

New research explores how wetlands and agriculture, not fossil fuels could be causing a global rise in methane

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Research published today in the American Geophysical Union's journal *Global Biogeochemical Cycles* shows that recent rises in levels of methane in our atmosphere is being driven by biological sources, such as swamp gas, cow burps, or rice fields, rather than fossil fuel emissions.

Atmospheric methane is a major greenhouse gas that traps heat in our atmosphere, contributing to global warming. Its levels have been growing strongly since 2007, and in 2014 the growth rate of methane in the atmosphere was double that of previous years, largely driven by biological sources as opposed to [fossil fuel emissions](#).

Conventional wisdom refuted

The study, led by researchers at Royal Holloway, University of London shows that [methane emissions](#) have been increasing, particularly in the tropics. Researchers discovered that biological sources, such as methane emissions from swamps, make up the majority of increase.

"Our results go against conventional thinking that the recent increase in [atmospheric methane](#) must be caused by increased emissions from natural gas, oil, and coal production. Our analysis of methane's isotopic composition clearly points to increased emissions from microbial sources, such as wetlands or agriculture" said lead author Euan Nisbet from Royal Holloway, University of London's Department of Earth

Sciences.

Methane growth rate doubles

Professor Nisbet says "Atmospheric methane is one of the most potent greenhouses gases. Methane increased through most of the 20th century, driven largely by leaks from the gas and coal industries."

He continued, "At the beginning of this century it appeared that the amount of methane in the air was stabilising, but since 2007 the levels of methane have started growing again. The year 2014 was extreme, with the growth rate doubling, and large increases seen across the globe."

Tropics identified as key source

The research shows that in recent years, the increase in methane has been driven by sharp increases in the tropics, in response to changing weather patterns. It is possible that the natural processes that remove methane from the atmosphere have slowed down, but it is more likely that there's been an increase of [methane](#) emission instead, especially from the hot wet tropics.

Professor Nisbet and his team, together with the US The National Oceanic and Atmospheric Administration (NOAA), have been looking at measurements and samples of air taken from places like Alert in the Canadian Arctic; Ascension, a UK territory in the South Atlantic; Cape Point, South Africa.

More information: E. G. Nisbet et al. Rising atmospheric methane: 2007-14 growth and isotopic shift., *Global Biogeochemical Cycles* (2016). [DOI: 10.1002/2016GB005406](https://doi.org/10.1002/2016GB005406)

Provided by Royal Holloway, University of London

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