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## Methane seepage heightens pressure for climate treaty

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Evidence that methane, a dangerous greenhouse gas, is escaping from the warming Arctic seabed makes securing a new international agreement to slash global-warming gas emissions even more urgent, scientists warn.

### Background:

The global community is currently engaged in negotiations to agree a successor to the Kyoto Protocol, which expires in 2012.

The first United Nations Framework Convention on Climate Change (UNFCCC) talks in Bonn (29 March–8 April) launched negotiations for a draft agreement in view of the final conference in Copenhagen later this year ([EurActiv 09/04/09](#)).

Ahead of another round of Bonn talks in June, the negotiating text had ballooned to hundreds of pages after all parties had reacted with amendments ([EurActiv 15/06/09](#)).

Only 15 negotiating days remain after an informal meeting took place in August, where no agreement has been reached on the crucial issues of financing for developing countries to mitigate and adapt to global warming and sufficient emissions reduction targets for industrialised countries ([EurActiv 18/08/09](#)).

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A British-German research team discovered that over 250 plumes of methane bubbles are rising from the seabed off West Spitsbergen, a Norwegian island in the Arctic Ocean. The researchers discovered the seeps, which lie 150-400 metres deep, using sonar technology, they wrote in the *Geophysical Research Letters* earlier this month.

The methane was released from methane hydrates, "ice-like substances" that remain stable amid the high pressure and low temperature of marine sediments. Scientists have predicted that as ocean temperatures rise as a result of climate change, methane hydrates would begin to break down at greater depths. But the fact that the process has begun already surprised the team.

"Our survey was designed to work out how much methane might be released by future ocean warming; we did not expect to discover such strong evidence that this process has already started," said Professor Tim Minshull of the National Oceanography Centre at the University of Southampton in the UK.

Data collected over past decades shows that 30 years ago methane hydrates were stable at water depths as shallow as 360 metres in the Spitsbergen area.

"If this process becomes widespread along Arctic continental margins, tens of megatonnes of methane per year – equivalent to 5-10% of the total amount released globally by natural sources, could be released into the ocean," Professor Graham Westbrook of the University of Birmingham cautioned.

Scientists have been warning that thawing permafrost in Siberia and Alaska is already releasing methane from the northern wetlands at an alarming rate.

Methane is 20 times more powerful a greenhouse gas than CO<sub>2</sub>. Experts warn that once its release has begun, the result will be runaway climate change.

### **International agreement to cut emissions crucial**

The scientific community is raising the alarm that while CO<sub>2</sub> emissions from fossil fuels can be slashed, once global temperatures have risen high enough to start releasing methane from vast deposits in permafrost on land and at sea, climate change can no longer be stopped.

The UN's scientific body, the Intergovernmental Panel on Climate Change (IPCC), has stated that 2°C is the maximum temperature rise imaginable before which the most devastating impacts of climate change would kick in. But the influential Stern Review stated that the Earth is heading for a 2–3°C increase within the next fifty years if current trends continue.

"Methane escaping from the seafloor as a result of warming is an additional risk that could amplify global warming, and this is currently not included in the IPCC scenarios," Professor Stefan Rahmstorf from the Potsdam Institute for Climate Impact Research told EurActiv.

Despite the imperative, the global community is becoming increasingly sceptical about whether it will be possible to agree a new framework limiting greenhouse gases under the United Nations Framework Convention on Climate Change (UNFCCC).

The IPCC argues that industrialised countries should slash their CO<sub>2</sub> emissions by at least 25-40% below 1990 levels to halt climate warming below the critical threshold. So far the countries' pledges only amount to 15-21%.

Furthermore, as the probability of an abrupt release of billions of tonnes of methane is difficult to estimate, the global community had better play it safe and make radical CO<sub>2</sub> reductions now, climate researchers say.

"This risk - although it cannot yet be quantified - is an additional reason for rapid emissions reductions," Professor Rahmstorf said.

### **Next steps:**

- **21-25 Sept.:** UN Climate Summit in New York.
- **28 Sept.-9 Oct.:** UN climate negotiations in Bangkok.
- **2-6 Nov.:** UN climate negotiations in Barcelona.
- **7-18 Dec.:** UN Climate Change Conference in Copenhagen.

### **Links**

#### European Union

- Commission: [The EU's contribution to shaping the future global climate change regime](#)
- Commission: [The Climate action and renewable energy package, Europe's climate change opportunity](#)

#### International Organisations

- United Nations Framework Convention on Climate Change (UNFCCC): [Homepage](#)

Think tanks & Academia

- National Oceanography Centre, Southampton: [Warming Ocean Contributes to Global Warming](#)

Books and Articles

- Geophysical Research Letters: [Escape of methane gas from the seabed along the West Spitsbergen continental margin](#)
- Nature: [A sleeping giant?](#)