Optimism for 2018

Dr. Philip B. Duffy
President & Executive Director

Lincoln’s statement about the civil war might apply equally well to the 2016 election: “Each party looked for a result less fundamental and astounding.” Following this surprising outcome, 2017 was an “interesting” and at times dizzying year. While one would certainly find no difficulty citing causes for concern about future climate and climate policy, there are reasons for optimism as well.

The Paris Agreement remains a good road map for controlling climate change. Even as the US announced its intention to withdraw, other nations are stepping up. Symbolic of this is that the only two nations who were not previously parties to the agreement—Syria and Nicaragua—have announced their intention to join.

And while the U.S. federal government steps back from the Paris Agreement and other climate policies, others are doing more. The Trump Administration’s abrupt reversal on climate policy has boosted the growing number of “bottom up” measures by cities, states, corporations, and others, to limit their greenhouse gas emissions. WHRC is setting an example by taking steps that will make our campus energy-neutral by early in the new year.

We also know that climate policies can help economies. It has always made economic sense to avoid the long-term harms from climate impacts, but recent studies have shown that climate policies – such as carbon markets – can actually have near-term economic benefits as well. If true generally, this would remove the most common argument against taking climate action. WHRC is forming a partnership with Tufts University to both design and analyze national and subnational climate policies, in order to maximize climate and economic benefits.

And while policies are helping, renewable energy costs have also dramatically decreased. This results in powerful market forces which encourage deployment of more renewables, and which the Trump Administration is unlikely to be able to counter.

Change can happen more quickly than expected. I often warn of “tipping points” in the physical climate system, but social systems have tipping points as well. We’ve recently seen remarkably sudden changes in attitude on issues like same-sex marriage, and climate change may be next. The availability of affordable renewable energy will help, as will (sadly) the growing prominence of climate change impacts.

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Each December, more than 20,000 scientists gather for the American Geophysical Union (AGU) Fall Meeting, the largest international conference in the biogeosciences. This year, 15 WHRC researchers attended the conference, which was held for the first time in New Orleans.

The meeting was full of cutting-edge presentations, displays and exhibitions, as well as countless meetings and discussions on scientific research plans for the coming year.

"AGU was a fantastic opportunity to engage with other researchers in my field and to share our science," said WHRC’s Kylen Solvik, who led a presentation on his remote sensing work with Dr. Marcia Macedo in Brazil.

On December 18, WHRC President Dr. Phil Duffy told a congressional briefing that climate change in the Arctic is a problem for the entire world.

The briefing was organized and hosted by the House of Representatives Sustainable Energy and Environment Coalition to focus attention on arctic and antarctic climate science. As the briefing took place, negotiations were underway elsewhere on Capitol Hill to open the Arctic National Wildlife Refuge to oil and gas drilling (through a provision in the mammoth tax bill).

Duffy spoke along with Dr. Ted Scambos, a senior scientist at the National Snow and Ice Data Center, Dr. Heidi Steltzer, a professor from Fort Lewis College in Colorado, and Rafe Pomerance, chair of Arctic 21 and a senior Arctic policy fellow at WHRC.

Duffy told the briefing, attended by congressional staff members, that the Arctic is warming two to three times as fast as the rest of the world, and that climate policy should be focused on avoiding Arctic tipping points on thawing permafrost and melting ice sheets.

Scambos, whose research has focused on Antarctica, said that “Antarctica is disintegrating,” losing more than 150 billion tons of ice each year.

The Sustainable Energy and Environment Coalition was founded in 2009, and now includes more than 50 congressional Democrats.

20,000 scientists gather for AGU fall meeting

"It was a busy week, but I left excited and full of new ideas."

Acclaimed journalist Dan Rather delivered a particularly poignant keynote address entitled “A Return to Reason,” where he outlined ways in which science can and should be a guiding light in these uncertain times.

Among many highlights, WHRC’s Dr. Brendan Rogers and Dr. Paulo Brando convened a session titled “The Role of Fire in the Earth System: Understanding Drivers, Feedbacks, and Interactions with the Land, Atmosphere, and Society.” Fire, as we know both through our research and the popular media, has been an increasingly disruptive occurrence in the United States and also carries global climate implications.

The AGU meeting also hosted a reunion of the Polaris Project, WHRC’s arctic research initiative that includes an annual class of student scientists. The 2017 Polaris Project class attended AGU to present posters on their research in Alaska’s Yukon-Kuskokwim Delta.

Still, challenges remain! In particular, expected cuts in federal research funding will make the work of independent centers like WHRC even more important, but also more difficult to sustain. No matter what unfolds in 2018, though, our scientists will remain dedicated to our mission to develop and implement science-based solutions to climate change.

Thanks as always for your interest and support.
As a tumultuous 2017 draws to a close, WHRC looked back on the year in climate change news. There was plenty of distressing news, but also some positive signs and hope for the future. And so, we present the biggest climate change stories from 2017:

Hurricanes hit Caribbean and Gulf Coast
A series of historically powerful hurricanes caused damage and extensive fatalities this year. Three Category 4 hurricanes—Hurricanes Harvey, Irma, and Maria—made landfall in the United States. Hurricane Maria devastated Puerto Rico's infrastructure in September, leaving almost the entire island without power. Hurricane Harvey dropped more than 60 inches of rain on Texas, shattering previous records. The increased rainfall and storm intensity matched modeling and scientists' expectations for climate change influence. In December, a team of researchers published a paper linking Harvey's record rainfall to climate change.

Federal agencies release climate reports
Despite climate change denial from the highest levels of the Trump Administration, federal scientists are pushing forward with their work. In November, the White House released the Climate Science Special Report, which was approved by 13 federal agencies. In December, NOAA released the Arctic Report Card, which showed the remarkable and alarming rate of warming in the Arctic.

Tropical forests are losing carbon faster than they can capture it
In September, WHRC researchers published a paper in the journal Science showing that tropical forests are losing carbon to the atmosphere faster than they are sequestering carbon in new growth. The net loss is largely the result of forest degradation – smaller scale tree removal – that was identified using a new methodology developed at WHRC. The good news, according to WHRC scientists Alessandro Baccini, is that understanding the degradation creates an opportunity to fix it.

Antarctica crack
In July, an iceberg about the size of Delaware broke off from Antarctica's Larsen C ice shelf. Larsen C is a massive floating platform of ice on the east side of the Antarctic Peninsula, the fourth largest ice shelf around continent. The split decreased the size of Larsen C by approximately 10 percent.

Trump pulls back on climate policies
U.S. President Donald Trump sought to unwind several key Obama-era climate policies. In June, he announced that he would begin the process to withdraw the United States from the Paris Climate Agreement. In October, Trump announced that he would halt the Clean Power Plan.

States and cities step forward
While the federal government was abandoning its responsibilities, state and local governments were taking the lead. Thousands of city, state, and business officials signaled their support for the Paris Agreement. 15 states joined the U.S. Climate Alliance. At the COP23 UN climate change conference in Germany, U.S. state officials, senators, and governors circulated through the halls assuring international delegates that the Trump Administration did not represent all Americans on climate change.

Carbon emissions tick back up
After staying flat for several years, global carbon emissions increased in 2017 by about 2 percent. The news served as an important reminder that we are still a long way from achieving the decarbonization we need to avoid the worst impacts of climate change.

Wildfires scorch the West
Severe fires ravaged forests across the American West, burning millions of acres. The conditions that caused the fires are being driven by climate change.

Cost of renewables keeps falling
The cost of wind and solar power keeps falling, driving widespread adoption of renewable energy technologies. In 2016, almost two-thirds of net new power capacity added around the world was from renewable energy – approximately 165 gigawatts.

Forests and soils are being recognized for their role in fighting climate change
Thanks to new research—and new outreach efforts—the role of forests and soils as climate change solutions received more attention than ever before. Scientists highlighted the massive potential for agriculture, soils, and forests to sequester carbon, and provide as much as one-third of the carbon dioxide mitigation needed to keep the world under 2°C of warming.
More than 300 people attended an evening screening of former Vice President Al Gore’s new movie on November 30, and then listened to a panel discussion with science journalist Heather Goldstone, WHRC President Dr. Philip Duffy, and WHRC Deputy Director Max Holmes.

WHRC and Falmouth Academy co-hosted the event at the school’s campus. The movie, titled *An Inconvenient Sequel*, was shown to the entire Falmouth Academy student body earlier in the day. During the evening event J. Robinson Wells, the interim head of school, led the lively panel discussion.

The following day, Dr. Holmes returned to Falmouth Academy to talk about climate change with science classes throughout the school day.

Falmouth Academy is an independent private school for grades 7-12, located a short distance from the WHRC campus.
Many ways to support climate change research

You don't need to be a billionaire to make a difference at WHRC. There are many alternative ways to support our mission beyond donating cash. If you believe, as we do, that climate solutions depend on science, you might consider one of these alternative ways to support WHRC:

**Turn your old gas-guzzler into a climate change solution**

Vehicle donations are tax deductible and benefit WHRC's mission. It's more than cars – you can donate trucks, boats, planes, motorcycles, RVs and heavy farm equipment too, running or not.

**For our local friends with "green" homes**

Does your solar PV system create a credit on your Eversource electric bill? You can transfer the credit to WHRC to help us keep the lights on and the computers running! Call Eversource or your PV installer and have them send you a Schedule Z, which will allow the transfer.

**Shop with Amazon Smile**

Visit smile.amazon.com and select WHRC as your charitable organization of choice. The products and prices are identical, but Amazon will donate 0.5% of the proceeds to WHRC when you use the Amazon Smile link.

**Contribute from your IRA tax-free**

IRA owners over the age of 70½ are able to direct their plan administrator to distribute up to $100,000 from an IRA to WHRC and other charities, tax-free. The donation counts toward your minimum required distribution, but is not included in your income for income tax purposes.

**Include WHRC in your will or estate plans**

Good estate planning could enable you to make a larger charitable gift than you ever thought possible. There are a variety of planned giving structures available to donors that combine your philanthropic interests with your financial needs and tax-planning strategies. By setting up one today, you can see the impact of your gift and know you made a big difference.

**Donate your home and continue to live in it**

Consider gifting your primary or vacation home to WHRC while retaining a life estate for yourself. You continue to live in your house, or rent it out, during your lifetime, while also making a significant contribution to benefit climate science.

To discuss any of the options above, contact Alison Smart, Chief Development Officer, at 508-444 1545 or asmart@whrc.org.
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