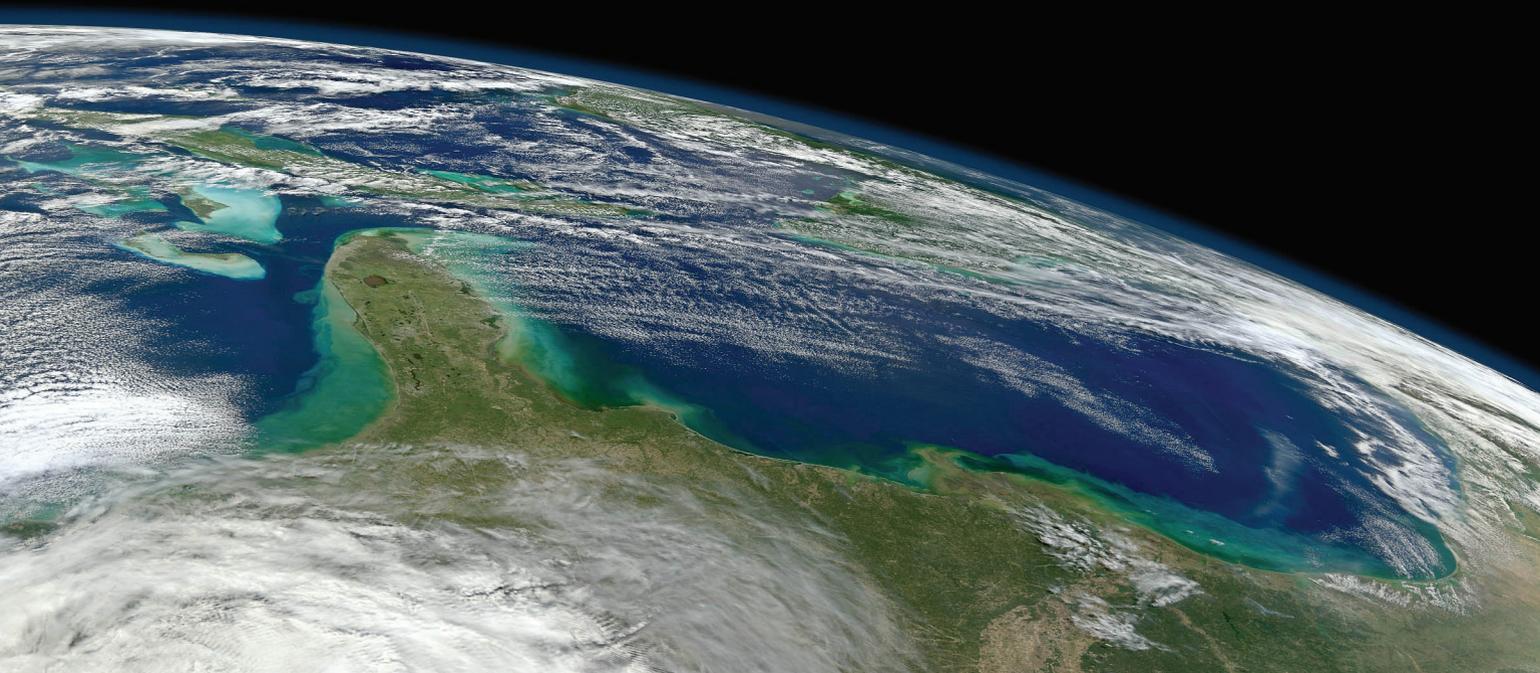


An exhibition organized by Jay Belloli

THE EARTH FROM SPACE





3

During 1968 the *Apollo 8* crew flew from the Earth to the Moon and back. The crew—consisting of Frank Borman, James Lovell, and William Anders—was launched on a Saturn V rocket on December 21, circled the Moon ten times in their command module, and landed back on Earth on December 27. The *Apollo 8* mission's impressive list of firsts includes: the first humans to journey to the Moon, the first manned flight using the Saturn V, and the first to photograph the Earth from deep space. William Anders's famous picture showing the Earth rising above the Moon was a marvelous gift to the world.

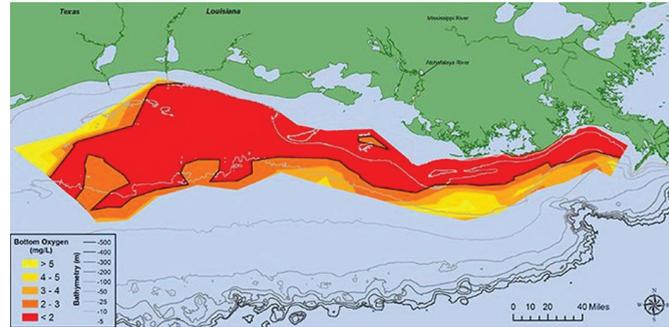
Apollo 8 crew, NASA.

4

This classic photograph of the Earth as seen by the *Apollo 17* crew traveling toward the Moon was taken on December 7, 1972. It shows an area extending from the Mediterranean Sea to the Antarctic south polar ice cap. Note the heavy cloud cover in the Southern Hemisphere. Almost the entire coastline of Africa is clearly visible. The Arabian Peninsula can be seen at the northeastern edge of Africa. The large island off the coast of Africa is Madagascar. The Asian mainland is on the horizon toward the northeast.

Astronaut photograph AS17-148-22727; courtesy NASA Johnson Space Center Gateway to Astronaut Photography of Earth. WORLD IMAGES.





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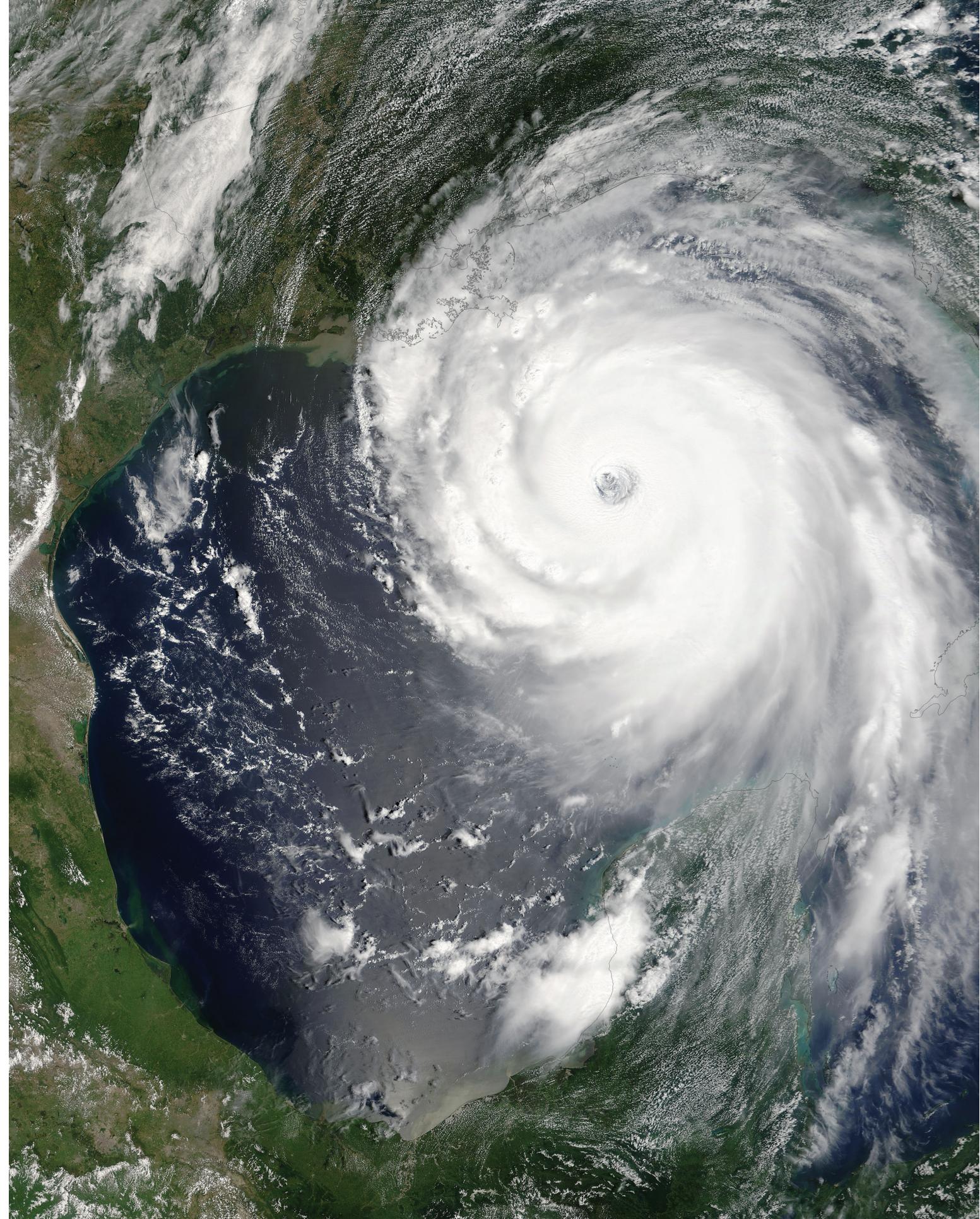
The area near the mouth of the Mississippi River becomes a “dead zone” when phytoplankton die as the result of pollution and strip the water of oxygen. An area of low to no oxygen can kill fish and other marine life. U.S. National Oceanic and Atmospheric Administration scientists forecast the Gulf of Mexico “dead zone” in summer 2019 to be approximately 20,277 square kilometers (7,829 square miles), or roughly the size of the landmass of Massachusetts. The annual prediction is based on U.S. Geological Survey river flow and nutrient data.

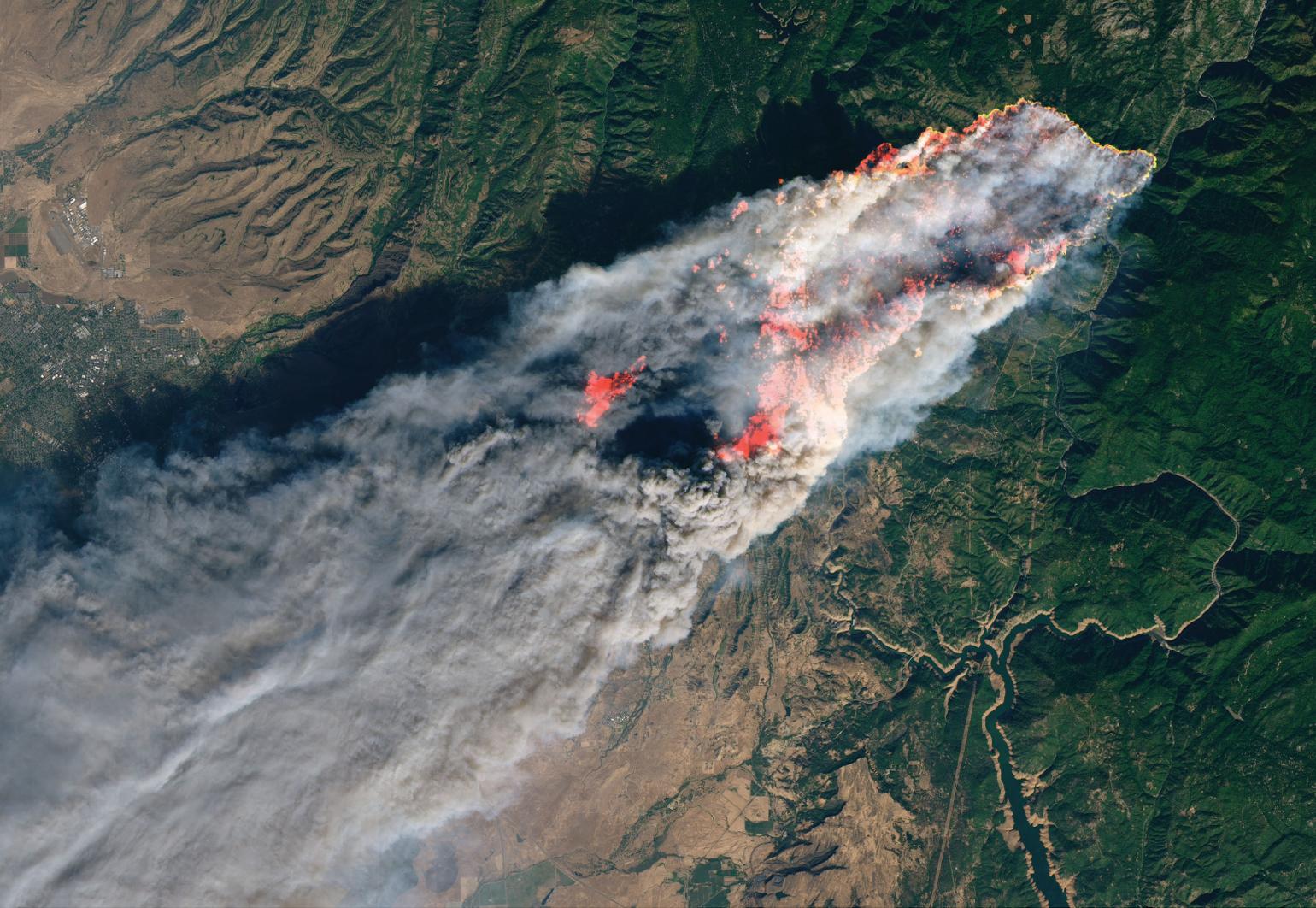
June 12, 2019 | National Oceanic and Atmospheric Administration (NOAA). CBS Miami.

78

In August 2005 Hurricane Katrina became one of the most powerful storms to strike the United States, with winds of 257 kilometers (160 miles) per hour and stronger gusts. The air pressure, another indicator of hurricane strength, at the center of this Category 5 storm measured 902 millibars, the fourth-lowest reading on record for an Atlantic storm. This image shows the massive hurricane covering much of the Gulf of Mexico, from the US coast to the Yucatan Peninsula. Before Katrina was over, an estimated 1,833 people died in the storm and the flooding that followed, and millions of others were left homeless along the Gulf Coast and in New Orleans.

August 28, 2005 | Moderate Resolution Spectroradiometer (MODIS) captured this image from NASA's Terra satellite. NASA image courtesy the MODIS Rapid Response Team at Goddard Space Flight Center.





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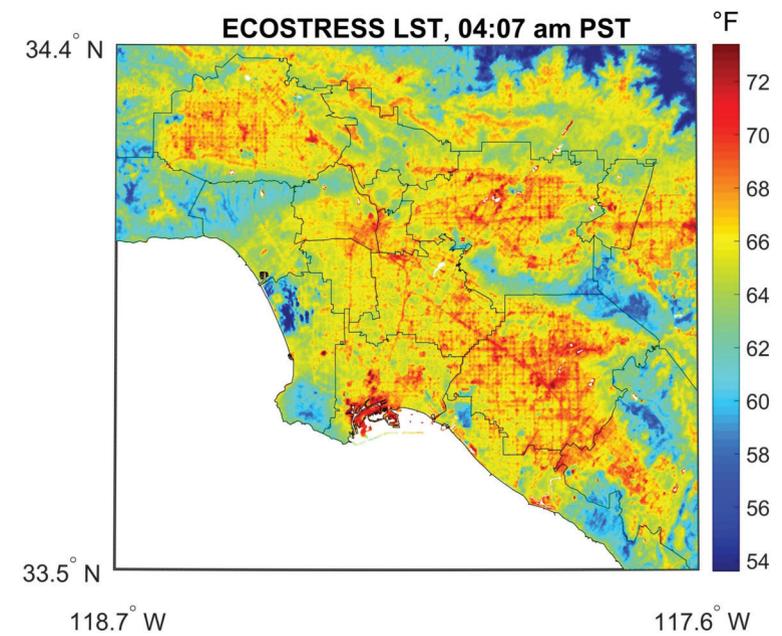
San Francisco Bay, almost 100 kilometers (60 miles) long, is surrounded by the San Francisco Bay Area, the extensive metropolitan region dominated by large cities such as San Francisco, Oakland, and San Jose. In the upper right the delta of the Sacramento and San Joaquin Rivers is visible, with the brown, sediment-filled water eventually flowing down into the Pacific Ocean via the Golden Gate Strait. A large sediment plume can be seen traveling westward into the ocean on the left. Near the lower center you can see the black line that marks the San Andreas fault, which produced powerful earthquakes in San Francisco in 1906 and 1989.

January 25, 2019 | Contains modified Copernicus Sentinel-2 satellite data, processed by European Space Agency (ESA), CC BY-SA 3.0 IGO.

83

On November 8, 2018, the Camp Fire erupted 140 kilometers (90 miles) north of Sacramento, California. By morning on November 9, the fire had consumed 70,000 acres of land and was only 5 percent contained. Strong winds fanned the flames and carried burning vegetation downwind. More than two thousand personnel were sent to fight the fire. By the time it was over, the Camp Fire had become the deadliest and most destructive wildfire in California history and the world's most expensive natural disaster in terms of insured losses.

NASA Earth Observatory image by Joshua Stevens, using Landsat 8 satellite data from the U.S. Geological Survey, and MODIS data from NASA EOSDIS/LANCE and GIBS/Worldview. Edited from story by Kasha Patel.

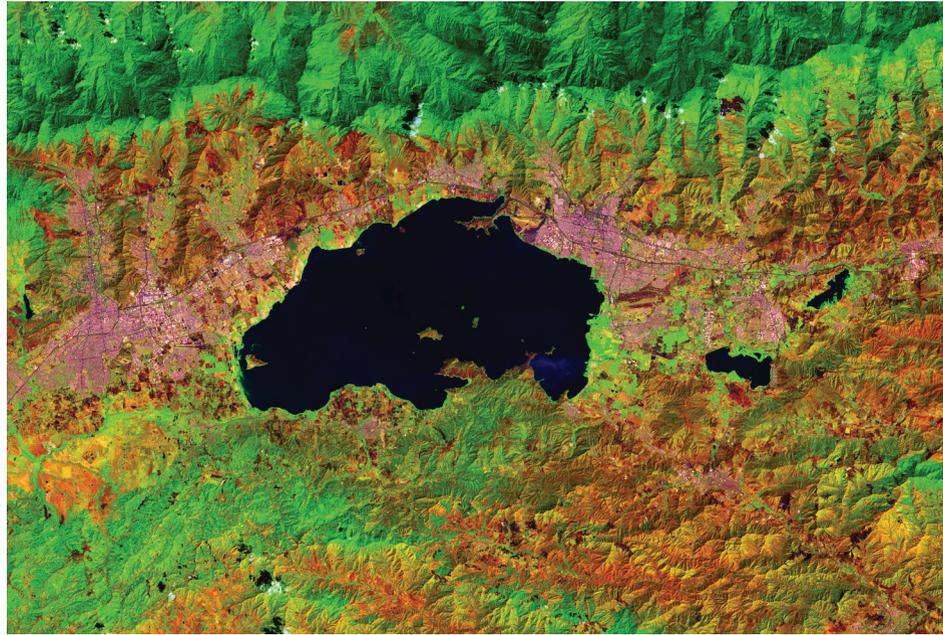


84

NASA's ECOsystem Spaceborne Thermal Radiometer Experiment on Space Station (ECOSTRESS) captured new imagery of surface temperature in Los Angeles County. ECOSTRESS measures surface temperature rather than the air temperature reported by weather stations. The image was acquired during an extended period of high temperatures in the Los Angeles area. Cooler temperatures appear in blue; warmer temperatures in red. In the image taken on July 22, 2018, at 4:07 a.m., the hottest (reddest) areas are dark asphalt surfaces that are unshaded in daytime and remain warm through the night, such as freeways, airports, oil refineries, and parking lots. The cool (blue) areas are clouds and higher-elevation mountainous regions (dark blue).

JPL built and manages the ECOSTRESS mission for NASA's Earth Science Division in the Science Mission Directorate at NASA Headquarters in Washington. ECOSTRESS is managed by NASA's Earth System Science Pathfinder program at NASA's Langley Research Center in Hampton, Virginia. NASA/JPL-Caltech.

South America



85

With an area of 370 square kilometers (142 square miles), Lake Valencia, in northern Venezuela, formed a few million years ago and is now a reservoir for the nearby cities of Valencia and Maracay. Unfortunately the inflow of untreated wastewater from the surrounding industrial and agricultural lands has led the lake to become contaminated. It now suffers from algal blooms and between 1960 and 1990 lost more than 60 percent of its native fish species. The poor-quality waters of Lake Valencia prevent the development of tourism and recreational activities in the region. In this false-color image Henri Pittier National Park, to the north, appears fluorescent green.

February 2, 2019 | Contains modified Copernicus Sentinel-2 satellite data (2019), processed by European Space Agency (ESA), CC BY-SA 3.0 IGO.

86

The Brazilian rain forest was losing more than 20,000 square kilometers (8,000 square miles) per year, an area nearly the size of New Jersey. In 2004, following several years of rapid deforestation, public pressure turned the tide. The Brazilian government created a large network of national and state parks, established protected territories for indigenous groups, empowered environmental enforcement agencies, and strengthened satellite monitoring systems. Within a few years, large-scale deforestation dropped by roughly 50 percent. The turnaround was heralded as one of the world's most dramatic environmental success stories. Sadly 2019 has been different, as you can see in this image.

NASA Earth Observatory image by Lauren Dauphin, using Landsat data from the U.S. Geological Survey, MODIS data from NASA EOSDIS/LANCE and GIBS/Worldview. Edited from story by Adam Voiland.

