



# the weekly anthropocene

dispatches from the wild, weird world of humanity and its biosphere  
by Sam Matey

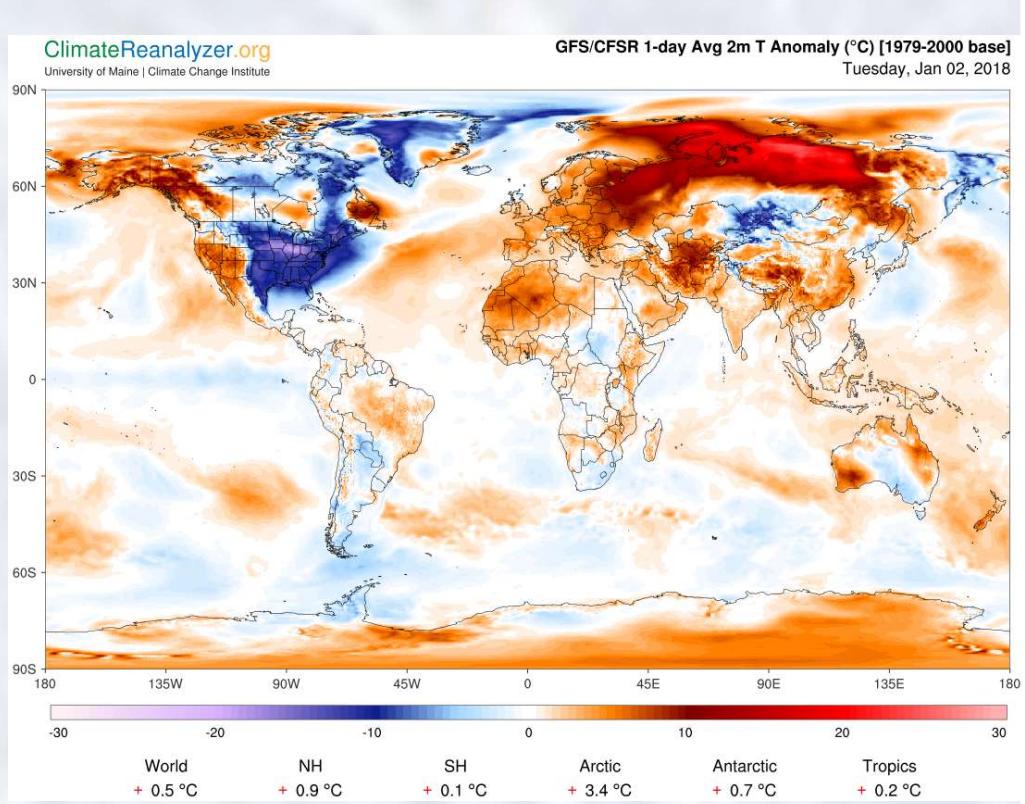
## Weather & Climate.

As everyone currently living in eastern North America knows, it's very cold outside. The above map, from the University of Maine's Climate Change Institute, displays temperature anomalies from baseline as of January 2<sup>nd</sup>. As you can see, eastern North America is, indeed extraordinarily cold. This has led some to doubt whether climate change is real, including American President Donald

Trump, who stated in a recent tweet that "perhaps we could use a little bit of that good old Global Warming."

So, does this cold snap cast doubt on climate change's existence? In short, no. President Trump misunderstands the difference between weather and climate. Weather is short-term atmospheric activity in a given area, like a thunderstorm, a sunny spring, or a snowy winter. Climate is long-term atmospheric activity in a given area, or the world. The weather in eastern North America is unusually cold, but the climate of the world is still unusually warm. Take another look at the map: most of the rest of the world, including Antarctica, Alaska, Europe, South Asia, and the southwestern US, is exhibiting above-baseline temperatures. Parts of Southern California were experiencing temperatures above 80 degrees Fahrenheit in late December! Worldwide, 2017 was the hottest year on record without the short-term warming effect of an El Niño. Despite this unusually cold winter, climate change is still most definitely real.

If you're looking for a more detailed explanation of weather vs. climate, check out NASA's page on the distinction at [goo.gl/Ew1NzY](http://goo.gl/Ew1NzY). To get daily temperature maps and temperature anomaly from baseline maps, check out UMaine's ClimateReanalyzer at <http://cci-reanalyzer.org/>. For the Guardian's article on 2017 being the hottest year on record without an El Nino, check out [goo.gl/g4ESnr](http://goo.gl/g4ESnr). (Links in the PDF of this newsletter may not be clickable, so just type them into a search bar to get the webpages).





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**The Pacific.** A recent study published in the *American Malacological Bulletin* has found that the world's largest octopus, the giant Pacific octopus (pictured) is in fact more than one species. The research was undertaken by Nate Hollenbeck, an undergraduate student at Alaska Pacific University, who discovered the difference through DNA samples and visual observations. The new species, the frilled giant pacific octopus, is distinct due to a "frill" that runs across the length of its body and having two white marks on its head instead of one. Octopuses are highly intelligent creatures, and have independently evolved many traits and behaviors similar to those of humans, such as tool use, play, and areas of the brain dedicated to learning. Many scientists have described them as the closest thing to an alien intelligence we can find on planet Earth. Now, we have a new species of octopus to treasure! Great news!



**Atmosphere.** A new study from Duke University has found that human emissions of vanadium have risen sharply since the start of the 21<sup>st</sup> century, due to industry's increased use of more mineral-dense fossil fuels like tar sands and coke. Airborne vanadium is little studied, but is linked to impaired respiratory function. Human-caused emissions of vanadium are now 1.7 times as large as all natural sources combined. The full effects of this new alteration of the atmosphere remain to be seen.

**Salmon.** A new study published in the journal *Geomorphology* has found that salmon spawning can change landscapes. When salmon spawn in rivers, the female digs a pit for her eggs, and then digs another pit for sediment to cover up the eggs. Aquatic ecologist Alexander Fremier and his team collected data on this salmon-caused erosion and modeled out the effect that it would have over millions of years, then compared it to real-life rivers in the Pacific Northwest. Fremier found that spawning-induced erosion may have lowered some riverbeds by 30%! A fascinating discovery.

**NGOs.** Prince Harry of the UK became President of African Parks on December 27<sup>th</sup>, 2017. African Parks is a South Africa based non-governmental organization (NGO) that works to manage African protected areas to preserve the continent's wildlife. African Parks currently has contracts with various governments to manage 13 protected areas, and is set to expand. Kudos to Prince Harry for taking a leadership role in such a worthy organization!

**West African waters.** The Atlantic humpback dolphin is now considered critically endangered.