

Opinion

Cuba oil spill: the scenarios

Numerous articles continue to be written about oil exploration off the coast of Cuba. Some federal officials, while discussing potential spill mitigation, claim that the swift currents of the Gulf Stream will protect South Florida by carrying most oil away before it could hit the beaches. Is this correct, or might a threat to South Florida's beaches exist, given a drilling mishap?



ROBERT H. WEISBERG

The Gulf Stream indeed is swift, but if it isolated Florida from Cuba, then how did so many Cuban rafters reach the shoreline between Miami and Palm Beach over the past 50 years? To address this and the potential for oil to reach the Florida coastline, it is important to consider the Gulf Stream in its entirety.

There are two primary components of flow. The first, driven by the large-scale winds over the Atlantic Ocean, is geostrophic. The second is driven by local winds. Neglecting eddies, the geostrophic part alone would tend to isolate Cuba from Florida because it would be difficult for surface oil picked up on the Cuban side of the Gulf Stream to traverse across the region of maximum speed to the Florida side. However, the local wind-driven part can achieve this.

The geostrophic part is a balance between two forces, the pressure difference across the Gulf Stream and the Coriolis force

by the Earth's rotation. The result is a flow that nearly parallels the coastline. The local wind driven part is also a balance between two forces, the friction of the wind on the sea surface and the Coriolis force by the Earth's rotation. The result is a net transport of water directed to the right of the wind.

This Ekman transport, named after the discovering scientist, explains why sea level is higher than the normal high tide level on Florida's East Coast under northerly winds and lower than the normal high tide level under southerly winds. The reason is that water under the influence of northerly winds is driven toward Florida's East Coast. The converse occurs along Florida's West Coast. Thus flooding of low-lying areas on the East Coast tends to occur after the passage of strong weather fronts when the winds are northerly, whereas this tends to occur on the West Coast in advance of the front when the winds are southerly.

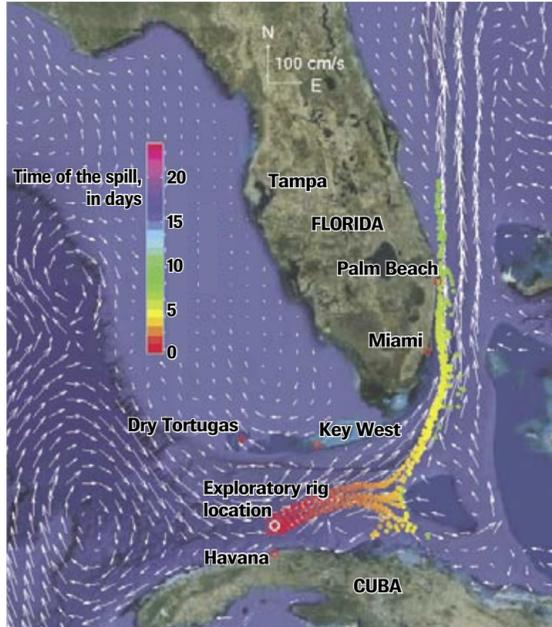
Given this conceptual discussion, it is possible to simulate the movement of oil that may be spilled on the surface using a computer model that contains these physics (geostrophic and Ekman motions). One particularly suited for the task is run by the Navy along with academic partners.

By downloading the modeled velocity fields and inserting virtual particles indicative of sur-

Would the Gulf Stream protect South Florida?

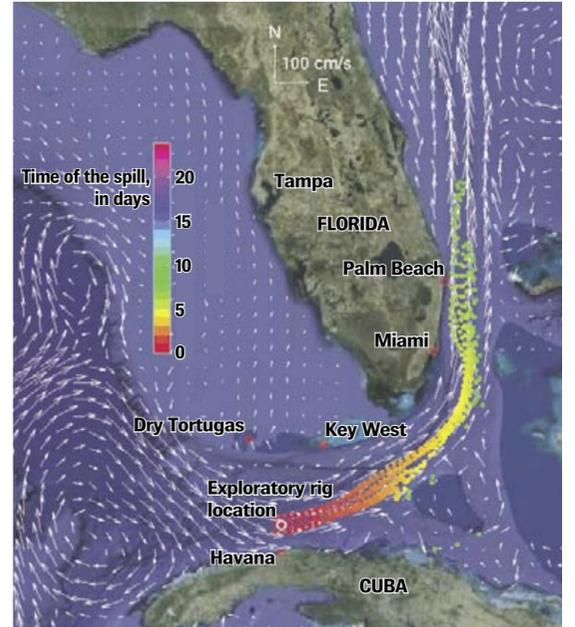
Cuba is exploring for oil off its shores. With that in mind, USF professor Robert H. Weisberg used computer models to track the path of a theoretical spill: Would the fast-moving Gulf Stream protect Florida? His model, using real-life conditions for two weeks last month, plots the trajectories of "virtual particles" from an oil exploration site 22 miles north of Havana. Each dot represents a particle seeded within the surface velocity field of a U.S. Navy global ocean circulation model. The color coding indicates the time in days after the particle was seeded near the exploration site. Thus, on the first map, showing Jan. 10-17, virtual particles would reach the Miami to Palm Beach coastline within five to six days. On the second map, Jan. 15-22, the spill skirts the coast. If a spill were long-lasting, the chances are great it would hit South Florida shores.

A Jan. 10-17 spill would have hit South Florida



Source: Robert H. Weisberg, USF

A Jan. 15-22 spill would have skirted the state



DARLA CAMERON | Time

face oil, my associates and I can track where the oil might go in time and space. For illustrative purposes, we used January 2012. Neutrally buoyant particles were distributed about an exploration site claimed to be 22 miles north of Havana, and new particles were seeded every three hours to mimic a continual release of oil.

Two examples are provided, one for a period of time when virtual particles encountered East Coast beaches about five to seven days after release, the other for a

period of time when they did not. The differences are due to the local winds during these week-long simulation intervals.

Recognizing that weather fronts regularly transit the Florida peninsula, with southerlies on the leading side and northerlies on the trailing side, and that the interval between successive fronts is days to a week or so, we can expect that a prolonged spill would likely bring oil to South Florida beaches. Regardless of these simulations, simply recall

the tar on South Florida beaches in the 1970s before the Clean Water Act restricted offshore bilge pumping.

Whereas a vibrant economy requires energy, risks are inherent to oil exploration and production. Such risks increase with deepwater drilling in swift currents, and the swift Gulf Stream regularly transits the deepwater region north of Cuba. It is unfortunate that we were unable to surmount the political and diplomatic issues pertaining to

the present oil exploration in Cuban waters because once the oil potential was identified years ago, drilling was inevitable. Without readily achievable energy alternatives to hydrocarbons, other than nuclear, it is ever more important for the United States to adopt a sound energy policy.

Robert H. Weisberg, distinguished university professor, is a professor of physical oceanography in the College of Marine Science at the University of South Florida St. Petersburg.

Try modesty, then blaze

A few weeks ago, a 22-year-old man named Jefferson Bethke produced a video called "Why I Hate Religion, but Love Jesus." The video shows Bethke standing in a courtyard rhyming about the purity of the teachings of Jesus and the hypocrisy of the church. Jesus preaches healing, surrender and love, he argues, but religion is rigid, phony and stale. "Jesus came to abolish religion," Bethke insists. "Religion puts you in bondage, but Jesus sets you free."



DAVID BROOKS

The video went viral. It has acquired more than 18 million hits on YouTube. It speaks for many young believers who feel close to God but not to the church. It represents the passionate voice of those who think their institutions lack integrity — not just the religious ones, but the political and corporate ones, too.

Right away, many older theologians began critiquing Bethke's statements. A blogger named Kevin DeYoung pointed out, for example, that it is biblically inaccurate to say that Jesus hated religion. In fact, Jesus preached a religious doctrine, prescribed rituals and worshipped in a temple.

Bethke responded in a way that was humble, earnest and gracious, and that generally spoke well of his character. He also basically folded. "I wanted to say I really appreciate your article man," Bethke wrote to DeYoung in an online exchange. "It hit me hard. I'll even be honest and say I agree 100 percent."

Bethke's passionate polemic and subsequent retreat are symptomatic of a lot of the protest cries we hear these days. This seems to be a moment when many people — in religion, economics and politics — are disgusted by current institutions, but then they are vague about what sorts of institutions should replace them.

This seems to be a moment of fervent protest movements that are ultimately vague and ineffectual.

My own theory revolves around a single bad idea. For generations people have been told: Think for yourself; come up with your own independent worldview. Unless your name is Nietzsche, that's probably a bad idea. Very few people have the genius or time to come up with

a comprehensive and rigorous worldview.

If you go out there armed only with your own observations and sentiments, you will surely find yourself on very weak ground. You'll lack the arguments, convictions and the coherent view of reality that you'll need when challenged by a self-confident opposition. This is more or less what happened to Jefferson Bethke.

The paradox of reform movements is that, if you want to defy authority, you probably shouldn't think entirely for yourself. You should attach yourself to a counter-tradition and school of thought that has been developed over the centuries and that seems true.

The old leftists had dialectical materialism and the Marxist view of history. Libertarians have Hayek and von Mises. Various spiritual movements have drawn from Transcendentalism, Stoicism, Gnosticism, Thomism, Augustine, Tolstoy or the Catholic social teaching that inspired Dorothy Day.

These belief systems helped people envision alternate realities. They helped people explain why the things society values are not the things that should be valued. They gave movements a set of organizing principles. Joining a tradition doesn't mean suppressing your individuality. Applying an ancient tradition to a new situation is a creative, stimulating and empowering act. Without a tradition, everything is impermanence and flux.

If I could offer advice to a young rebel, it would be to rummage the past for a body of thought that helps you understand and address the shortcomings you see. Give yourself a label. If your college hasn't provided you with a good knowledge of countercultural viewpoints then your college has failed you and you should try to remedy that ignorance.

Effective rebellion isn't just expressing your personal feelings. It means replacing one set of authorities and institutions with a better set of authorities and institutions. Authorities and institutions don't repress the passions of the heart, the way some young people now suppose. They give them focus and a means to turn passion into change.

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To connect, it first takes respect

A few days before Florida's Republican primary, former Gov. Jeb Bush wrote a column suggesting ways the GOP could win the Hispanic vote in November as it seeks to control both houses of Congress and take back the White House.

Bush asked Republicans to "echo the aspirations" of Hispanics. One way to do that, Bush wrote, is to "press for an overhaul of our education system." His fellow Republicans on the Florida Senate Committee on Higher Education in Tallahassee apparently were not listening.

The committee, as mean-spirited and myopic as ever, killed a bill that would have given in-state tuition eligibility to U.S.-born students who live in Florida for two years — regardless of their parents' immigration status. These students are U.S. citizens or legal permanent residents.

As the law stands, those registering for college as dependents are required to submit tax and residency documentation for their parents in order to qualify for the lower in-state tuition rate. Children of undocumented immigrants must pay out-of-state tuition that is three to four times that of in-state tuition. This high cost makes college unaffordable for many otherwise qualified young people.

Passage of the legislation, which is now dead, would have echoed "the aspirations" of thousands of Hispanic students.

Here is my advice to Bush and other Republicans if they want to go beyond their cynical goal of winning the Latino vote and if they are serious about substantively doing the right thing by members of America's largest and fastest-growing minority: They should visit Armstrong Atlantic State University in Savannah, Ga.

During the last decade, according to the *Chronicle of Higher Education*, Armstrong, with 7,600 students, has increased its Hispanic enrollment by nearly 200 percent, to more than 430 students. This number might be dismissed as small by large universities, but it is huge when considering that Armstrong, part of the University System of Georgia, had hardly any Latino students before 2001.

By aggressively recruiting Latino students, the school is bucking state lawmakers' anti-immigrant campaign. The willingness to challenge the status quo can be found in the university's avowed commitment to "value and respect diversity."

Administrators do more than recruit. They retain and graduate these students. They hired an Armstrong alumna, a Venezuelan immigrant, to direct an outreach and leadership effort that has cre-



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ated a welcoming and supportive environment. Recruiters, loaded with bilingual literature about the university, fan out to job fairs, other colleges and high schools.

Keenly aware that the family is treasured in Hispanic culture, Armstrong holds orientations and open houses focused on parents. "We know that when we are recruiting

Latinos, we are not just looking at a potential new student but a potential new family," said Marcia Nance, interim assistant vice president for enrollment services.

Well-planned extracurricular activities and organizations have connected Hispanic students to the fabric of the campus. A scholarship program, for example, was established that is open to all Hispanics, including those who are not citizens or legal permanent residents. Grants from the Lumina Foundation for Education and the Goizueta Foundation help underwrite the scholarships. These funds also ease the high cost of Georgia's out-of-state tuition for students whose parents are not citizens or permanent legal residents.

This investment is paying off. Forty percent of Latino students graduate within six years, while 29 percent of their non-Latino schoolmates take longer.

"Our Latino students are high performing," Armstrong president Linda Bleicken told the *Chronicle*. "Many of them have gone on to create futures they never expected to have. But they are not doing it on their own. We have a model here that is working."

Bush and his fellow Republicans — who want to "echo the aspirations" of Hispanics — should drop the clichés and campaign rhetoric and visit Armstrong Atlantic State University. They will witness a working model of genuine respect and caring.

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