

Gorgeous Glimpses of Calamity

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In 1961, Yuri A. Gagarin, the first man to orbit the Earth, issued his initial impressions from an altitude of more than 100 miles. The sky was deep black, he said, and the Earth's horizon crowned with "a beautiful blue halo." Between bright white clouds, he enthused, he could make out "snow, forest, mountains." It was an Edenic picture.

In the subsequent depths of the cold war, with nuclear weapons racing off the assembly lines of the Soviet Union and the United States, succeeding cosmonauts and astronauts contributed their own observations. Like Mr. Gagarin, they found their world mesmerizingly beautiful. They also reported a singularly intriguing fact: no borders or political boundaries could be seen from space.

In fact, few signs of humanity were visible, at least on the sunlit side. Sure, Los Angeles was visibly smoggy. And irrigated cropland could sometimes be discerned, like pointillism on Nile Delta sand. But these were exceptions. Under a startlingly thin layer of atmosphere, vast expanses of desert ceded to forests that gave way to the oceans that make up 70 percent of Earth's surface. The planet seemed largely untouched. Only at night, when jewel-like cities rotated into view, did clear signs of civilization emerge.

There was something profoundly reassuring about this. Even as the ICBMs slept, it was heartening to know that despite our best efforts, we had not yet banged up the biosphere enough to make the effects easily visible from space.

But those were the 1960s and early '70s; the global population was half what it is today, and the portion driving cars and leaving the lights on was far lower.

Contrast that with the last decade or so, when astronauts and Earth-observing satellites have recorded a different, deeply unsettling picture. While our world remains ravishingly beautiful, it increasingly shows symptoms of distress.

Many of these indicators are the direct result of human activity. Others are the indirect consequence of using our atmosphere as a dumping ground for carbon dioxide and other greenhouse gases.

There's a dispassionate quality to the view from on high. On Aug. 2, 2005, the circuitous trajectory of Messenger, a NASA spacecraft, brought it boomeranging back toward Earth on its way to explore Mercury. Its steady stream of data offered a rare chance to watch our world grow larger in space, as a visitor from another star

system might first see it.

Initially, Earth was simply a pearl of milky white and ultramarine blue, with the white — clouds, ice and snow — being other forms of life-giving water. Eventually, hues of tawny gold appeared; more than a third of the visible land area, it seemed, was desert. Only later, when the planet filled half the picture plane, did a hint of emerald emerge between the clouds. A verdant, compelling green. The color of photosynthesis.

After this first direct evidence of life on Earth, and with the spacecraft still a quarter of the distance to the Moon, another hue emerged. Above the lush equatorial belt of South America, lower in altitude and distinct from the clouds, it was a nebulous, smoky, profoundly unsettling gray-blue.

Could this be from fires, perhaps willfully set? Could this first hint of intelligent life on Earth signify a species evidently busy creating still more desert?

You already know the answer. August is the driest month in the Amazon River basin — the best time for subsistence farmers and owners of large tracts of land to clear acreage for agriculture by burning off forests that sequester carbon dioxide and replenish oxygen in our overcarbonized atmosphere. Although the deforestation rate in Brazil has slowed since 2005, it never stopped entirely and may be rising again.

Meanwhile, on the other side of the globe, much the same is happening in that other remaining repository of invaluable equatorial forest, Indonesia — particularly on the island of Sumatra, where similar glimpses show jungle being burned off annually to clear land for palm oil production.

And this was the view from some 65,000 miles away. Far closer in, NASA maintains a small fleet of Earth-observing satellites. Unfortunately, their visual record makes it even clearer that something is going badly wrong in the garden.

Across the world, tremendous wildfires can be seen raging during the searing summers of the new millennium. As the oceans warm, vast equatorial hurricanes have smashed North America. In Canada, the Northwest Passage has twice become clear of ice during the last decade.

And the smog is no longer localized. A gunmetal exhalation of coal and fuel smoke blankets China almost daily, extending out across the sea toward the Korean Peninsula, Japan and beyond. We are tracking glaciers retreating, and immense polar icebergs calving into rising waters. Gargantuan sandstorms extend out from expanding deserts, sometimes traversing the breadth of the Atlantic.

Some of the images from NASA's flagship Terra and Aqua satellites are downright heartbreaking. They seem to make the case that we're inexplicably intent on

engineering our own expulsion from the garden, in a kind of late-breaking, self-inflicted Old Testament dismissal. But as five decades of space exploration make clear, there are no other worlds even remotely suitable for human life — at least not in this solar system. We simply have no other place to go.

The mid-Pliocene epoch, some three million years ago, was the last time atmospheric carbon dioxide was at the levels we are now approaching; some scientists estimate that mid-latitude temperatures then were between 16 and 36 degrees Fahrenheit warmer than today, and sea levels may have been up to 115 feet higher. In our own era in the 48 contiguous states, according to the Environmental Protection Agency, 7 of the 10 warmest years since 1901 have occurred since 1998. Welcome to the Anthropocene.

President Obama's speech in June, promising action to reduce greenhouse gas emissions, was welcome, if belated. It may be the best he can do domestically. But nobody pretends it is adequate to the onrushing disaster. Having dodged the bullet of cold war nuclear annihilation, we face a new threat just as global, man-made and potentially lethal. A sense of emergency is what is urgently needed.

President Obama should invite world leaders to an emergency conclave in Washington as early as possible and challenge China, India, Brazil, Indonesia and other major greenhouse-gas emitters to equal or exceed the percentage reductions he seeks for the United States. He should also try to rally the nation and globe in support of an international Manhattan Project, in which the best scientific minds would devise carbon-sequestration technologies that could clean the air of the heating elements we've put there — rather than simply seeking to limit the damage.

Having constructed a civilization capable of observing our still paradisiacal world from objectivity-inducing distances, we need to set aside our squabbles, recognize that we face a species-wide threat, and use our scientific-technical genius to protect the only known home of life in the universe.

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