Methane affects the Arctic in various ways. It is a primary component of natural gas, a common fuel source. Emissions from human activities include industry, agriculture, and waste management. The remainder is emitted from natural sources, like wetlands, termites, oceans, sediments, volcanoes, and wildfires. In the Arctic, methane is found on both land and ocean.

**WHAT IS IT?**

Methane is a primary component of natural gas, a common fuel source. It is a greenhouse gas that contributes to global warming. Methane released in the Arctic can affect the balance of carbon in the atmosphere, leading to intensified global climate change.

**WHAT ARE ITS SOURCES IN THE ARCTIC?**

- Marine sediments
- Permafrost
- Methane clathrates
- Terrestrial wetlands

**WHY DOES IT MATTER?**

- **It's Amplifying the Problem:** Methane is 84 times more powerful than carbon dioxide in a year, and its release could lead to catastrophic impacts, including irreversible changes to the Arctic environment.
- **It's a Lot More Powerful Than Carbon Dioxide:** Methane is 84 times more powerful than carbon dioxide in a year, and its release could lead to catastrophic impacts, including irreversible changes to the Arctic environment.
- **It Could Be a Game-Changer:** One cubic meter of frozen methane releases about 160 cubic meters of gas, making it a highly energy-intensive fuel.
- **High Emissions:** Methane emissions from human activities account for 60% of global methane emissions and are human-influenced, with agriculture being the largest source.

**HOW MIGHT MELTING PERMAFROST AFFECT THE ARCTIC?**

- Methane trapped in the Arctic tundra comes primarily from microbial decomposition of organic matter in soil that thaws annually. This frozen soil layer is called permafrost.
- Permafrost in the Arctic accounts for nearly 50% of all organic carbon stored in the planet’s soil.
- Methane and other greenhouse gases are sequestered in the permafrost layers, which are melting due to rising temperatures. If this trend continues, the vast carbon reservoirs might release into the atmosphere as either carbon dioxide or methane, upsetting the Arctic carbon balance and intensifying global climate change.

**WE NEED MORE RESEARCH**

Scientists are still learning about methane in the Arctic and how they should build it into climate models. More information is needed so we don’t hit an unaccounted feedback loop and “tipping point.”