

Weathering US–Cuba Political Storms: José Rubiera PhD Cuba’s Chief Weather Forecaster

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Full disclosure: chief weather forecaster is not his official title, but rather one affectionally conferred on Dr Rubiera by the Cuban people, who look to him not only in times of peril, but also to learn about the science of meteorology. Anyone who has taken a taxi in Cuba during hurricane season (June 1 to November 30), and bothered to ask the driver, will receive a clear explanation about how hurricanes are formed, what the Saffir-Simpson scale is all about, and how the season is shaping up—all courtesy of Dr Rubiera’s talent for communication during nightly weather forecasts and special broadcasts. It’s no exaggeration to say that he is something of an icon in Cuba, a man people trust.

Now, he is retired as chief of forecasting at Cuba’s Meteorology Institute, but he stays on as an advisor, and since 1989 represents Cuba’s Meteorological Service as the Vice Chairperson of the World Meteorological Organization’s Hurricane Committee for Region IV (North America, Central America and the Caribbean). He also keeps a spot on nightly news and hosts two TV shows of his own: *Global Weather* and *Weather in the Caribbean*. And his PhD in meteorology serves him well as full professor at the University of Havana in—what else?—meteorology communications.



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Finally, he has been a driving force in Cuba for collaboration with Miami’s National Hurricane Center (NHC) and other US meteorologists (in fact, the Chairperson of the Region IV Committee is the head of the NHC).

But, as he says over a cup of rich Cuban coffee, it all started with a two-year-old in a yellow sweater.

MEDICC Review: How did you first become interested in the weather?

José Rubiera: It’s a bit of a long story, and has to do with my very first memory: I was two, wearing a yellow sweater in my mother’s arms, and it was in the midst of the hurricane of 1948. I also recall my uncle giving me a magazine when I was four or five that traced the path of hurricanes through the Caribbean, and then later my brother and I waited up for the hurricane that never passed. It was Hurricane Fox, which made a turn missing our home town near Havana, instead crossing over central Cuba. That was a big one, but we missed it.

My interest continued through high school, and when I got to university, at first there was no meteorology major, so I decided to study physics. Finally they offered a special course in meteorology, and I was one of the students selected, allowing me to graduate in meteorology. I’ve been dedicated to forecasting; it’s what I’ve always liked, so I did graduate work in the field and in 1991, received my doctorate. The topic was five-day precipitation forecasting, something we didn’t really know much about in Cuba then.

MEDICC Review: When it comes to bilateral collaboration in any field, it’s helpful to know a bit about the history of the science in each country, and how collaboration began.

José Rubiera: Meteorologists exchanging information is the most natural thing in the world. And that’s also true for Cuba and the United States.

In the United States, it’s worth remembering that it was Benjamin Franklin who first discovered that weather moved, and another father of US meteorology was Thomas Jefferson. In fact, he had a weather vane on his front porch to check the direction of the wind, set up the first network of weather stations in the United States, and even took a thermometer to the signing of the Declaration of Independence.

In Cuba, the first weather service was founded in 1865 by Andrés Poey (son of the famous Cuban naturalist Felipe Poey) who was exiled by the Spanish colonialists to France, where he died. Then, in 1870, Jesuit priest Father Benito Viñes Martorell arrived in Cuba, the same year a hurricane hit the province of Matanzas. Horror-

stricken, he decided to devote his life to studying hurricanes and became the first director of the Belén Observatory in Havana. In fact, in 1875, he was the first person in the world to issue a hurricane warning, keeping all but one ship from sailing out of Havana's harbor (the ship that sailed sank).

He died in 1893, shortly before he was to present his master work in Washington DC, where it was delivered in his stead by another Jesuit priest, Lorenzo Gangoiti, who would later head the Belén Observatory.

Gangoiti is an important figure in the history of weather information exchanges between Cuba and the United States. It was politically a very delicate time, since the US army had intervened in Cuba's independence war, and was occupying the country militarily. Nevertheless, Father Gangoiti warned the US occupation forces that the September hurricane, which had just hit Cuba, was heading for Galveston, Texas. Unfortunately, they paid no attention to him, and the result was the Great Storm of 1900, the deadliest natural disaster in US history.

MEDICC Review: Another delicate political time has been the period after the Cuban revolution of 1959, with the ensuing US embargo and break in diplomatic ties, until 2015.

José Rubiera: Yes, but exchange of weather data between Cuba and the United States has never stopped. Even at the lowest point, on the heels of what we call the 1962 October Crisis and the Americans call the Missile Crisis came Hurricane Flora of 1963 [*which caused 1126 deaths and destruction throughout the mountainous areas of eastern Cuba—Eds.*]. I have copies of the messages that Luis Larragoiti Alonso of Cuba's military weather observatory sent to Gordon Dunn, director of the Tropical Meteorology of the US Weather Bureau in Miami, with maps and data obtained about Flora by our helicopters.

Once the Hurricane Committees were created in the World Meteorological Organization, thereafter the US chaired the Region IV Committee, and I have served as vice chair.

MEDICC Review: I know that one important area of cooperation has to do with the flights of US "hurricane hunter" planes through Cuban airspace.

José Rubiera: Yes, we flew into the storms until 1991, but thereafter didn't have the planes to do this. The US National Oceanographic and Atmospheric Administration (NOAA) requested and received permission from Cuba to fly their civilian planes through Cuban airspace and into the hurricanes, gathering fresh, more exact data that they shared with us. In the late 1990s, Jerry Jarrell, then head of the National Weather Service Hurricane Center in Miami, even came to Havana with a delegation, the only time one of these hurricane hunter planes actually landed in Cuba.

But NOAA only had two planes, not enough: they needed to be able to rely on the US Air Force's C-130 aircraft. That became a problem, since they didn't want to ask Cuba for permission, and were told that Cuba would say no.

These flights were important to both countries' ability to protect our populations, to save lives with our forecasts, so we played our part and so did Jerry, who assured Washington that Cuba would consider the request. After some back-and-forth on the US side, he and Max Mayfield (who succeeded Jerry), finally convinced their government to make the request, and that's how the C-130 hurricane hunters began flying over Cuba when hurricanes struck.

In fact, in an Orlando, Florida meeting of the Hurricane Committee, the Air Force Lt. Colonel who headed the hurricane hunter squad said that the best country to fly over was Cuba, due to the professionalism of our air traffic controllers.

MEDICC Review: And what about information from Cuba to the USA?

José Rubiera: Cuba has 68 first-class weather stations in our national network. This has given us broad coverage to generate precise information, important for the US and the Caribbean, too. For example, in 1994, Tropical Storm Gordon passed between Santiago and Guantánamo Provinces, at the same time unleashing heavy rains in Haiti. In Cuba, we had no deaths, but in Haiti, over 1,000 were killed. Because the storm was a weak one, its center was hard to locate, and both The Weather Channel and CNN were reporting it further north, but our observatory in Cayo Coco showed it right there. Unfortunately, as I reported in the 1995 Region IV Hurricane Committee meeting, this information reached the United States late, because we had to use outdated telex equipment.

At the meeting the NOAA representative said this was an important point, and later, the US finally decided to share satellite technology with us (which later also became obsolete). We now share information in near real time from our radar through Internet. Best would be if it were actually in real time, of course.

MEDICC Review: How did the renewal of diplomatic relations affect collaboration around hurricane forecasting? And how would you describe the situation now?

José Rubiera: Among the chief results of restored diplomatic relations was the signing of an MOU in Washington DC in December, 2016, between Cuba's Ministry of Science, Technology and the Environment, our Meteorology Institute and NOAA. It recognized the importance of further integrating the work of our meteorological observation networks and hurricane monitoring, analysis and forecasting. It also referred to data collection, exchange of information and joint research in meteorology, climate change, oceanography and atmospheric contamination.

Because of the recent closing of the US Consulate in Havana, we were unable to send a young specialist in hurricane forecasting to the World Meteorology Organization workshop this April at the US National Hurricane Center, even though all expenses were covered. So this is a problem.



people can feel discombobulated, and that's where that solidarity comes in. I remember in Pinar del Río Province with Hurricane Gustav in 2008, people simply went to work and helped. We saw a school that had been leveled, but the next day, students were back with their teachers, because neighbors had set up makeshift classrooms in their homes, helping the children recover that all-important sense of normal life.

We also have a few advantages: here in Cuba, I can go live on TV for all the time that's necessary and give the public complete explanations, in detail, without sensationalism. In the States, they usually have to be briefer, and not all the weather reporters have the same training. In addition, people in Cuba are educated about hurricanes and tropical storms; in fact, we have a 30-hour course on the subject on one of our educational channels. We also take advantage of psychology: when the TV audience sees me in the studio, they feel things are okay, but when they

But I'm hopeful that in the not-too-distant future, our relations will not only be maintained but also deepened.

MEDICC Review: What are the strengths that Cuba draws upon for this collaboration?

José Rubiera: First, I should say that the United States has an excellent forecasting service. In fact, for example, for Hurricane Katrina, the forecast was perfect. What failed? Communications with the public, making people aware, education, as well as some other aspects. In Cuba, we establish an advisory five days before a storm might arrive, then 72 hours an information stage, then 48 hours an alert, and at 24 hours, alarm. This is a bit more warning than the public receives in the United States, although they have begun to issue their advisories earlier.

And there are other things: Civil Defense is in constant and direct communication with the public at every level, down to the neighborhoods; 80% of evacuees go to the homes of neighbors or relatives, making the move less traumatic than to a shelter; when we have winds of about 90 km per hour, we turn off electricity and gas lines, to avoid electrocution and explosions. Hospitals and other medical services are protected, and if they are hit, they are set up wherever possible. But they remain open. Nonetheless, any loss of life is unacceptable, and so we have to continually work to avoid that . . . sometimes people are negligent. And sometimes, there is simply no collective memory of the last big storm in a particular region, and so people are less inclined to take warnings seriously.

Above all, though, in Cuba people help one another. We may not have Home Depot, but we have communities of people who take responsibility for each other. When there is a disaster,

see me move to the Meteorology Institute, with all the satellite images behind me, then they realize that the situation is getting serious.

MEDICC Review: And your absence is noticed even more. I remember Hurricane Irma last September.

José Rubiera: Yes, I was stuck in the Miami airport, and finally reached Havana and went almost directly to the studio.

MEDICC Review: People in Cuba not only breathed easier, but many Cuban-American friends told me that Miami residents were watching your broadcasts from Cuba, since the storm was threatening Florida, too.

José Rubiera: Yes, that's what I've been told. With Irma, we had a very serious situation, in which Cuba's entire electrical grid collapsed after the hurricane struck on September 8. But by September 29, 95-98% of services had been restored.

It is painful to see that so many people in Puerto Rico are still without lights after Hurricane María, that hit that island on September 20. We are poor, we are blockaded by the US, but people all do their part, and government prioritizes recovery. I don't see any explanation for the precarious situation Puerto Ricans are living in today. Puerto Rico, a beautiful place, where people are having a terrible time. And the USA is such a rich country...

MEDICC Review: What would you like to see happen, in terms of greater US-Cuba collaboration, both in emergency situations and to address longer-term issues such as climate change?

Interview

José Rubiera: All collaboration benefits people of both countries. The main purpose of our two weather services is to alert, to sound the alarm, to save lives. So it's vitally important that both countries participate, and as I said, it's also natural, even in the worst moments.

We scientists look for the truth in facts, in data. It is clear that climate change is being caused by human beings, resulting in years such as 2017, one of the hottest in recorded history. The Artic ice is melting, the glaciers shrinking.

Research in the US and elsewhere shows that oceanic temperatures are rising, which means that the intensity of hurricanes will also increase, as will the rains, and sea levels will continue to rise, especially affecting coastal areas and small

islands. So we will also see storm surges associated with polar melting and hurricanes themselves. We need to face these facts and work together. Improved relations offer more room for greater collaboration, and more effective results.

MEDICC Review: These days, what do you enjoy most? Why aren't you really retired?

José Rubiera: I'd like to do more photography, have a program where I could tell the history of the storms, with live shots of where they passed. I enjoy television. I've never used a teleprompter, but just improvise. I enjoy talking with viewers as if they were family, sitting in my living room. And that's hard to give up. So, why retire, really? 