

One force of nature vs. another: Bill Gates tries to stop hurricanes

Now Hiring



Submit

| | | | | | |
|------|----------|--------|-----------|--------|--------|
| HOME | ABOUT US | EVENTS | COMMUNITY | VIDEOS | MOBILE |
|------|----------|--------|-----------|--------|--------|

TechFlash > Microsoft Blog > 2009 > July > One force of nature vs. another: Bill Gates tries to stop hurricanes

TODD BISHOP'S MICROSOFT BLOG

PATENTS

One force of nature vs. another: Bill Gates tries to stop hurricanes

Todd Bishop on Thursday, July 9, 2009, 8:45am PDT

75 Comments | [Permalink](#)

[Bill Gates](#) | [Microsoft](#) | [Nathan Myhrvold](#) | [Television](#)

[Online retail: Let it snow](#)

[Head of Paul Allen's Vulcan steps down](#)

[Biggest Tech Debacle of The Year](#)

[Report: Twitter turns a profit](#)

[Seattle Genetics in big deal with Glaxo](#)

[New GM CFO: Microsoft's Liddell](#)

[Isilon and 'Avatar'](#)

[Yelp and Google? Um, nevermind](#)

January 2010

[View All Events](#)

Thursday January 14, 2010

5:30 PM PST

[Stories, Strategies for Surviving](#)
[Exit](#)

Wednesday January 20, 2010

5:30 PM PST

[Women & Leadership](#)

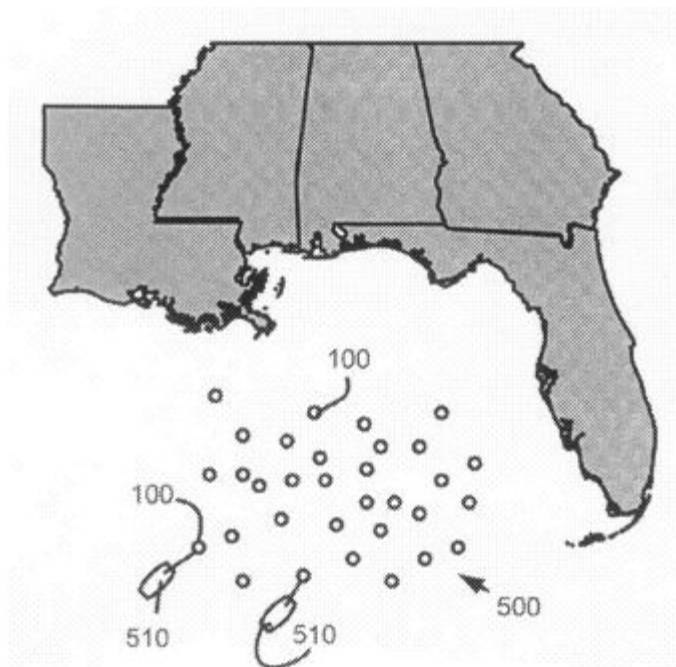
Thursday January 21, 2010

8:00 AM PST

Avvo Advocating Conference

MOST VIEWED MOST EMAILED

1. The Microsoft Diet: Realistic Avatars
2. Head of Paul Allen's Vulcan steps down
3. New GM CFO: Microsoft's Liddell
4. Biggest Tech Debacle of The Year
5. How Myhrvold would save the planet
6. Yelp and Google? Um, nevermind



A diagram from one of the newly disclosed Gates and Myhrvold patent filings, depicting a deployment of hurricane-suppression vessels in the Gulf of Mexico.

MICROSOFT'S NEW OS

- Week in Windows: Fewer support calls, more tools for online help
- Technology Platform of the Year
- Mark Anderson to Microsoft: Your consumer business is dead
- Happy Holidays from Microsoft: No more Windows 7 Family Pack
- Microsoft disputes reports of Windows 'Black Screen' glitches

[VIEW ALL](#)

BILL GATES WATCH

- Top 10 stories for November
- Natural user interface: A key test for Microsoft in 2010 and beyond
- Bill & Melinda on Meet the Press
- Bill Gates, one decade later
- Bill Gates gushes over Steve Jobs; praises Google founders

[VIEW ALL](#)

Recent patent filings have shown Bill Gates and his friends exploring subjects as diverse as [electromagnetic engines](#) and [beer kegs](#). Now they're thinking even bigger -- trying to stop hurricanes.

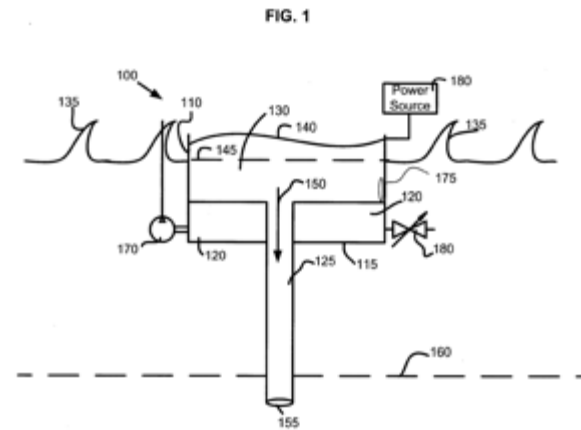
Microsoft's chairman is among the inventors listed on a new batch of patent applications that propose using large fleets of vessels to suppress hurricanes through various methods of mixing warm water from the surface of the ocean with colder water at greater depths. The idea is to decrease the surface temperature, reducing or eliminating the heat-driven condensation that fuels the giant storms.

The filings were made by Searete LLC, an entity tied to Intellectual Ventures, the Bellevue-based patent and invention house run by Nathan Myhrvold, the former Microsoft chief technology officer. Myhrvold and several others are listed along with Gates as inventors.

The diagram at right is from [one of five related patent applications](#) made public this morning. So how exactly do they plan to stop hurricanes? Here's an excerpt from the filing that explains the diagram.

Vessel 100 is a tub-like structure having one or more walls 110 and a bottom 115. Vessel 100 may be held buoyant in the water by one or more buoyancy tanks 120 which may be used to maintain the buoyancy of vessel 100 and further may be used to control the height of walls 110 above the water level. Vessel 100 also includes a conduit

125 whose horizontal cross section is substantially smaller than the horizontal cross section of the tub portion 130 of the vessel defined by walls 110. In an exemplary



embodiment, conduit 125 extends well below the ocean surface including depths below the ocean's thermocline.

In most circumstances, most of the sunlight impinging on the ocean surface is absorbed in the surface layer. The surface layer therefore heats up. Wind and waves move water in this surface layer which distributes heat within it. The temperature may therefore be reasonably uniform to depths extending a few hundred feet down from the ocean surface. Below this mixed layer, however, the temperature decreases rapidly with depth, for example, as much as 20 degrees Celsius with an additional 150 m (500 ft) of depth. This area of rapid transition is called the thermocline. Below it, the temperature continues to decrease with depth, but far more gradually. In the Earth's oceans, approximately 90% of the mass of water is below the thermocline. This deep ocean consists of layers of substantially equal density, being poorly mixed, and may be as cold as -2 to 3.degree. C.

This cycle will be continuous in bringing warm surface ocean water to great depth as ocean waves continue to input water into tub 130. ... If many of vessel 100 are distributed throughout a region of water, the temperature of the surface of the water may be altered."

Therefore, the lower depths of the ocean may be used as a huge heat/energy sink which may be exploited by vessel 100. When vessel 100 is deployed at sea, waves 135 may lap over the top of walls 110 to input warm (relative to deeper waters) surface ocean water into tub 130. Tub 130 will fill to a level 140 which is above the average ocean level depicted as level 145. Because of the difference between levels 140 and 145, a pressure head is created thereby pushing warm surface ocean water in a downward direction 150 down through conduit 125 to exit into the cold ocean depths (relative to near surface waters) through one or more openings 155. In an exemplary embodiment, the depth of opening 155 may be located below the ocean's thermocline, the approximate bottom of which is depicted as line 160. This cycle will be continuous in bringing warm surface ocean water to great depth as ocean waves continue to input water into tub 130. If many of vessel 100 are distributed throughout a region of water, the temperature of the surface of the water may be altered.

"Many" is the important concept there at the end.

Gates, Myhrvold and associates aren't the first to propose reducing the ocean's surface temperature as a means of suppressing hurricanes, said [David Nolan](#), an associate professor of meteorology and physical oceanography at the University of Miami's Rosenstiel School of Marine and Atmospheric Science.

"Every couple of years there's a news story that gets picked up for some hurricane-suppression idea," Nolan said via phone this morning. "They're all kooky in their own way. Some of them are more plausible than others, but they all face an enormous problem of scale. ... You would have to cover an incredible area with this effect to reduce the temperature of the ocean by a significant amount."

Of course, a big difference in this case is that one of the people making the suggestion is one of the world's richest men. But don't look for Gates to fund the deployment of thousands of these vessels. [One of the patent filings](#) proposes paying for the equipment through the sale of insurance policies in hurricane-prone areas, in addition to funding from state, federal and local government agencies.

Patent watcher "theodp," who tipped us off to the filings, says he was reminded of "The Simpsons" as he read through them. "The richest man in the world hatches a plan to alter weather and ecology in return

for insurance premiums and fees from governments and individuals," he writes. "It's got kind of a Mr. Burns feel to it, no?"

The hurricane-suppression patent applications date to early 2008, but they were first made public this morning.

These and previous Searete LLC patent filings are believed to result from brainstorming sessions regularly held by Intellectual Ventures, in which Gates has been known to take part. It's not clear how or when Intellectual Ventures might go forward with any of these ideas.

Related Posts

[Bill Gates wants a better beer keg](#)

[Amazon patents electronic pen technology](#)

[Bill Gates' mysterious new company, BGC3](#)

[Bill Gates, top Microsoft executives do some inventing on the side](#)

[Inside Nathan Myhrvold's shiny new invention lab](#)

Photo of the Week: [Bill Gates tries to turn the tide](#)

Follow-up: [Bill Gates' Hurricane Stopper would be 'Plan C' for humanity](#)

[Print](#) [Email](#) [Share](#) [RSS Feeds](#)

[HOME](#) [ABOUT](#)
[US](#) [EVENTS](#) [COMMUNITY](#) [VIDEOS](#)

Use of, or registration on, this site constitutes acceptance of our [User Agreement](#) and [Privacy Policy](#).

© 2009 [American City Business Journals](#), Inc. and its licensors. All rights reserved. The material on this site may not be reproduced, dis prior written permission of bizjournals.