

[是否将当前网页翻译成中文?](#)[翻译网页](#)[中英对照](#)[关闭](#)

News Release 17-058

# Study finds mercury levels in Arctic soils 5 times higher than temperate regions

**Researchers call Arctic tundra a global repository for mercury released into atmosphere elsewhere in the world**



Greenland tundra near the ice sheet.

[Credit and Larger Version \(/news/news\\_images.jsp?cntn\\_id=242476&org=NSF\)](/news/news_images.jsp?cntn_id=242476&org=NSF)

**July 12, 2017**

Plants and soil in the Arctic tundra absorb and store mercury released into the atmosphere by industry and mining in the Earth's temperate regions, leading to soil mercury levels five times higher than in lower latitudes, according to a new study by researchers supported by the National Science Foundation (NSF). The research was published this week in the journal *Nature*.

The international team of researchers from the U.S. and France used a combination of methods to monitor the accumulation of mercury from the atmosphere, performing continuous sampling over a two-year period, including through the Arctic winter.

They concluded that the Arctic tundra is a major "sink" for mercury, a toxin that affects the neurological and immune systems of Arctic wildlife and is passed along to indigenous peoples who rely on subsistence hunting for their food. Studies have shown that mercury ingested by mothers can also have detrimental effects on unborn children.

Between one-third and one-half of all mercury stored in global soils -- much of it likely from the burning of coal and other sources -- is stored in tundra soils, according to the study.

The results indicate that mercury has a  
this mercury could be released into rive

是否将当前网页翻译成中文?

The majority of the mercury -- 70 percent -- found in the Arctic does not come from rain or snow, the researchers noted, but in a gaseous form. This allows it to travel long distances across the global atmosphere.

"It's a process similar to the uptake of carbon dioxide, whereby plants absorb gaseous mercury from the atmosphere and as they shed their leaves or die off, this mercury deposits to the tundra," said Daniel Obrist of the University of Massachusetts Lowell, the NSF-funded principal investigator for the research.

The researchers added that their findings explain the strong effects of human-caused emissions in the Arctic, even though those sources of mercury are, for the most part, located in the lower latitudes.

The researchers noted that previous measurements indicate the amount of mercury in sediments at the bottom of Arctic lakes has increased three to five times since the Industrial Revolution began, which is similar to levels found in lake sediments at lower latitudes.

As a result, Arctic absorption of mercury indicates that the region will continue to serve "as a global sink of mercury emitted elsewhere in the globe," the study says. Further emissions, even those from far away "will continue to affect arctic wildlife and people," it says.

-NSF-

---

### Media Contacts

Peter West, NSF, (703) 292-7530, [pwest@nsf.gov](mailto:pwest@nsf.gov) (<mailto:pwest@nsf.gov>)

### Principal Investigators

Daniel Obrist, University of Massachusetts, Lowell, (978) 934-3988, [Daniel\\_Obrist@uml.edu](mailto:Daniel_Obrist@uml.edu) ([mailto:Daniel\\_Obrist@uml.edu](mailto:Daniel_Obrist@uml.edu))

---

*The National Science Foundation (NSF) is an independent federal agency that supports fundamental research and education across all fields of science and engineering. In fiscal year (FY) 2018, its budget is \$7.8 billion. NSF funds reach all 50 states through grants to nearly 2,000 colleges, universities and other institutions. Each year, NSF receives more than 50,000 competitive proposals for funding and makes about 12,000 new funding awards.*

 [Get News Updates by Email <http://service.govdelivery.com/service/subscribe.html?code=USNSF\\_51>](http://service.govdelivery.com/service/subscribe.html?code=USNSF_51)

### Useful NSF Web Sites:

NSF Home Page: <https://www.nsf.gov> <<https://www.nsf.gov>>

NSF News: <https://www.nsf.gov/news/> (/news/)

For the News Media: <https://www.nsf.gov/news/newsroom.jsp> (/news/newsroom.jsp)

Science and Engineering Statistics: <https://www.nsf.gov/statistics/> (/statistics/)

Awards Searches: <https://www.nsf.gov/awardsearch/> (/awardsearch/)

是否将当前网页翻译成中文?