

## The butterfly effect

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It is very unusual for a mathematical idea to disseminate into the society at large. An interesting example is chaos theory, popularized by Lorenz's butterfly effect: "*does the flap of a butterfly's wings in Brazil set off a tornado in Texas?*" A tiny cause can generate big consequences! Mathematicians (and non mathematicians) have known this fact for a long time! Can one adequately summarize chaos theory in such a simple minded way? Are mathematicians responsible for the inadequate transmission of their theories outside of their own community?

My talk will be primarily focused on mathematics and my main goal is to explain the exact meaning of the butterfly effect. More importantly, I would like to give a very general overview (of some) of the current mathematical research on chaos theory. The presentation will follow the historical path, leading slowly to a better understanding of the relationship between determinism and randomness.

Some of the main characters of the history of chaos were indeed concerned with the problem of communicating their ideas to other scientists or non-scientists. I'll try to discuss their successes and failures. Most of them were not prepared for such a task. The education of future mathematicians should include a specific training to teach them how to explain mathematics outside their community. This is more and more necessary due to the increasing complexity of mathematics. A necessity and a challenge!