



the weekly anthropocene



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

By Sam Matey, February 26, 2020



2020 Election. This newsletter generally avoids the day-to-day breaking news of American politics, preferring to focus on longer-term trends, threats, and scientific advances that are highly impactful but often overlooked. Now, ahead of Maine's presidential primary (set for Tuesday, March 3) it's time to weigh in.

There's a lot of angst going around about picking the perfect Democratic Party nominee, someone who can gin up turnout, win over independents, surge in swing states, and take down Trump's rampant corruption and emergent authoritarianism. Articles proliferate around how this, that, or the other candidate will either save or destroy the Democratic Party's chances to restore sanity to the White House in November. It's important to remember that while there are real differences between the candidates, they are insignificant compared to the fact that they all stand on the side of science, sanity and justice on climate change, while Trump clings to bluster, corruption, and lies.

Bernie Sanders is often derided as unelectable for being a self-described "democratic socialist"-but he enjoys massive support among young voters, in part because he has made climate action a centerpiece of his campaign, calling for a Green New Deal that would mobilize America to move to 100% renewable energy. Mike Bloomberg is called an out-of-touch, racist billionaire (with some justification)-but he's gotten an incredible amount done on climate change, using his personal fortune to bankroll the Sierra Club's Beyond Coal campaign, an extremely successful effort effectively stopped



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the building of new coal plants in the United States and led to the shutdown of many existing ones, saving untold thousands of lives from air pollution-related diseases. Elizabeth Warren is assailed by a gendered stereotype that she's a "know-it-all" or a "wonk" for her preparedness-but she has the most comprehensive and detailed strategies to address climate change of any candidate, with in-depth action agendas ranging from the Green Apollo initiative for renewable energy manufacturing to the Blue New Deal for ocean adaptation and offshore wind power. It's said of Joe Biden that he represents the past, not the future-but his past is filled with fighting for action on climate change, from introducing the very first Senate bill addressing global warming way back in 1986 to currently running on a strong climate plan that, like the plans of all of the other candidates, would be unprecedented and transformative if enacted. Pete Buttigieg and Amy Klobuchar are caricatured as milquetoast Midwestern moderates, but they have strong and innovative climate plans too, with ideas like starting an American Clean Energy Bank and paying farmers for carbon sequestering practices on their lands. And long-shot billionaire Tom Steyer, who some say doesn't have a clear reason to be in the race at all, says he'd make climate change his number one priority as president, and would use emergency powers to take action if necessary. (For a full rundown of every 2020 Democratic candidate's climate policies, check out tinyurl.com/2020DemsClimate.)

There are meaningful differences between the candidates, yes. For example, Sanders and Warren oppose the idea of natural gas as a transition fuel, citing its extreme methane emissions, while Bloomberg and Klobuchar think it has a place in easing the shift to renewable energy. But what's much more important than the differences between the candidates is that they are in unanimous agreement on the important fundamentals. All of them would rejoin the Paris Agreement and move forward with international climate action from there. All of them have plans to get to net-zero carbon emissions by 2050 or earlier. All of them would, if elected, be a historic leader in climate change action, doing more than any president has ever done before to address the greatest threat of our time. In the big picture, they're all really good.

So this newsletter will not endorse a candidate for the 2020 Maine Democratic Party Presidential Primary. (Full disclosure: this writer has previously volunteered for the Elizabeth Warren campaign, and is currently hesitating between voting for Warren or Sanders). Vote for your favorite Democrat, whoever you align with most on policy and/or think has the best chance to beat Trump. But no matter what, even if it grinds your gears to vote for a billionaire or a European-style democratic socialist or an old white male, please volunteer, donate, and turn out and vote for whoever's running against Trump in November. World geophysical systems are on the brink of tipping points, record-breaking disasters have become commonplace, and the actions taken in the next decade will be critical for determining what kind of planet we have through the next century. And the choices for the next leader of the free world are a bloviating, hateful, corrupt, lying, anti-reality incumbent, or any of an array of smart, competent, patriotic, and sane challengers. In sum, the most critical action on the climate crisis an American can take in 2020 is voting to fire Donald Trump. Do it.



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Methane Emissions Worldwide. A landmark new study published in *Nature* has found that oil and gas companies are responsible for much more of methane emissions to the atmosphere than previously thought. The researchers examined methane content in trapped-atmosphere bubbles from ice cores in Greenland, and found that biological methane (rich in carbon-14, which is how they could tell the difference) accounted for most methane until 1870, when fossil methane (from human drilling and burning) rose sharply. They calculated that natural releases of fossil methane are ten times lower than previously thought—which means that oil and gas companies are 25 to 40 percent more responsible for the current fossil methane in the atmosphere than previously thought. This is very much a good news/bad news discovery, with big implications for the fight against climate change. First, it means that natural gas and oil are even worse than we thought, and are emitting vast quantities of climate-destabilizing greenhouse gases. Natural gas, especially, is known for accidental and often unreported methane leaks from drill sites, and this new data underscores just how damaging it really is as a fuel source. This research should increase still further the impetus to move to renewables as fast as possible. On the plus side, though, the fact that humans are responsible for more of the existing methane emissions that we thought also means that we have more control over it. Also, while methane (CH₄) actually traps more heat than CO₂, it stays in the atmosphere for only nine years, compared to hundreds for CO₂. So if we can get our collective act together and kick natural gas and oil onto the dustbin of history to join coal, we could take a really substantial bite out of the extra heat-trapping greenhouse gases currently in the atmosphere. Bottom line: it really is all up to us. For more, see tinyurl.com/vyjtlm and tinyurl.com/wq4txf4.

JP Morgan Chase. JP Morgan Chase is the world's largest funder of climate destruction, having lent over \$196 billion to the fossil fuel industry in 2016 through 2018 alone. With infamously damaging climate denier Lee Raymond on their board and a habit of funding the nastiest projects around, from tar sands oil to arctic drilling to liquified natural gas, they've been dubbed the "Bank of Fire and Flood" by renowned climate expert Bill McKibben. Now, after sustained pressure by climate activists, JP Morgan Chase has taken a baby step in the right direction, pledging to end loans to drilling in the Arctic, coal plants, and companies that get more than 50% of their revenue from coal. This of course leaves open funding to oil and methane-spewing natural gas projects everywhere in the world but the Arctic, and isn't the kind of comprehensive climate action the world needs, but it's still a positive step. In the wake of BlackRock and Goldman Sachs' similar commitments, even the worst climate vandal bank is recognizing the need to ditch (at least some) fossil fuels. For more on the JP Morgan climate pledge, see tinyurl.com/slse7qz and tinyurl.com/r99bv2l. For more on JP Morgan's absolutely abysmal record on financing fossil fuel fiascos, see tinyurl.com/BankoffireandFlood.



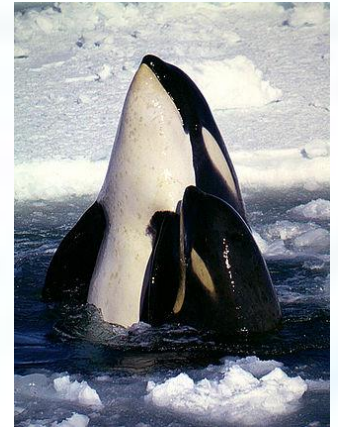
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Whale Migrations. Every year, an array of whale species, from orcas (pictured) to humpbacks, swim thousands of miles over many months from the seas of the tropics to the waters around Antarctica. It's the biggest migration by biomass in the world-and until recently, scientists weren't quite sure why it happened. The prevailing hypothesis was that the whales fed in the fish and krill-rich waters of Antarctica, then moved back to the tropics to give birth-but newborn whale calves have been reported many times in Antarctic waters, shooting down that idea. Now, a team of researchers have published the results of an eight-



year study that satellite-tagged and tracked 62 orcas that migrated to the Antarctic regularly. They found a surprising explanation for the massive migration: skin molting. Whales naturally slough off their old, dead skin. But in Antarctica, it would be harmful to do so in the cold waters, so they conserve body heat by reducing blood flow to their epidermis and letting their dead skin accumulate-sometimes to the point where a coat of algae grows on it. Then, once they've eaten their fill in the Southern Ocean, they go back to the warm tropics and slough off their shaggy dead skin. This finding is rather extraordinary, like something from a fable-one of the great migrations of Earth may be driven by skin care. What a fantastical planet we live on! For more, see tinyurl.com/WhaleSkinSaga.

Australia. A new study published in a special wildfire-focused edition of *Nature Climate Change* added up the devastation from Australia's brutal bushfire season. The researchers found that between September 2019 and January 2020 inclusive, 5.8 million hectares of broadleaf forest were burned in the states of New South Wales and Victoria. That's 21 percent of the entire nation (and continent) of Australia's forest cover. That is an absolutely incomprehensible and globally unprecedented level of fire devastation, way bigger than anything we've seen in California or the Amazon or Alaska. For context, Australia's annual forest loss to fires is normally well below 2 percent. For more context, what that 5.8 million hectare figure means in terms of American states is that if you had an area the size of Vermont and New Hampshire combined entirely covered in forest, and they were completely burned by wildfires, *you'd still have another Delaware-sized area of forest to burn* before you matched the scale of the Australian devastation. And this figure is likely a substantial *underestimate*, as it doesn't include data from Tasmania, which also saw severe bushfires. And, of course, while the worst of the bushfires have subsided or been substantially contained, the fire season is not yet over-and the entire concept of wildfires being limited to one season may be on its way out due to the climate crisis. Such catastrophic events are the darkest side of the Anthropocene: ecosystem and region-level destruction, caused by humanity's reckless climate vandalism. For more, see tinyurl.com/AustraliaBushfiresForest and nature.com/articles/s41558-020-0720-5.