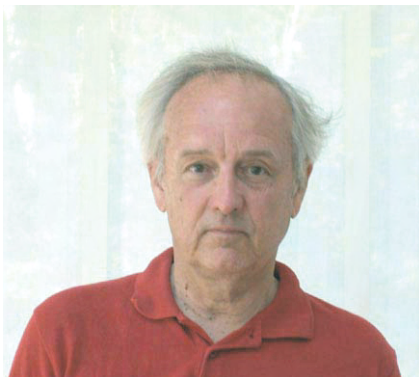


INTERVIEW: DR. NILS-AXEL MÖRNER



Sea-level Expert: It's Not Rising!

*Why coastal dwellers
should not live
in fear of inundation.*

Question: I would like to start with a little bit about your background.

I am a sea-level specialist. There are many good sea-level people in the world, but let's put it this way: There's no one who's beaten me. I took my thesis in 1969, devoted to a large extent to the sea-level problem. From then on I have launched most of the new theories, in the '70s, '80s, and '90s. I was the one who understood the problem of the gravitational potential surface, the theory that it changes with time. I'm the one who studied the rotation of the Earth, how it affected the redistribution of the oceans' masses. And so on.

I was president of INQUA, an international fraternal association, their Commission on Sea-Level Changes and Coastal



www.actualmaldives.com

The North and South Malosmadulu Atolls in the Maldive Islands, as viewed from a seaplane.

Dr. Nils-Axel Mörner has studied sea level and its effects on coastal areas for some 35 years. Recently retired as director of the Paleogeophysics and Geodynamics Department at Stockholm University, Mörner is past president (1999-2003) of the INQUA Commission on Sea Level Changes and Coastal Evolution, and leader of the Maldives Sea Level Project.

Mörner was interviewed by Associate Editor Gregory Murphy on June 6. The interview here is abridged; a full version appeared in Executive Intelligence Review, June 22, 2007.

Evolution, from 1999 to 2003. And in order to do something intelligent there, we launched a special international sea-level research project in the Maldives, because that's the hottest spot on Earth for [this topic]—there are so many variables interacting there, so it was interesting, and also people had claimed that the Maldives—about 1,200 small islands—were doomed to disappear in 50 years, or at most, 100 years. So that was a very important target.

I have had my own research institute at Stockholm University, which was devoted to something called paleogeophysics and geodynamics. It's primarily a research institute, but lots of students came, I have several Ph.D. theses at my institute, and lots of visiting professors and research scientists came to learn about sea level. Working in this field, I don't think there's a spot on the Earth I haven't been in! In the northmost, Greenland; and in Antarctica; and all around the Earth, and very much at the coasts.

So I have primary data from so many places, that when I'm speaking, I don't do it out of ignorance, but on the contrary, I know what I'm talking about. And I have interaction with other scientific branches, because it's very important to see the problems not just from one eye, but from many different aspects. Sometimes you dig up some very important thing in some geodesic paper which no other geologist would read. And you must have the time and the courage to go into the big questions, and I think I have done that.

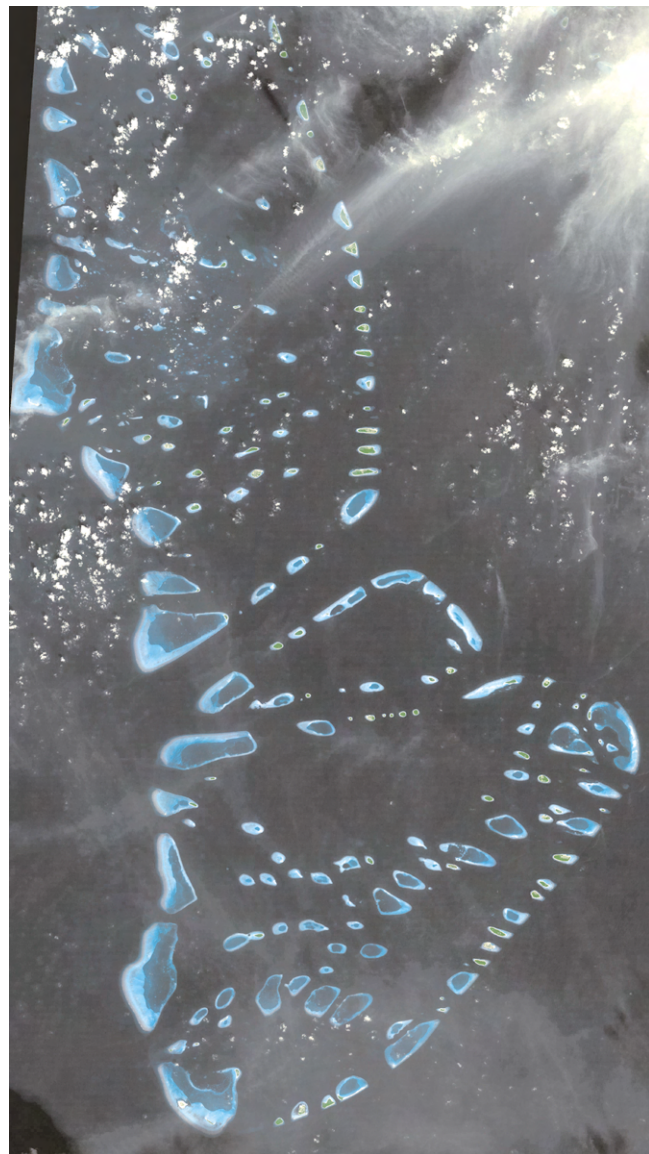
The last 10 years or so, of course, everything has been the discussion on sea level, which they say is drowning us. In the early '90s, I was in Washington giving a paper on how the sea level is *not* rising, as they said. That had some echoes around the world.

Question: What is the real state of the sea-level?

You have to look at that in a lot of different ways. That is what I have done in a lot of different papers, so we can confine ourselves to the short story here. One way is to look at the global picture, to try to find the essence of what is going on. And then we can see that the sea level was indeed rising, from, let us say, 1850 to 1930-1940. And that rise had a rate in the order of 1 millimeter per year; 1.1 is the exact figure. Not more. And we can check that, because Holland is a subsiding area; it has been subsiding for many millions of years; and Sweden, after the last Ice Age, was uplifted. So if you balance those, there is only one solution, and it will be this figure....

There's another way of checking it, because if the radius of the Earth increases as a result of sea level rise, then immediately the Earth's rate of rotation would slow down. That is a physical law, right? You have it in figure-skating: when skaters rotate very fast, the arms are close to the body; and then when they increase the radius, by putting out their arms, they stop by themselves. So you can look at the rotation and you see the same thing: Yes, it might be 1.1 mm per year, but absolutely not more. It could be less, because there could be other factors affecting the Earth, but it certainly could not be more. Absolutely not! Again, it's a matter of physics.

So, we have this 1 mm per year up to 1930, by observation, and we have it by rotation recording. So we go with those two. They go up and down, but there's no trend in it; it was up until



Earth Observatory/NASA

A satellite view of the Maldives chain of small coral islands in the northern Indian Ocean.

1930, and then down again. There's no trend, *absolutely no trend*.

Another way of looking at what is going on is the tide gauge. Tide gauging is very complicated, because it gives different answers for wherever you are in the world. We have to rely on geology when we interpret it. So, for example, those people in the IPCC [Intergovernmental Panel on Climate Change], choose Hong Kong, which has six tide gauges, and they choose the record of one, which gives a 2.3 mm per year rise of sea level. Every geologist knows that that is a subsiding area. It's the compaction of sediment; it is the only record which you *should not use*.

And if that [2.3 mm] figure is correct, then Holland would not be subsiding, it would be uplifting. And that is just ridiculous. Not even ignorance could be responsible for a thing like that. So tide gauges, you have to treat very, very carefully.

Now back to satellite altimetry, which shows the water, not just the coasts, but in the whole of the ocean, as measured by satellite. From 1992 to 2002, [the graph of the sea level] was a straight line, variability along a straight line, but absolutely no trend whatsoever. We could see spikes: a very rapid rise, but then in half a year, they fall back again. But absolutely no trend, and to have a sea-level rise, you need a trend.

Data Fudged

Then, in 2003, the same data set, which in their [IPCC's] publications, in their website, was a straight line—suddenly it changed, and showed a very strong line of uplift, 2.3 mm per year, the same as from the tide gauge. And that didn't look so nice. It looked as though they had recorded something, *but they hadn't recorded anything*. It was the original data which they suddenly twisted up, because they entered a "correction factor," which they took from the tide gauge.

So it was not a measured thing, but a figure introduced from outside. I accused them of this at the Academy of Sciences meeting in Moscow—I said you have introduced factors from outside; it's not a measurement. It looks like it is measured from the satellite, but you don't say what really happened. And they answered, that we had to do it, because otherwise we would not have gotten any trend!

That is terrible! As a matter of fact, it is a falsification of the data set. Why? Because they know the answer. And there you come to the point: They "know" the answer; the rest of us, we are *searching* for the answer. Because we are field geologists; they are computer scientists. So all this talk that sea level is rising, this stems from the computer modelling, not from observations. The observations don't find it!

I have been an expert reviewer for the IPCC, both in 2000 and last year. The first time I read it [the report], I was exceptionally surprised. First of all, it had 22 authors, but none of them—*none*—were sea-level specialists. They were given this mission, because they promised to answer the right thing. Again, it was a computer issue. This is the typical thing: The meteorological community works with computers, simple computers. Geologists don't do that! We go out in the field and observe, and then we can try to make a model with computerization; but it's not the first thing.

So there we are. Then we went to the Maldives. I traced a drop in sea level in the 1970s, and the fishermen told me, "Yes, you are correct, because we remember"—things in their sailing routes have changed, things in their harbor have changed. I worked in the lagoon, I drilled in the sea, I drilled in lakes, I looked at the shore morphology—so many different environments. Always the same thing: In about 1970, the sea fell about 20 cm, for reasons involving probably evaporation or something. Not a change in volume or something like that—it was a rapid thing. The new level, which has been stable, has not

changed in the last 35 years. You can trace it so very, very carefully. No rise at all is the answer there.

The Case of Tuvalu

Another famous place is the Tuvalu Islands, which are supposed to soon disappear because they've put out too much carbon dioxide. There we have a tide gauge record, a variograph record, from 1978, so it's 30 years. And again, if you look there, *absolutely no trend*, no rise.

So, from where do they get this rise in the Tuvalu Islands?

We know in the Tuvalu Islands that there was a Japanese pineapple industry which extracted too much fresh water from the inland, and those islands have very little fresh water available from precipitation, rain. So, if you take out too much, you destroy the water magazine, and you bring seawater into the magazine, which is not nice. So they took out too much freshwater and in came salt water. And of course the local people were upset. But then it was much easier to say, "No, no! It's the global sea level rising! It has nothing to do with our extraction of freshwater." So there you have it. This is a local industry which doesn't pay.

You have Vanuatu, and also in the Pacific, north of New Zealand and Fiji—there is the island Tegua. They said they had to evacuate it, because the sea level was rising. But again, you look at the tide-gauge record: There is absolutely no signal that the sea level is rising. If anything, you could say that maybe the tide is lowering a little bit, but absolutely no rising.

And again, where do they [the IPCC] get it from? They get it from their inspiration, their hopes, their computer models, but not from observation, which is terrible.



Remote Sensing Tutorial/GSFC/NASA

A satellite view of Venice, Italy. If you look at the 300-year record, the sea level has gone up and down, around the subsidence rate.

We have Venice. Venice is well known, because that area is tectonically, because of the delta, slowly subsiding. The rate has been constant over time. A rising sea level would immediately accelerate the flooding. And it would be so simple to record it. And if you look at that 300-year record: In the 20th Century it was going up and down, around the subsidence rate. In 1970, you should have an acceleration, but instead, the rise almost finished. So it was the opposite.

If you go around the globe, you find no rise anywhere. But they need the rise, because if there is no rise, there is no death threat. They say there is nothing good to come from a sea-level rise, only problems, coastal problems. If you have a temperature rise, if it's a problem in one area, it's beneficial in another area. But sea level is the real "bad guy," and therefore they have talked very much about it. But the real thing is, that it doesn't exist in observational data, only in computer modelling....

I'll tell you another thing: When I came to the Maldives, to our enormous surprise, one morning we were on an island, and I said, "This is something strange, the storm level has gone down; it has not gone up, it has gone *down*." And then I started to check the level all around, and I asked the others in the group, "Do you see anything here on the beach?" And after a while they found it too. And as we had investigated, and we were sure, I said we cannot leave the Maldives and go home and say the sea level is not rising, it's not respectful to the people. I have to say it to Maldivian television.

So we made a very nice program for Maldivian television, but it was forbidden by the government (!) because they thought that they would lose money. They accuse the West for putting out carbon dioxide, and therefore we have to pay for our damage and the flooding. So they wanted the flooding scenario to go on.

This tree [see photo], which I showed in the documentary, is interesting. This is a prison island, and when people left the island, from the '50s, it was a marker for them, when they saw this tree alone out there, they said, "Ah, freedom!" ... I knew that this tree was in that terrible position already in the 1950s. So the slightest rise, and it would have been gone. I used it in my writings and for television.

You know what happened? There came an Australian sea-level team, which was for the IPCC and against me. Then the students pulled down the tree by hand! They destroyed the evidence. What kind of people are those? And we came to launch this film "Doomsday Called Off," right after that, and the tree was still green. And I heard from the locals that they had seen the people who had pulled it down. So I put it up again, by hand, and made my TV program....

They call themselves scientists, and they're destroying evidence! A scientist should always be open for



Courtesy of Nils-Axel Möerner

This tree, near the coast in the Maldives, would have been swept away by high tides if sea levels were rising. An Australian sea-level team pulled the tree down, so it would not remain as proof that sea levels were not rising! But shortly thereafter, when Möerner returned to the Maldives to make a film, he found the torn-down tree, still green, and placed it in the ground to take this photo.

reinterpretation, but you can *never* destroy evidence. And they were being *watched*, thinking they were clever.

Question: How does the IPCC get these small island nations so worked up about worrying that they're going to be flooded tomorrow?

Because they get support; they get money, so their idea is to attract money from the industrial countries. And they believe that if the story is not sustained, they will lose it. So, they *love* this story. But the local people in the Maldives—it would be terrible to raise children—why should they go to school, if in 50 years everything will be gone? The only thing you should do, is learn how to swim....

Yes, and it's much better to blame something else. Then they can wash their hands and say, "It's not our fault. It's the U.S., they're putting out too much carbon dioxide."

Question: Which is laughable, this idea that CO₂ is driving global warming.

Precisely, that's another thing.

And like this *State of Fear* [book], by Michael Crichton, when he talks about ice. Where is ice melting? Some Alpine glaciers are melting, others are advancing. Antarctic ice is certainly *not* melting; all the Antarctic records show expansion of ice. Greenland is the dark horse here for sure; the Arctic may be melting, but it doesn't matter, because they're already floating, and it has no effect.

A glacier like Kilimanjaro, which is important, on the Equator, is *only* melting because of deforestation. At the foot of the Kilimanjaro, there was a rain forest; from the rain forest came

moisture, from that came snow, and snow became ice. Now, they have cut down the rain forest, and instead of moisture, there comes heat; heat melts the ice, and there's no more snow to generate the ice. So it's a simple thing, but has nothing to do with temperature. It's the misbehavior of the people around the mountain. So again, it's like Tuvalu: We should say this is deforestation, that's the thing. But instead they say, "No, no, it's global warming!"

Question: Here, over the last few days, there was a group that sent out a power-point presentation on melting glaciers, and how this is going to raise sea level and create all kinds of problems.

The only place that has that potential is Greenland, and Greenland east is not melting; Greenland west, the Disco Bay is melting, but it has been melting for 200 years, at least, and the rate of melting decreased in the last 50-100 years. So, that's another falsification.

But more important, in the last 5,000 years, the whole of the Northern Hemisphere experienced warming, the Holocene Warm Optimum, and it was 2.5 degrees warmer than today. And still, no problem with Antarctica, or with Greenland; still, no higher sea level.

Observations Vs. Computer Models

Question: These scare stories are being used for political purposes.

Yes. Again, this is for me, the line of demarcation between the meteorological community and us: They work with computers; we geologists work with observations, and the observations do not fit with these scenarios. So what should you change? We cannot change observations, so we have to change the scenarios!

Instead of doing this, they give an endless amount of money to the side which agrees with the IPCC. The European Community, which has gone far in this thing: If you want a grant for a research project in climatology, it is written into the document that there *must* be a focus on global warming. All the rest of us, we can never get a coin there, because we are not fulfilling the basic obligations. That is really bad, because then you start asking for the answer you want to get. That's what dictatorships did, autocracies. They demanded that scientists produce what they wanted....

You frighten a lot of scientists. If they say that climate is not changing, they lose their research grants. And some people cannot afford that; they become silent, or a few of us speak up, because we think that it's for the honesty of science, that we have to do it.

Question: In one of your papers, you mentioned how the expansion of sea level changed the Earth's rotation into different modes—that was quite an eye-opener.



One example of an environmentalist campaign to save island nations from mythical sea-level rise: "Save submerging Tuvalu," a poster by Hitachi-sk, which warns employees about "the impending danger of global warming."

Yes, but it is exceptionally hard to get these papers published also. The publishers compare it to IPCC's modelling, and say, "Oh, this isn't the IPCC." Well, luckily it's not! But you cannot say that....

When I became president of the INQUA Commission on Sea-Level Change and Coastal Evolution, we made a research project, and we had this up for discussion at five international meetings. And all the true sea level specialists agreed on this figure, that in 100 years, we might have a rise of 10 cm, with an uncertainty of plus or minus 10 cm—that's not very much. [See Figure 3, p. 32.] And in recent years, I even improved it, by considering also that we're going into a cold phase in 40 years. That gives 5 cm rise, plus or minus a few centimeters. That's our best estimate. But that's very, very different from the IPCC statement.

Ours is just a continuation of the pattern of sea level going back in time. Then you have absolutely maximum figures, like when we had all the ice in the vanishing ice caps that happened to be too far south in latitude after the Ice Age. You couldn't

have more melting than after the Ice Age. You reach up to 10 mm per year—that was the *super*-maximum: 1 meter in 100 years....

People have been saying, 1 meter, 3 meters. It's not feasible! These are figures which are so large, that only when the ice caps were vanishing, did we have those types of rates. They are absolutely extreme.... We are basing ourselves on the observations—in the past, in the present, and then predicting it into the future, with the best of the "feet on the ground" data that we can get, not from the computer.

Question: Isn't some of what people are talking about just shoreline erosion, as opposed to sea-level rise?

Yes, and I have very nice pictures of it. If you have a coast, with some stability of the sea level, the waves make a kind of equilibrium profile—what they are transporting into the sea and what they are transporting onshore. If the sea rises a little, yes, it attacks, but the attack is not so vigorous. On the other hand, if the sea goes down, it is eating away at the old equilibrium level. There is a much larger redistribution of sand.

We had an island, where there was heavy erosion, everything was falling into the sea, trees and so on. But if you looked at what happened: The sand which disappeared there, if the sea level had gone up, that sand would have been placed higher, on top of the previous land. But it is being placed below the previous beach. We can see the previous beach, and it is 20-30 cm above the current beach. So this is erosion because the sea level fell, not because the sea level *rose*. And it is more common that erosion is caused by a falling sea level, than by a rising sea level.