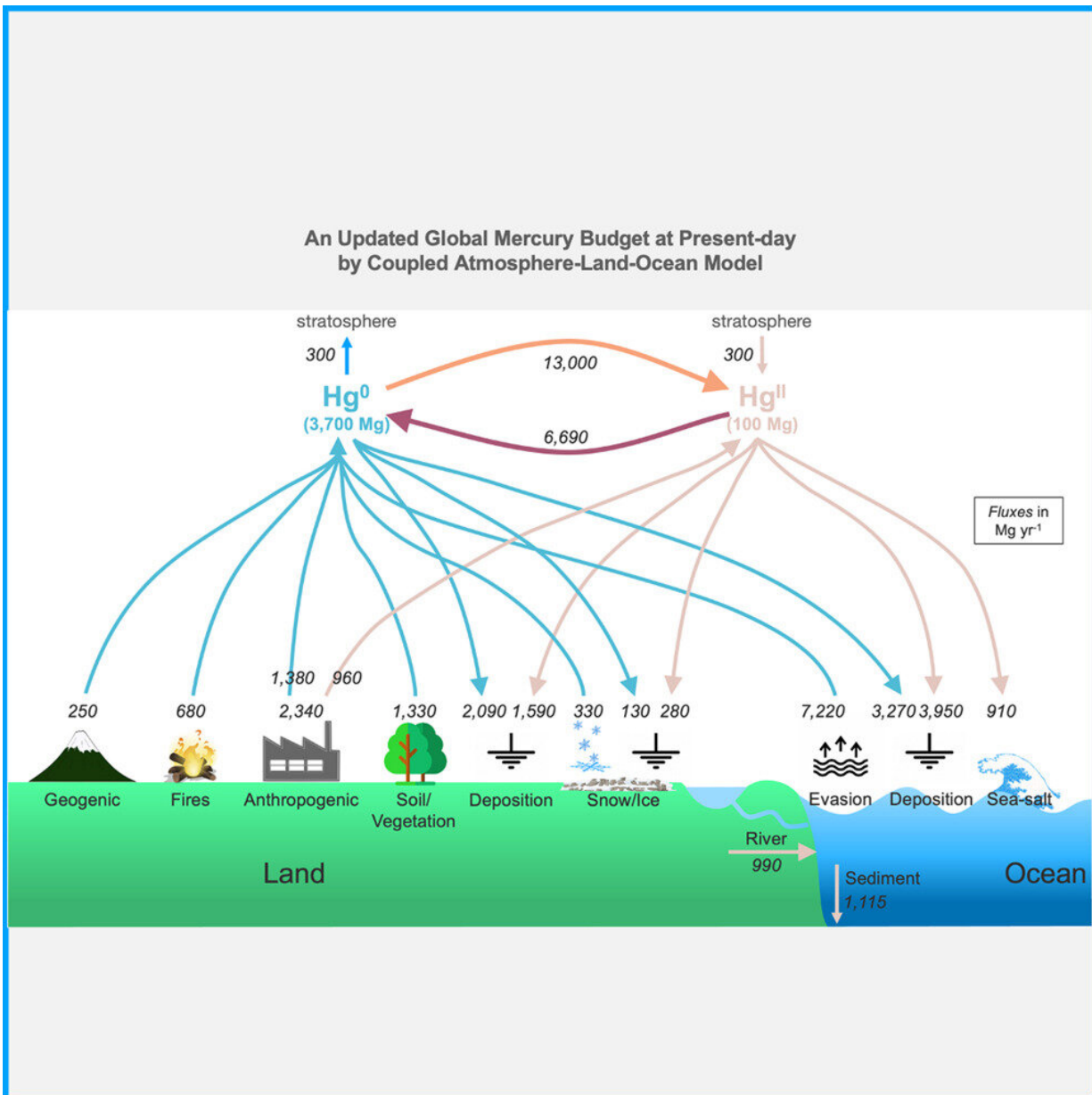


Excess mercury in atmosphere found to be coming from the world's oceans

March 22 2023, by Bob Yirka



Graphical abstract. Credit: *One Earth* (2023). DOI: 10.1016/j.oneear.2023.02.004

A team of environmental scientists affiliated with several institutions in China and the U.S. and one in Belgium has found that excess amounts of mercury entering the atmosphere as part of a global flow are coming from the world's oceans. The group has published a paper describing their work in the open-access journal *One Earth*.

Mercury is a heavy silvery-white metal that exists as a liquid at [room temperature](#). It is known to be present in the [environment](#) and in most plants and animals. In nature, [mercury](#) is generally found in deposits in the form of cinnabar—thus, most of it found in the environment is due to human activities.

Higher-than-normal levels of mercury in the body can lead to a host of ailments, including anxiety, irritability and depression. Prior research has shown that the most common form of mercury poisoning comes from eating seafood. In this new effort, the researchers looked at the entire global flow of mercury to learn more about where it exists and in what quantities.

To gain a better perspective on the global flow of mercury, the research team started with a coupled [atmosphere](#)-land-ocean model system. They then added data from a variety of sources that listed amounts of mercury found at test sites, along with new information found by other researchers describing the chemistry and physics of mercury as it moves through the environment.

The model showed estimated levels of mercury around the globe and in the atmosphere. The researchers compared their results against other

reference models and found one major difference. Their model showed 40% more mercury entering the atmosphere each year than the references showed. The difference, they found, was in the amount estimated to be in the world's oceans. Their model showed higher oceanic mercury content than previously thought, and higher emissions into the atmosphere.

The team suggests that the higher levels of mercury in the atmosphere almost certainly translate to more mercury in the environment, which could be putting people at risk. They note that measurement of mercury levels at terrestrial sites is sparse and suggest that more work is required to isolate pockets of high levels of mercury and then to clean it up.

More information: Yanxu Zhang et al, An updated global mercury budget from a coupled atmosphere-land-ocean model: 40% more re-emissions buffer the effect of primary emission reductions, *One Earth* (2023). [DOI: 10.1016/j.oneear.2023.02.004](https://doi.org/10.1016/j.oneear.2023.02.004)

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