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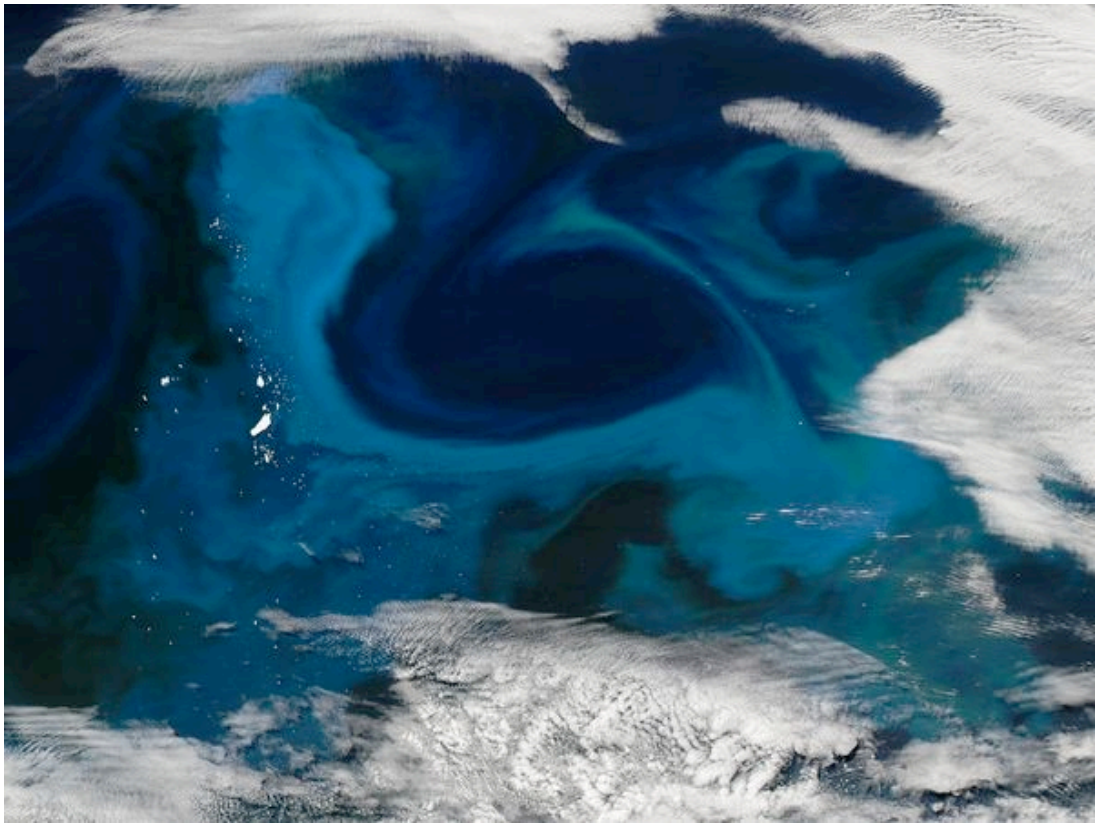
Photos: Dumping Iron in Ocean & 6 More Extreme Climate Fixes



Pumping Up Plankton

Image courtesy NASA via LBL

The idea of fighting global warming by dumping iron in the oceans to fertilize plankton—tiny plants that absorb carbon dioxide—gets a new boost today with a study in the journal *Nature* (pictured: a natural plankton bloom off Antarctica).

One of several last-ditch fixes proposed to fight climate change, iron dumping has long been proposed as a "geoengineering" strategy—a way to manipulate the climate to reduce the effects of heat-trapping greenhouse gases.

Some studies, however, have suggested that, over time, iron fertilization can create low- to no-oxygen conditions—dangerous for marine life—or trigger blooms of types of plankton that are harmful to some organisms. (See "Plan to Dump Iron in Ocean as Climate Fix Attracts Debate.")

The new study, though, finds no evidence for these concerns. Instead, most of the plankton in iron-enriched waters falls to the seafloor and gets buried in ocean sediments, which trap carbon long-term, the study found.

For the study, scientists in 2004 added seven tons of iron sulfate to 58 square miles (150 square kilometers) of ocean off Antarctica—chosen for its "central role" in the global carbon cycle, according to study co-author Christine Klass, of the Alfred Wegener Institute for Polar and Marine Research.

The iron spurred a bloom of diatoms, algae that form large, slimy groupings with high sinking rates. In this case more than 50 percent of a plankton bloom typically sank to the seafloor.

Though the study authors have spent years verifying the results, they remain cautious.

So far, the data suggest iron fertilization could trap only about 10 percent of current carbon dioxide emissions "under very, very optimistic assumptions," study co-author Dieter Wolf-Gladrow, also of the Wegener institute, said by email.

Iron seeding, he added, "cannot provide a solution for our CO2 problem."

Klass agreed: "Given the many uncertainties and potential side effects of this technique, more experiments would be necessary before large-scale application."

(Also see "Can Iron-Enriched Oceans Thwart Global Warming?")

—Christine Dell'Amore

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