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Abstract
This little study talks about good science methodology, rationality, plausibility and Okham's Razor. Something more than a conjecture or even an hypothesis is developed to offer an explanation to the phenomenon of lightning strike synchronisation. An experiment is suggested to go a long way to proving the hypothesis, to the point of offering no other reasonable explanation.

1. Introduction

I can't be bothered to write this up into a little paper (it seems so obvious, but apparently not to researchers in the area) so I'll just include the email to a group of scientists that triggered it whilst talking about other matters. The point was to show a pedagogic approach to science when the group (some very senior) was getting stupid with the scientific method and believing junk science, in short, what Feynman called "Cargo Cult Science" (https://en.wikipedia.org/wiki/Cargo_cult_science) in talking about Consciousness, "UAPs/UFOs" and other fringe areas in science.

It came to mind as a lightning storm was occurring and I was using the tool www.lightningmaps.org/ and seeing the storms come in from over a wide area. It concerns the phenomenon of lightning strike synchronisation over a wide area (100s of miles at least) and this has also been observed from the Space Shuttle and International Space Station.

Correlations have been proven above statistical noise[1] and it has been suggested in the same paper that thunderstorms "talk" to one another. We shall show that this complication is not needed by wielding Ockham's Razor.

[1] "Lightning Has a Long-Distance Conversation", Science 2005.

2. Models to be tested (email where the hypothesis was lain out)

Subject: Lets have a little game of doing science with this lightning strike thing
Date: Tue, 6 Sep 2022 00:14:10 +0100
From: Remi Cornwall <remic@.com>
To: REDACTED
CC: REDACTED

OK, we're seeing this data and have a sneaking suspicion that distant (define "distant") lightning strikes are connected and triggered. We "feel" there's some kind of pattern. What to do next? Maybe drum up some conjectures?

1) It's caused by sound

2) It's caused by EM

3) Something else

Case (1) we might rule out because sound is very slow and doesn't travel far in a rainstorm (it muffles it). It would really confine it to the same cloud and that's not that spooky, when you think about it - the same cloud having multiple discharge points. So we are beginning to define "distant"

Case (2): We get the raw data and group events by some time window related to distance between events r/c (or there about) would be our window where we would call events triggered by the speed of causality (yes Jack, to give it its proper name). If we see a significant statistical clumping over randomness, we've got an hypothesis!

Case (3): We do the same with a time window that is faster than r/c, oooh! really spooky. If we observe such clumping, we've got another hypothesis (and not necessarily the most obvious one).

Ok, we start theorising a mechanism. Case (2) would suggest some form of electromagnetic interaction and we might start looking at radio waves, maybe light, maybe UV, maybe some interaction with the ionosphere and earth currents. Get more data.

Case (3), we might rule out superluminal (or supraluminal for the grammar pedants, NAME REDACTED) causes and PLAUSIBLY say it is triggered by cosmic rays - imagine a distant beam DIVERGES and distant points on Earth are then correlated by the incoming flux of cosmic rays.

Anything else and you'd be looking at new science, most likely. Good luck on that.

Fair?

On 05/09/2022 23:20, Remi Cornwall wrote:

Not a settled question with definitive answers but not voodoo science either...

Lightning Has a Long-Distance Conversation | Science | AAAS

On 05/09/2022 23:02, Remi Cornwall wrote:

Real Time Lightning Map :: LightningMaps.org

Experiment

I suggest an experiment: have two (or more) spark gaps separated by a wide and measured distance. Have a strong radioactive or x-ray source produce an expanding beam of rays such that the intensity is strong enough that the beam intensity is correlated in time across the wide aperture (or use a chopper to modulate the beam) and have that beam incident on the spark gaps.

Expected result: the spark gaps will have a correlation in their firing events. If the time window is less than r/c, as discussed and synchronous with the incident radiation, then the hypothesis or at least the mechanism is proven.

Conclusion

Synchronised lightning is most likely caused by cosmic rays, where the beam has diverged but remains correlated over a wide area.

We find no need to suggest that lightning storms somehow “talk” to each other or trigger their lightning.

Further study would be to confirm the correlations by cosmic ray detection over a wide area and correlation with thunderstorm data.