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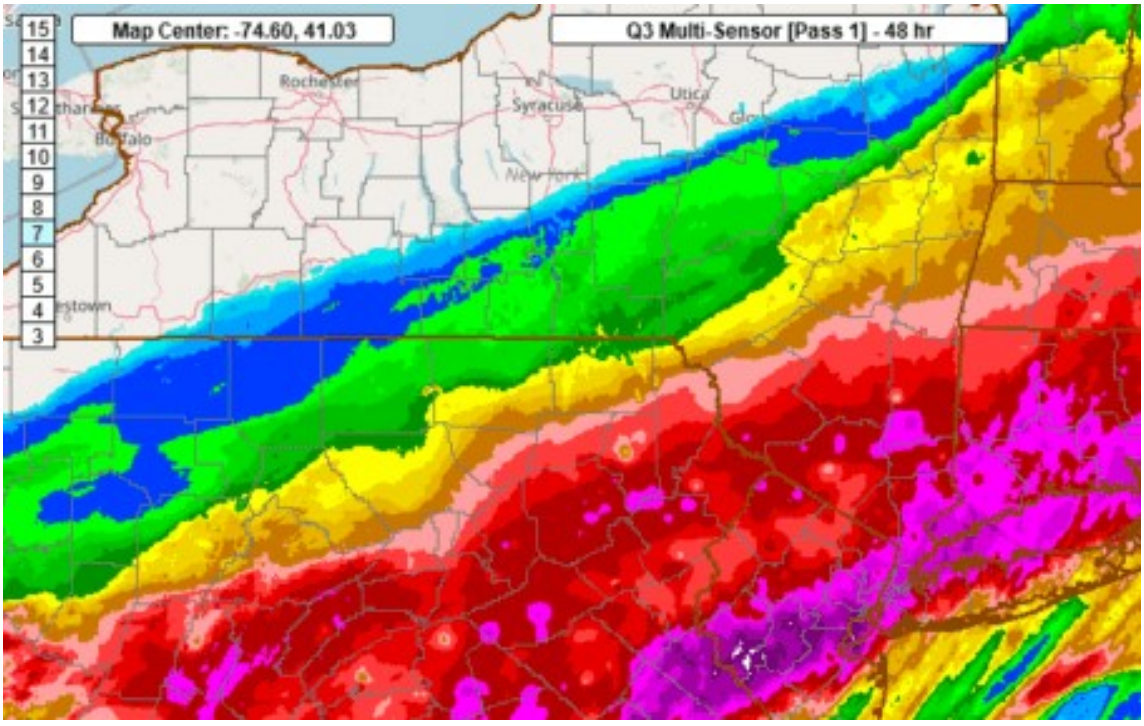
Cat 4 and 5 Hurricanes, Tornados Where They Haven't Been, and Rising Temps Ahead Bode More to Come



Observed rainfall in northeast from Ida. Source: National Weather Service.

My township of Upper Dublin, located about 12 miles north of Philadelphia, got clobbered by Hurricane Ida, but what's strange about that is we're located 1100 miles, as the crow (or a jet plane on a direct route) flies, from where Ida made landfall last Sunday.

While hurricanes, even a powerful Cat 4 storm like Ida with 150 mph sustained winds as it reached the coast of Louisiana, weaken quickly once they leave a warm body of water, and become no more than heavy rain storms, Ida did something unusual: it maintained its

cyclonic structure as a tropical storm as it moved northeasteward after its destructive hit on the Louisiana coast, spreading flooding and spawning tornados along the way. When it reached our area near Philadelphia three days later, it spawned seven of those tornados. One of the largest, an EF 3 with 150 mph winds went straight across the center of Upper Dublin, wreaking havoc on suburban homes not designed for such winds, and went on for a total of over 20 minutes cutting a quarter-mile swath through forests, commercial districts and tracts of homes into the next township of Horsham before finally petering out.

The damage has been mind-boggling to contemplate for people who haven't lived in the southeastern or midwestern US, where tornados are common enough that homes for hundreds of years have been built with storm shelters. We like many in our community were forced to huddle for safety in the center of our house away from glass windows as the twister roared past our house missing it by less than a quarter of a mile. As the tornado passed at around 5:30 pm on Wednesday, the power went out, and remained out for us until Saturday afternoon. During that time we got by using flashlights, flushing toilets with buckets of water carried from a flooded stream a few hundred yards form the house, and drinking bottled water (we have a 120-foot-deep drilled well so without power to the pump there was no water available). Eventually, with the prospect of no electricity for a week according to reports from the power company, Entergy, we bought a low-end gas generator which produced enough power to keep our refrigerator running and power a few lights, so that was a slight improvement.

Driving around the neighborhood the next day was a challenge. Many roads were blocked off with police tape and orange cones as an army of power company trucks filled the roads and crews worked on downed wires and poles knocked down by large trees Meanwhile a second army of trucks belonging to tree experts armed with chainsaws worked at removing fallen trees on houses, garages, cars and lawns. The largest of the tornados took part of the roof off of a local elementary school, lifted most of the roof of the steel-framed ceiling of the new local high school's swimming pool (depositing it a hundred yards away in a sports field), de-roofed the police station, forcing police operations to be removed to the town's former library, and the township administration offices, which had to be removed to a rental property in the town's commercial area. Worst hit was a satellite campus of Temple University where, ironically, the school's horticulture department is located. The once beautifully manicured grounds that included a beautiful arboretum, model garden, and a lot of well-groomed ancient trees were decimated. Also hit was the

de-roofed administration building and a classroom building. A forest belonging to that campus, located across the street, was destroyed, leaving many fallen trees and he remnant trunks of better rooted trees which, stripped of their branches and their tops, looked more like telephone poles.

I grew up in Connecticut, and have lived here in southeast Pennsylvania for the last 24 years, and while there were rare tornados in both places, they were always small short-lived events that knocked over a few trees and did mostly minor damage. This was a large scale event like we typically see in places like Kansas or North Carolina.

Something has clearly changed when a hurricane comes almost halfway across the continent and delivers such a powerful destructive punch. Ida is certainly not going to prove to be an aberration either. In fact, this hurricane missed being a rarely seen (in the Atlantic and Gulf of Mexico) Category 5 storm. In the future climatologists say we can expect to see many more once rare Cat 4 storms reaching the US and more Cat 5 storms too of the type more common to the Pacific Ocean. While our home didn't have any flooding problem and unlike many other homes, kept its shingles and avoided having any major trees fall on it, we got a tiny taste of what it must be like living in parts of the country that get the full force of these bigger hurricanes and also lost of major tornados. Apparently thanks to an increasingly heating up globe, we're all in Kansas (and Louisiana) now.

I've been writing about the crisis of climate change at this point for 15 years, basically since reading *James Lovelock's book Revenge of Gaia*, in which this pioneer environmental scientist who developed the controversial but increasingly prescient concept of the Earth as a kind of living, breathing organism and then years later saw what's happening as a case of that spherical organism he dubbed *Gaia* combatting a deadly virus (us Humans!) as most warm-blooded mammals do, by developing a fever to kill us off. Also eye-opening was *Six Degrees, by Mark Lynas*, which I read that same year, and which rather terrifyingly walks the reader through what will happen to the Earth and to humanity and all life on the planet as the global temperature rises by from one degree Celsius (which we've already reached!), on up she thermometer to six degrees (that's 12 degrees Fahrenheit). These books were a dramatic wake-up call, at least for me.

Over the intervening years, I've written articles on ice melt at the poles, on sea-level rise and its threats, on deadly acidification of the surface region of the Seven Seas and the risk of eventual anoxic rotting of the sediments on the seafloor that could produce not CO2 or Methane but sulfur dioxide, a gas that in small quantity causes smog, but that in larger

quantities is fatal to oxygen-breathing life forms. I've written about weather events like hurricanes and large storms becoming stronger and more frequent. My most recent article was about the tens of thousands of municipal landfills, many of them the highest elevation "mountains" within hundreds of miles, that line our nation's three coastlines, most of them sited on land that is either at sea level, or even in tidal wetlands, or on land that is less than ten feet above sea level. I explain how all of these will likely be sitting in the ocean or Gulf of Mexico by the end of this century and, their protective plastic covers inevitably breached, will release their millions of tons of toxic rotted refuse into vulnerable coastal waters. (See Coastal Wetlands Are No Match for Rising Seas in the Nation magazine.)

On a more personal scale I've written about the how the changing climate where I live in southeastern Pennsylvania is leading to the die-off of some plants and the arrival of others, noting that the die-off of certain trees, like sturdy sugar maples, a slow-growing deciduous hardwood tree that populates many forests in the northeast and New England, will take a century to be replaced by trees acclimated to warmer climes I've also written about the bug apocalypse, which has seen insect populations in my own neighborhood and around the globe shrink by nearly half in just a decade or so. Since insects are the base of the terrestrial food chain, that is clearly a disaster in the making.

As a kind of dark joke aimed at the gods that are surely mocking us for our careless and blind destruction of our own habitat, three years ago I planted two small windmill palm trees on the south side of my house. The smaller one, about ten feet from the wall of the house, struggled through one winter when we had temperatures drop into the low teens twice, and has been slow to recover and grow, the other, only three feet from the house and planted in a corner of a west and south-facing wall, has been growing dramatically. My goal is to be the first person in Pennsylvania to have a full-sized palm to shade me in my old age, should I make it to 85. My inspiration for this effort was seeing windmill palms 15 feet tall in eastern Virginia and hearing that in another ten years, southern Pennsylvania's climate was likely to be resemble Virginia's in the 1980s.

Oh, and did I mention the record forest fires in the West and even as far east as Minnesota, one about to reach one million acres burned, not to mention the larger forest fires burning in Siberia this year? We have been having air-quality alerts here in the Philly area for the first time in memory because of smoke from the West Coast fires, while the North Pole for the first time in history is getting smoke from fires in Siberia.

Incredibly there are still many know-nothings in this country (far too many of them in the nation's Congress and administrative departments), who don't think climate change is real.

Some are religious fanatics who figure if they pray, God will provide, or perhaps that since they are going to a mythical “better place” when they die, none of this matters. But for a different take on that, I heard this from my mechanic, whose garage was right in the path of our EF-3 Ida-spawned tornado on Wednesday. Raised a Catholic, but since the age of 14, a self-described agnostic, he said, “I think people are waking up and realizing that climate change is real, especially after this storm.” We agreed that whether people have a teleological or scientific view of climate change, the conclusion at this point has to be the same if people are honest about it: We humans have really f**ked up the planet: Either nature is getting its revenge of an angry god is punishing us for ruining her creation.

I recognize the irony of my being able to buy myself out of the darkness during our blackout by getting a gas generator and burning about five gallons of 87 octane refined oil product every 24 hours to produce electricity for my lights and refrigerator (not the well pump, which is 220 volts), thus contributing as much to more global heating as if I’d driven my car 400 miles a day. Clearly we all need to rethink how we do everything.

Not that changing our individual habits will do it. We need to massively plant trees — but trees like my two little palms that will be prepared to handle higher temperatures as they mature. We need to drive smaller, more fuel-efficient care, learn to live in warm houses without or with less air conditioning in summer and cooler homes in winter, and more importantly, we need to all demand state and federal governments to take the climate crisis seriously and stop putting corporate profits first.

The need for major changes in our economic system and our national infrastructure are so great that they present an incredible opportunity to create much needed jobs on an unheard of scale. The so-called Green New Deal touted by politicians like Sen. Bernie Sanders, Rep. Alexandria Ocasio-Cortez and others, while ridiculed by politicians who are on the take from corporate America, is eminently logical and a real way forward, but it’s only a start.

This nation wastes $1.3 trillion a year trying to maintain a military grip on the affairs of this planet while the planet itself is ding of neglect, abuse and overconsumption of its limited resources. That $1.3 trillion can be a major contributor to the change that needs to be made if we are to avoid a climate apocalypse that will make what we just saw with Hurricane Ida look like a heavy spring rain.

I just spent $550 my emergency generator, thinking, “Well, we’re going to be having storms like this now probably every year, not counting major winter blasts which will also take out the power grid, so at least now we’re ready.” But really that is misleading though.

We're not ready *as a society* until we take drastic and concerted action to prevent those storms from getting even worse and taking down much larger sections of the nation's power grid at one time on a more regular basis. And that's only one kind of crisis. How about a Cat 5 storm heading up into New York City via the Hudson and flooding half the city? How about a drought drying up the California aqueduct (oh, that's already happening)? How about west Texas and Arizona losing all their access to river water, snow-pack and the prehistoric water in aquifers deep underground — water that cannot be replaced once removed?

And that's just the US. Around the world, the crises yet to be recognized are piling up. Entire countries like Bangladesh and large portions of others like China and the European Low Countries, that taken together are home to more than a billion people at risk of being inundated and turned into climate crisis migrants. Others in countries like Pakistan, India, and in parts of Africa like Sudan, Ethiopia and Egypt, are facing increasing droughts and the drying up of rain and snow-fed rivers that supply them with drinking water and water for crop irrigation. They will eventually also have to move. A large part of the world's 7.9 billion people, including tens of million, perhaps 100 million here in the US, will have to move because of impacts of climate change within the next generation or so.

Think of how the world's peoples and nation's have responded so far to those fleeing drought, rising seas and wars, many of them partially caused by resource pressures. It's not a pretty sight. And those migrations thus far have been counted in the hundreds of thousands or refugees. How will those in better situated areas respond to refugees numbering in the millions or tens of millions, even within countries? We need only look at how the dust bowl migrants — the Okies, Arkies and Texans — fared as they abandoned their dust-buried farms in the 1930s and tried to move to California. Read John Steinbeck's Grapes of Wrath to get an appreciation of the desperation of climate migrants and of the brutal hostility of those they traveled to seeking help. Then multiply that inhospitality by orders of magnitude.

All these thoughts weigh on my mind as I ponder this latest experience with the power of a wrathful nature that is still only beginning to wake up and show what it is capable of.

I'm afraid even if the world isn't finished off by a nuclear holocaust (a distinct possibility), the cataclysmic crises that lie ahead of us are lining up and will be coming at all of us thicker and faster even if we do finally, as a society and as a global population start to take this climate crisis seriously.

Buckle up, as they say. The next decades are going to be a bumpy ride with the ending unknown.

Dave Lindorff is a founding member of ThisCantBeHappening!, an online newspaper collective, and is a contributor to Hopeless: Barack Obama and the Politics of Illusion (AK Press).

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