

**News**

- [Bay Area News](#)
- [Beyond the Bay](#)
- [Online Features](#)
- [RSS Feeds](#)
- [Special Sections](#)
- [Obituaries](#)
- [Columnists](#)

[Print Article](#) [Email Article](#)

Article Last Updated: 08/29/2006 07:08:14 AM PDT

## Global warming could trigger methane release

Scientists think seabed gas plumes would result in even hotter climate

By [Ian Hoffman](#), STAFF WRITER

The last two times the Earth warmed considerably and put glaciers on the run, huge plumes of the potent greenhouse gas methane bubbled out of the ocean off the California coast.

An international team of researchers say they think they know why. If they're right, manmade greenhouse warming could unleash fresh plumes of seabed methane along the North American and European coasts that could make the planet warmer still and speed the acidification of the oceans.

In a report Monday in the online edition of the Proceedings of the National Academy of Sciences, a U.S.-French team says they have documented the first hard evidence that past global warming triggered the release of methane from the oceans.

"It appears to sort of turn off and on with the climate like a switch," said Tessa Hill, a University of California, Davis marine geologist and lead author of the paper describing the methane releases.

The findings are the latest twist on a controversial theory for potentially catastrophic climate change, popularized by professor at UC-Santa Barbara, James Kennett, as the "clathrate gun hypothesis."

If greenhouse gases make the Earth hot enough, the theory goes, the warmer seawater could trigger melting of vast deposits of undersea methane ices sitting off the coast of most continents.

For the same volume, methane is 64 times more potent as a heat-trapping gas than carbon dioxide, and there is a lot of it. Kennett says these underwater methane ices, known as clathrates, contain as much as 12 trillion tons of carbon, more than double the carbon content of remaining global reserves of oil and coal.

"We have to get this right because with warming of the oceans in certain hot spots, like the Arctic and the outflow of the Mediterranean, a lot of methane could be released," said Kennett, a professor emeritus in marine geology.

Coastal methane seeps are common in Southern California, where the gas is trapped together with oil deposits, sometimes close to shore. The oily bubbles rise to the ocean surface and evaporate to leave a tarry deposit that sinks back to the seabed.

A U.S.-French team drilled into the Santa Barbara Channel in 2002 and in two deep cores, Hill and colleagues at UC-Santa Barbara found thick layers of tar deposits. They tested the different isotopes of oxygen in the sand and turned them into a geologic clock.

The tar layers lined up precisely with two warming periods — one about 11,000 years ago and another about 16,000 years ago — that ended the last ice age. Tar in those layers was three times higher than the average over 30,000 years.

Advertisement

That suggested to Hill, Kennett and colleagues that methane emissions then were three times higher when the climate was warming.

In 1990, scientists drilling in polar ice found that air bubbles trapped during those warming periods held significantly higher concentrations of methane. But earlier this year, Penn State geoscientist Todd Sowers reported that the methane found in those bubbles didn't come from marine sources, based on analysis of its hydrogen isotopes. Instead, Sowers reasoned, the methane had to come from wetlands.

"It's absolutely black and white," he said Monday.

Now Hill and Kennett have introduced a new wrinkle with their latest paper, suggesting that ordinary undersea pockets of oil and methane appear to release the greenhouse gas when the planet warms.

The only explanation that they could find is that those pockets are capped by methane ices. Make the ocean warm enough to melt the ices, and great oily plumes of methane bubble to the surface.

"My impression is that they found evidence that is quite striking," said Hinrich Schaefer, a post-doctoral geochemist at Oregon State University who studies the atmosphere trapped in ice cores.

Advertisement

Offering flexible options for advancing your career



weekends

graduate

online

flexible schedules

undergraduate

evenings

over 190 locations

[CLICK HERE](#)

InsideBayArea **Buy Your Links**

[Global Warming Discussion](#)  
"The latest news, ideas and talk on global warming and the planet"  
lime.com

[Stop Global Warming](#)  
Join OurEnergy free and let hundreds of leading U. S. retailers help!  
ourenergy.us

[100% Construction Loans](#)  
Start building your dream home today! A division of Centex Homes.  
www.gobuild.net

[SF Giants Tickets.](#)  
Buy San Francisco Giants Tickets. Where Fans Buy & Sell Tickets.  
www.StubHub.com

[Insurance Quotes](#)  
Commercial and personal. Quick and accurate.  
www.letustunrate.com

InsideBayArea **Buy Your Links**  
[Click here to advertise!](#)

**Top Listings**

CARS RENTALS JOBS HOMES

- Fremont** (Rentals) \$240 & UP 1BDRM
- SAN LEANDRO** (Rentals) \$850 1BD; \$1050 2BD
- Hayward** (Rentals) \$950 1BD
- OAKLAND** (Rentals) \$775 Quiet 1BR
- HAYWARD** (Rentals) \$219 & up week
- Hayward** (Rentals) \$330-\$495
- Hayward** (Rentals) \$1225 2BD
- OAKLAND** (Rentals) \$800 1BD
- [ALL LISTINGS](#)

"The problem that they have is to come up with a mechanism to explain it. What could make an oil field blow more methane at a time of climate change? So what they come up with are the clathrates melting."

He questions that explanation in part because studies such as Sowers cast doubt on clathrates or methane ices being very sensitive to warming.

"There is no single study that disproves it, but they certainly are leaning against it," Schaefer said.

In the end, the academic question of whether the methane trapped in polar ice thousands of years ago came from the land or from the ocean may be moot. If the planet warms enough, releases of methane could come from both sources and accelerate greenhouse warming.

"We need to know that the methane clathrates are unstable," Kennett said. "Right now we're trying to get the (climate science) community to seriously think about the fact that these releases could occur."

 [RETURN TO TOP](#)

[Home](#) | [Classifieds](#) | [Real Estate](#) | [Jobs](#) | [Cars](#) | [Place An Ad](#) | [Advertise with Insidebavarea.com](#) | [Subscriber Services](#) | [Contact Us](#)

© 2000-2006 ANG Newspapers | [Privacy Policy](#)

| [MNG Corporate Site Map](#)