

# Florida increasingly weakened by the rising sea level

THE WORLD | 05/06/2014 at 11:33 • Updated 05/06/2014 at 16:32 |

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In Miami Beach, Nov. 5, 2013 | Reuters / STRINGER

The scene takes place on a balmy evening in October 2013. Leonard Berry, director of the Center for Environmental Studies Florida, relaxes with a few colleagues on the terrace of a building in Miami overlooking the sea all day. They discussed the effects of rising sea level during the second summit on this topic. When, suddenly, one of them began to shout: *"Look ! Water ! This is currently happening r ! "* Below, the sea rises in streams manholes, flooding the streets with a height of 30 centimeters.

A real lesson live on the effects of climate change, Florida, is increasingly palpable. In this region, the sea level has risen by about 20 centimeters

over the past fifteen years. " *If you talk to people who have lived here for over twenty years, this kind of flooding never happened* ", says Mr. Berry, a professor of geosciences at Florida Atlantic University (FAU) in Boca Raton.

### "CONSTANT MOTION ELEVATION"

But now, at each high tide in the fall and spring, the Art Deco buildings in Miami Beach systematically feet in the water. " *There are eleven centers control the rise of the oceans in Florida and ten of them show the same thing : a constant elevation at an average rate of 2.1 millimeters per year movement* " says Frederick Bloetscher, an engineering professor at FAU. According to the World Resources Institute estimates, by 2060, the level is expected to rise from 23 centimeters to 60 centimeters.



Fred Bloetscher, May 22 in Miami Beach. | AP / Walter Michot

Rising sea level is particularly sensitive in Florida due to topography and a very specific geology. " *Over 50 % of the land is below sea level* ", says Bloetscher. In addition, the basement is composed of highly porous limestone sedimentary rock. " *This is a real cheese, constantly moist. Diking to prevent the phenomenon is often difficult to implement and prohibitively expensive* ", says Mr. Berry.

"*Most drainage systems also date back no more than fifty years ago, when rising sea level was not an issue* ", Jayantha Obeysekera tip of the



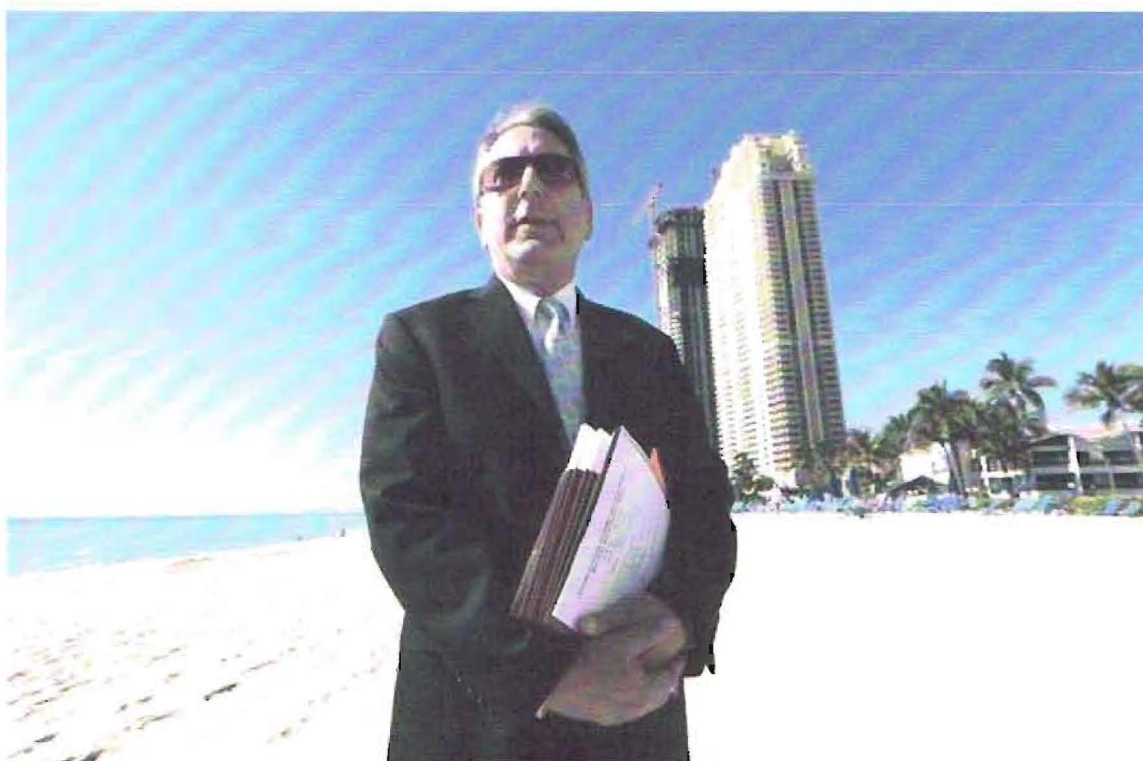
South Florida Water Management District, a public agency overseeing the fight against floods. Initially, the system was in fact designed so that the water flows by gravity. But the channels and the height difference between the sea plays less role flow. In case of heavy rain, the water has nowhere to go except to flood the land.

### **"6 MILLION PEOPLE DIRECTLY THREATENED"**

Rising sea level also raises the problem of pollution of aquifers by salt water. *"Many Wellfield freshwater lie along the coast and therefore find themselves very vulnerable"*, says Obeysekera.

Endangered areas are enormous. A total of 11 000 km<sup>2</sup> of land are potentially flood. Hundreds of schools, hospitals, hundreds of thousands of homes and even two nuclear sites are concerned.

*"Nearly 6 million people are directly threatened their way of life,"* insists Mr. Bloetscher, reminiscent of the real estate of South Florida stands at around 4,000 billion (2,900 billion euros) and economic activity annually generates \$ 300 billion.



Mitchell Chester, Sunny Isles Beach, Florida on April 21. | AP / J Pat Carter

*"In view of all this wealth, we find that the U.S. legal system is completely unprepared, whether in terms of property rights, insurance or protection of the most vulnerable,"* says Michael Chester, a lawyer, who launched the

website SLRAmerica.org to raise awareness on these issues.

On 22 April, during a hearing of the Senate held in Miami, Florida Sen. Bill Nelson described the situation as "Ground Zero" of climate change to highlight the urgency of action.

## "ELECTED reluctant"

Some initiatives have been taken. The small town of Hallandale Beach, north of Miami (37 000 inhabitants), has invested \$ 16 million to improve its system for collecting runoff and move water supplies a little further west to inland.

But for larger cities such as Fort Lauderdale (200 000 inhabitants), the addition would reach one billion dollars. The mayor of Miami Beach, Philip Levine, plans to spend \$ 400 million just to improve drainage infrastructure of the peninsula. For its part, the Corps of Engineers U.S. Army calculated that over the next fifty years, the beaches of Miami Dade County will need 17.5 million m<sup>3</sup> of sand to contain marine erosion. *"All measures represents an investment of tens of billions of dollars over decades"* , says Mr. Bloetscher.



Environmental activists, April 22 at the city of Miami Beach. | AP / Walter Michot

Who will pay? *"It's a good question, because taxes do not increase: the reluctant elected. Today, we would need an additional \$ 50 per year per*



*capita* , calculated Mr. Berry. *There will be winners and losers. The richest areas find funding to elevate buildings and renovate infrastructure. This inequality can only be avoided if the federal government establishes a financing plan for the long term. "*

Now the subject is far from consensus in Washington. *"This is not a very popular theme for the Republican primary"* quipped Bill Nelson at the Senate hearing. *"On the local level, it is very complicated to elected to say that it must build infrastructure for which there is no immediate need "* summarizes Mr. Bloetscher.

### **Read: [In New York, increased flood risk](http://planete/article/2014/05/06/a-new-york-des-risques-d-inondations-multiplies_4412190_3244.html)**

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### **Climate: Barack Obama listens to 300 scientists**

Americans need not consider climate change as a threat but as a reality whose effects are already being felt in many parts of the country, according to the findings of a report from 1300 which pages should be given to Barack Obama on Tuesday 6 May, at the White House. The "National Climate Assessment" is based on studies of nearly 300 scientists and should guide the U.S. president in the fight he promised to conduct, from his first term, against global warming.