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AUGUST 10, 2018

Peter Wadhams, Professor Emeritus, Ocean Physics

by [ROBERT HUNZIKER](#)

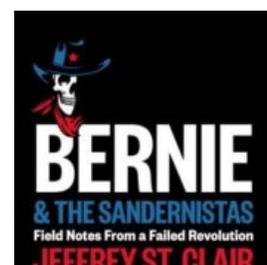
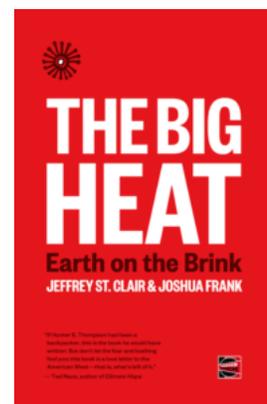
Scripps Institution of Oceanography (est. 1903) La Jolla, CA is the perfect location for meeting a world famous climate scientist. It is one of the most beautifully sculpted campuses on the face of the planet, overlooking the Pacific Ocean, an inviting scenario for serious surfers, but it also beckons top-notch scientists from around the world.

Every view from the architecturally rich campus opens to an endless panorama of gorgeous blue ocean waters and luscious white surf for as far as the eye can see. However, that outward serenity belies a collapsing climate system that's out of public view, one of the great illusions of all time.

At Scripps I was privileged to meet the esteemed climate scientist Peter Wadhams (professor emeritus Cambridge) recipient of several prestigious science awards, and his lovely brilliantly energetic and accomplished wife, Maria Pia Casarini (Council 2017-2018 – Polar Educators



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Not only an interview but also additional answers are readily available to the general public via the paperback edition of Professor Wadham's *A Farewell to Ice* (Penguin UK, Oxford University Press, USA) a superb tome widely praised as a consummate must-read for a thorough understanding of our increasingly dangerous climate crisis.

Still, at the end of the day, the colossal question overhanging all of society vis a vis the climate juggernaut remains: Will society be able to look into the eyes of their children's children without wincing?

My first question: What is the single most serious threat to the planet?

Without hesitation, Dr. Wadhams explained: A sudden and huge pulse of methane out of the East Siberian Arctic Shelf originating from its extraordinarily shallow waters <50 meters, or a similar burst out of the Laptev Sea, where 53% of the seawater rests on continental shelf averaging depth of <50 meters.

Those extraordinarily shallow waters expose vulnerability to global warming over miles upon miles of methane concentration, hydrates as well as free gas, believed to be the world's largest. The vulnerability relates to methane in sediments capped by layers of permafrost left over from the last Ice Age.

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End of Interview...

Seriously though, drilling down deeper yet, it became apparent that methane embedded in frozen deposits in shallow waters north of Siberia is the most underrated and overlooked risk by the scientific community, which prompts many, many hard questions.



For starters, how is it possible that so few climate scientists and/or developed nations don't care or follow the inordinate risks of a deadly methane breakout in the Arctic?

After all, Dr. Natalia Shakhova, head scientist for the Russian/American research team – University of Alaska/Fairbanks calculated:

1. The Arctic coastal seas contain 800Gt of methane in sediments, which is prevented from venting to surface by underwater permafrost, which is rapidly thawing because of sea ice loss.
2. Conservatively, the topmost 6%-8%, or approximately 50Gt, is vulnerable to sudden venting within a few years as the protective layer of permafrost thaws, resulting in a rapid increase of 0.6C in planetary temperature.

After considering the implications of her findings, Dr. Shakhova throttled back her own original larger estimate of a

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whether the threat is less than thought, or if additional thaw will give rise to a pulse far greater than 8% of the 800Gt, which would amount to terminal disaster for the planet.

“Wiping out civilization!”... Really?

Yes, there are only 5Gt of CH₄ in the atmosphere today; a

50Gt burp would be enormously disruptive; moreover,

one molecule per molecule the immediate impact of CH₄ is well

over 20xs, depending upon timing up to 100xs, more

powerful at inducing global warming than CO₂. Which

would have an immediate positive impact on global

temperatures, cranking up by +0.60C within only two to three

years on top of the +0.80C increase post-industrialization

from over 200 years ago, or in comparative numbers, a 75%

extra temperature boost within a handful of years with

potency at least 20xs more powerful at influencing global

warming than CO₂, which took 200+ years to accomplish.

Bottom line: It would be “a powerful bombshell.”

Upon release into the atmosphere, methane bursts prompting excessive heat would damage ecosystems all across the planet and burn off agriculture across latitudes above and below the equator over indeterminate but widespread distances. Grain crop failures would fall like dominoes.

In point of fact, the world is 100% dependent upon grains,

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Along those lines, contemplate the following headline in The Guardian d/d July 20, 2018: "Crop Failure and Bankruptcy Threaten Farmers as Drought Grips Europe." In view of that, consider the ramifications of a 75% increase in temps.

But beware, notwithstanding that risk of a massive methane burp, another global warming danger haunts the planet and goes deeper than the aforementioned risk of a sudden methane pulse, which incidentally, may or may not happen. Nobody knows for sure.

That bigger climate monster overshadows all else: A significant, but obscure, climate sensitivity analysis shows that an "unrealized warming" or latency effect exists within the climate system, which implies the following: If all CO2 emissions stopped cold-turkey today, global temps would still rise by up to 5C over the upcoming decades.

Interestingly, even though mainstream science supports the concept of "unrealized warming," it is not emphasized and of more significance, the magnitude, for example +5C, is a subject of intense debate. It is not part of the Intergovernmental Panel on Climate Change (IPCC) analysis, which only looks at immediate, fast climate response to CO2 increasing and thereby calls for a lid of 2C global warming by 2100, which Dr. Wadhams claims is impossible to achieve under the current IPCC edict.

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how much does the Earth System amplify the effects of anthropogenic emissions of greenhouse gases?"

That is a "climate sensitivity" issue: (a) "If the planetary system is very sensitive then we are in deep trouble or (b) If it is not very sensitive at all then there really isn't a problem."

After ten years of research, the answer was found to be (a).



Wadell's study of climate sensitivity indicates that global warming will heat up way beyond anything suggested by the PCC even if CO2 emissions came to a halt today. In other words, we're cooked!

The only way out of the jam is via geoengineering as well as removal of CO2 from the atmosphere.

Dr. Wadhams agrees with Wadell's work and conclusion, and in fact has undertaken consideration of a new book about carbon removal, which he insists must be done: "The CO2 levels in the atmosphere are already so high that when their warming potential is realized in a few decades, the resulting temperature rise will be catastrophic." (A Farewell To Ice p. 192)

Wadhams: "We have destroyed our planet's life support system by mindless development and misuse of technology... Development of technology, first for geoengineering, then for carbon removal, is now necessary to save us. It is the most serious and important activity in which the human race can

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Additionally, there is presently no assurance that any geoengineering model will work to scale, or carbon removal, which would likely need to be nearly as large as the originator of CO2 in the first instance or the fossil fuel industry in toto, an enormous infrastructure that took decades to build.



Thus, with overwhelming odds working against any easy pathways to a semblance of “Mother Earth back to normal,” what can concerned individuals do to help overcome tough odds, which unfortunately lean in favor of mainstream thought, which ignores the above-mentioned serious aspects of an increasingly wacky climate?

As for Dr. Wadhams, aside from speeches around the world, Korea and Japan on the docket, and thought-provoking books/articles, he's an enthusiastic member of ScientistsWarning.org and encourages the public to join its ranks now.

As of December 2017, over 20,000 scientists in 184 nations signed a 2nd Scientists Warning to Humanity.

ScientistsWarning.org is an ideal outlet for people that want to get seriously involved on a direct personal basis in helping the worldwide effort to combat global warming and debasement of the biosphere.

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It's especially important to generate as much public support as possible for this most important effort directed by Stuart Scott of ClimateMatters.TV fame to show cohesion via strength in numbers.

Numbers are meaningful. The planet is counting on you!



 Postsript: "Frozen sediments, which have lain undisturbed since the last Ice Age, are now releasing plumes of methane – a very potent greenhouse gas – into the atmosphere."



 There is no question that a very large number of people have to move; you cannot live where the water comes over you. I have not heard one suggestion on how we are going to move one hundred million (100,000,000) people out of low-lying areas and what countries would be willing to accept them."

Quotes by: Walter Munk, professor emeritus of geophysics, Institute of Geophysics and Planetary Physics, Scripps Institution of Oceanography at UC San Diego and recipient of the nation's highest award for lifetime achievement in scientific research, the President's National Medal of Science. The New York Times labeled Dr. Munk "the Einstein of the Oceans."

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