



Central Coast Climate Science Education
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Communicating Climate Science
JPL Oceanographer and Extraordinary Communicator
Josh Willis as *Climate Elvis*
(Last edit: 3:00 PM November 14, 2019)

This is part 2 of the two-part post about Dr. Josh Willis, an Oceanographer at the Jet Propulsion Laboratory in Pasadena, California. Part 1 described Josh's research project: OMG ("Oceans Melting Greenland".) That project is illuminating the critical role that ocean currents in contact with the face of Greenland glaciers play in the rate these glaciers shed ice to the ocean, and hence the rate at which sea levels may rise.

Josh Willis as a Climate Science Communicator

This 2nd part of the post provides a glimpse into Josh's infectious enthusiasm for communicating information about climate science to the public in a unique and effective way. The first step in doing this is to highly recommend a visit to his Facebook page:

<https://www.facebook.com/ClimateElvis>

It is Josh's contention that using humor to convey basic ideas of climate science is often far more effective than simply 'presenting the facts.' Here is an excerpt from an interview with Josh by a reporter for a local Pasadena newspaper

"I wanted to make global warming funny because I think people will have an easier time relating to it and understanding it if they can have a laugh every now and then."

He elaborates on this notion in his response to this final question he was asked during the interview:

Q: "How frustrating is it to still hear people calling global warming a hoax?"

A: “You have to understand that there is a well-oiled machine trying to convince everybody that it’s not happening, so we are fighting a real battle in terms of misinformation. One of the things that I hope for is that as a scientist and a comedian I can spread a little correct information in a fun way, a way that’s sticky, that people will remember, and help inoculate people against some of the misinformation that’s being generated.”

Here is the link to the full Pasadena Weekly interview with Josh:

<https://tinyurl.com/y699m93b>

But, to make sure that readers of this post don’t miss the *piece de resistance* of Josh’s unique approach to communicating climate science, here is the link to the “Climate Rock” video where the difference between weather and climate is explained:

<https://www.youtube.com/watch?v=WGfKRfyhvd0>

Here is a 4-minute audio ‘encore’ from Josh where he talks further about communicating climate change in an interview in 2016 with Dave Schlom of PBS’s station in Chico, California:

<https://tinyurl.com/ucsoezo>

"Global warming is really ocean warming"

There are other concepts that are important for the public to understand in addition to the important distinction between weather and climate so cleverly made in the “Climate Rock.”

(A distinction, we should note, that cannot be repeated too often: As this post is being written—November 12, 2019-- air from the arctic is streaming over a large part of the U.S. bringing not just frigid temperatures, but likely further claims that ‘global warming is a hoax.’)

In particular, while increasing annual average global surface temperatures get most of the media attention, the most fundamental change humans are making to the Earth’s climate system is the relentless accumulation of heat in the world’s oceans.

There is a simple and fun demonstration to get across the idea of the ocean's enormous capacity for storing heat. Josh has given the following rather 'sedate' demonstration in this video, which runs a little less than 4 minutes:

<https://www.jpl.nasa.gov/video/details.php?id=827>

Of course, one could always 'ham it up' a bit, and from what you have already seen in this post it won't surprise you that he can do just that in the water balloon demonstration. Here is an example, contained in a public lecture he gave at JPL. If you just want to watch the demonstration, then scroll to about 23:30 and watch until about 28:40:

<https://tinyurl.com/usoht9d>

But the entire lecture is a powerful general introduction to climate change and well worth watching all of the video (the talk ends at about 49:00, with a little over 20 minutes of Q&A following.)

So, humor is indeed a very effective approach towards communicating climate science and the need to deal with it. But not all of us have the kind of personality to really make that style work. Therefore, I want to conclude this post with a few comments of my own on communicating climate science.

The most obvious comment is simply 'know your audience'. Some audiences will be genuinely interested in and receptive to facts. But unless you are 'preaching to the choir' the average lay person will have heard both truths and falsehoods about climate change and will be just as likely to believe 'myths' as they are to believe 'truths'.

In the JPL talk above, Dr. Willis uses the word 'inoculate.' Cognitive scientists who have studied climate science communication caution that if you simply first state a 'myth' and then state the truth, many people come away just remembering the myth! To avoid this, if you 'inoculate' by *first* state the correct science, *then briefly* state the myth, and then return to a more detailed explanation of the real science, the science is far more effectively retained. (See Essay #15: [How to Inoculate against 'Alternative Facts'](#) on my website.)

In that essay, I made a reference to one of the wonderful videos by another superb climate scientist and communicator, Dr. Katherine Hayhoe. It runs

for about 7 minutes and the theme is that more often than not ‘facts are not enough’; indeed ‘just the facts’ may be counter-productive. She suggests finding areas of common interest. For example, it might be recreation or national security or economic opportunities. Or maybe even a shared interest in creative arts, such as the Los Angeles Turbine Arts Collective—see the biographical notes for Josh Willis below!

Watch her video here: <https://www.youtube.com/watch?v=nkMIjbDtdo0>

Dr. Hayhoe also brings another unique perspective to climate science communication. She happens also to be an Evangelical Christian, and as she explains, communicating the moral aspects and implications of climate change to those of all religious faiths (or no religious faith) is an important aspect of climate science communication. Watch her short video here:

<https://www.youtube.com/watch?v=W53uRqITk2I>

It is up to all of us to become informed on this topic and communicate it to our fellow human beings in as effective a way as we can.

COMING POST: The next post on this website will be about a crucially important topic: As increasing amounts of wind and solar energy are deployed, it is necessary to find ways of STORING ELECTRICITY

Biographical material for Dr. Josh Willis

Here is a short sketch, followed by a ‘bullet point’ summary, of Dr. Willis’s career and achievements:

Josh Willis received his Doctorate in Oceanography from the Scripps Institute of the University of California, San Diego. He joined the Jet Propulsion Laboratory in 2004. In 2009, he received the Presidential Early Career Award for Scientists and Engineers, in 2011 he received the American Geophysical Union Ocean Sciences Early Career Award, and in 2016 he was awarded the Bruce Murray Award for Excellence in Education and Public Engagement. In his spare time Josh does theater and comedy, some of it related to climate science education. He is a graduate of the Second City Training Center for improvisation comedy and is an active member of the Turbine Arts Collective in Los Angeles (<https://www.turbine-arts.org/>)

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Education

B.S., Physics & Mathematics, University of Houston, Honors College, Houston, Texas (1996)

M.S., Physics, University of California, San Diego, La Jolla, California (1998)

Ph.D., Oceanography, Scripps Institution of Oceanography, University of California, San Diego, La Jolla, California (2004)

Professional Experience

- Jet Propulsion Laboratory (2004 - present)
 - Jason-CS/Sentinel-6 Project Scientist (2016 - present)
 - OMG Principal Investigator (2014-present)
 - Jason-3 Project Scientist (2011-present)
 - Jason-2 Project Scientist (2009 - present)
 - Scientist (2006 - present)
 - Caltech Postdoctoral Scholar (2004 - 2006)

Research Interests

- Understanding the ocean's role in Greenland ice loss
- Estimating ocean warming and sea level rise on regional to global scales
- The role of the ocean in the Earth's climate system under global climate change

Selected Awards

- Bruce Murray Award for Excellence in Education and Public Engagement (2016)
- AGU Ocean Sciences Early Career Award (2011)
- Presidential Early Career Award for Scientists and Engineers (2009)
- Lew Allen Award for Excellence (2009)

The 3rd of these awards, the “Presidential Early Career Awards for Scientists and Engineers”, is the highest honor bestowed by the United States government on young professionals in the early stages of their independent research careers. The recipient scientists and engineers received their awards in the fall of 2009 at a White House ceremony.