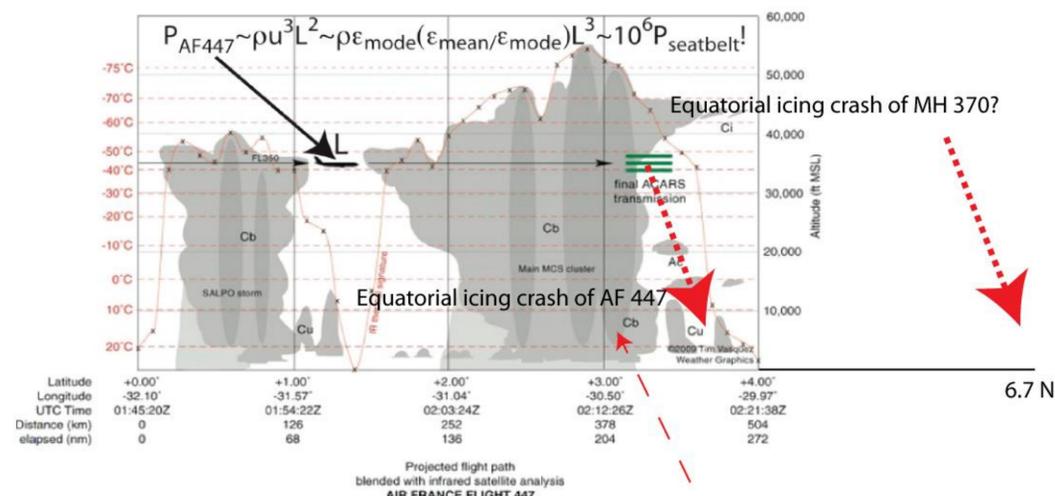
### New MH 370 search area recommended



inmarsat flight path is an extrapolation of highly questionable locations journalofcosmology.com volumes 23 and 21



### Intermittent air turbulence and intermittent icing caused AF 447 crash at equatorial latitudes, not pilot error



Powerful equatorial BZTMA mixing chimneys of supersaturated water vapor may have doomed both airplanes

### How to test the equatorial icing crash hypothesis for MH 370



See journalofcosmology.com volume 21 for details

### Engines fail due to high altitude icing at equatorial latitudes



\*Catastrophic equatorial icing is likely cause of MH 370 crash (not pilot error, not terrorist capture, not engine failure)

### Extreme equatorial icing mechanism

