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Lizzie Buchen; published February 25, 2008

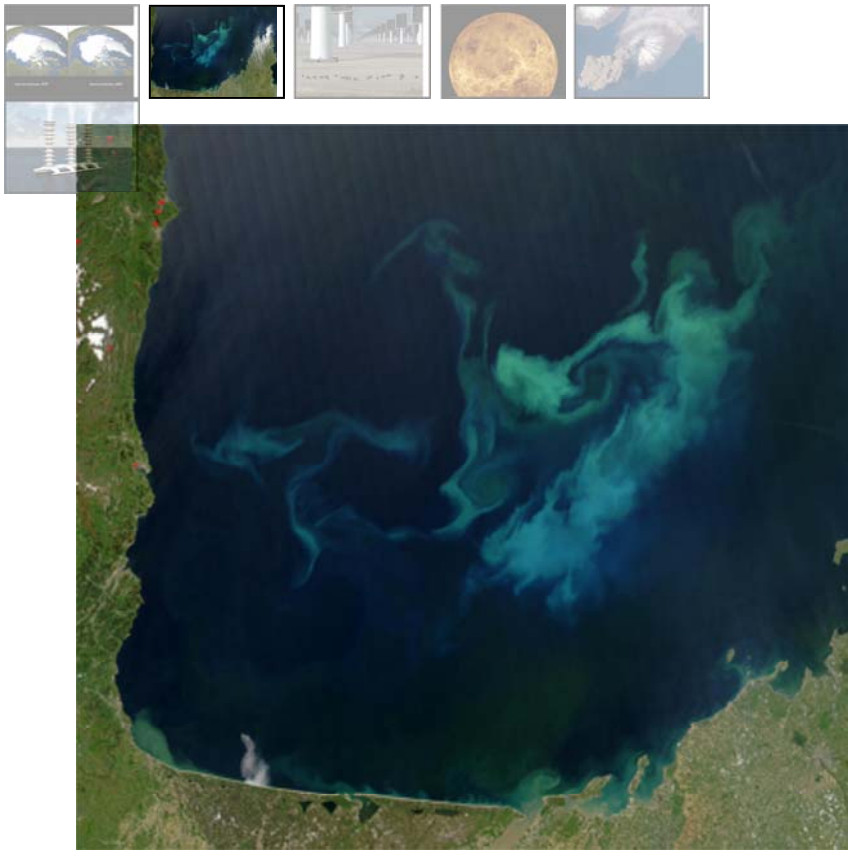

Image Courtesy of Visible Earth, Goddard Space Flight Center

SEND CO_2 TO SLEEP WITH THE FISHES

How it works: Oceans already play a key role in climate moderation, naturally taking up about 3 billion tons of CO_2 per year. One possible way to increase that amount is to boost the growth of photosynthetic plankton, which absorb carbon from the air. When they die, they sink to the ocean floor and are buried for up to thousands of years. The limiting factor is that about a third of the ocean's surface is short on iron, which limits phytoplankton's growth. Dumping tons of soluble iron sulfate into the sea could stimulate massive plankton blooms (a natural bloom is pictured here) and whisk our CO_2 cares away.

Pros: Iron's cheap, and we know that it can cause spikes in phytoplankton populations. Iron seeding is also associated with the best biogeochemical quote ever: "Give me half a tanker of iron, and I will give you an ice age," a boast from iron-seeding supporter John Martin (in what he calls his "best Dr. Strangelove accent").

Cons: Dumping large amounts of acidic compounds into an ocean that's already suffering from acidification, causing a population explosion for a single type of marine organism? Not surprisingly, environmental groups like Greenpeace aren't in favor (pdf) of this option. The effects of polluting the oceans with soluble iron are unknown, and phytoplankton blooms are likely to consume lots of other nutrients as well, possibly putting their fellow ocean residents in danger. And it might not even work--many climatologists are skeptical of the impact extra phytoplankton would actually have on the concentration of greenhouse gases.

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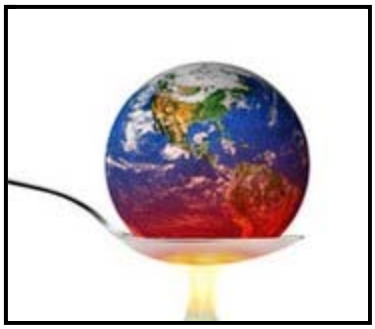
Every year DISCOVER sorts through the scientific accomplishments of the past 12 months, and assembles a list of the coolest experiments, most brilliant discoveries, and most world-changing events. As you page through the countdown to the #1 science story, we think you'll come to the same conclusion we did: 2010 was quite a year.



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