

Undersea methane could be contributor to increased ocean acidity, researchers find

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(PhysOrg.com) -- A North Carolina State University researcher is part of a team which has found that methane from “cold seeps” – undersea areas where fluids bubble up through sediments at the bottom of the ocean – could be contributing to the oceans’ increasing acidity and stressing already delicate undersea ecosystems.

Oceanic microorganisms and bacteria survive by consuming dissolved organic carbon, or DOC. A byproduct of this consumption is CO₂ – [carbon dioxide](#) – which, in large enough concentrations, makes seawater more acidic.

Dr. Chris Osburn, assistant professor of marine science at NC State, and a research team led by geologists from the U.S. Geological Survey found high levels of methane-derived DOC in the deep water over cold seeps in two areas of the Pacific Ocean. Their findings appear online in *Nature Geoscience*.

“Normally, DOC primarily comes from the degradation of phytoplankton (algae), or from river discharge into the ocean,” Osburn says. “Finding DOC that comes from [methane](#) is a new part of the carbon cycle that hasn’t really been accounted for.”

Now that they have found methane-derived DOC, the researchers need to determine if it is found in other cold seeps worldwide, and whether or not it is labile, or easily used by the microorganisms that survive on DOC.

“Based on what we found, up to 30 percent of the Pacific Ocean’s deep water DOC could be methane-derived,” Osburn says. “If it is utilized by marine microorganisms, methane-derived DOC could be a component of deep ocean ecosystems. Moreover, microbial processing of this DOC could be contributing to increased CO₂ in the deep ocean and thus to [ocean](#) acidification.”

More information: [www.nature.com/ngeo/journal/va ...
t/full/ngeo1016.html](http://www.nature.com/ngeo/journal/va...t/full/ngeo1016.html)

Provided by North Carolina State University

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