

# Opinion | A Prophet of Doom Was Right About the Climate

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**T**he night before the day that would make him famous, James E. Hansen listened to a baseball game on the radio. But his mind kept wandering: What would he say to Congress the next day to convey that humans were endangering the planet?

He had long been trying to raise the alarm without success, and so had other scientists. But then, on June 23, 1988 — 30 years ago Saturday — a Colorado senator named Tim Wirth convened yet another hearing on the topic. Dr. Hansen was one of several scientists on the witness list.

Few people had ever heard of him, nor of the obscure NASA unit that he headed. He and a small group of colleagues studied the Earth's climate, working in a suite of offices above the Manhattan diner that "Seinfeld" would later make famous.

He had conducted rigorous studies of historical temperatures, concluding that the planet was warming sharply. He had helped to pioneer computer modeling of the climate, and the results predicted further warming if people kept pouring greenhouse gases into the atmosphere.

June 23 turned out to be a blistering day in Washington, and much of the nation was suffering through a drought and heat wave. Dr. Hansen took his seat in a Capitol Hill hearing room and laid out the scientific facts as best he understood them.

He had thought up a good line the night before, during the Yankees game, but in the moment he forgot to deliver it. When the hearing ended, though, reporters surrounded him, and he remembered.

"It is time to stop waffling so much," he said, "and say that the evidence is pretty strong that the greenhouse effect is here."

His near certainty that human emissions were already altering the climate caught the attention of a sweltering nation, catapulting Dr. Hansen to overnight fame. That year, 1988, would go on to be the hottest in a global temperature record stretching back to the 19th century.

With the perspective of three decades, it is fair to ask: How right was his forecast?

The question defies a simple answer. In 1988, Dr. Hansen had to offer a prognostication not just about how the Earth would respond to greenhouse gases, but also about how much of those gases humans would choose to inject into the air.

**H**e did what any cautious forecaster would do: He offered low, medium and high scenarios. The warming over the past 30 years has indeed fallen well within his upper and lower bounds.

One of Dr. Hansen's scenarios, Scenario B, has turned out to be a reasonably close match for fossil-fuel emissions as they actually occurred. Yet we now know Scenario B predicted too much global warming, by something like 30 percent.

Two reasons for that stand out. One is that Dr. Hansen had assumed a continued increase in certain refrigerant gases that warm the climate. Those gases were ultimately brought under control by a global treaty, the Montreal Protocol — proof that scientific warnings, if taken seriously, can be acted upon at a worldwide scale.

The bigger problem was that the computers he was using in the 1980s could not operate fast enough to give a realistic picture of the upper atmosphere; as a result, his model was most likely overestimating the Earth's sensitivity to emissions. In the years since, computer modeling of the climate, though hardly perfect, has improved.

So while his temperature forecast was not flawless, in a larger sense, Dr. Hansen's 1988 warning has turned out to be entirely on target. As emissions have soared, the planet has warmed relentlessly, just as he said it would; 1988 is not even in the top 20 warmest years now. Every year of this century has been hotter.

The ocean is rising, as Dr. Hansen predicted, and the pace seems to be accelerating. The great ice sheets in Greenland and Antarctica are dumping ever-rising volumes of water into the sea. Coastal flooding is increasing rapidly in the United States. The Arctic Ocean ice cap has shrunk drastically.

If his warning in 1988 had been met with a national policy to reduce emissions, other countries might have followed, and the world would be in much better shape.

But within a few years after he raised the alarm, fossil-fuel interests and libertarian ideologues began financing a campaign of lies about climate research. The issue bogged down in Congress, and to this day that body has taken no action remotely commensurate with the threat.

Dr. Hansen retired from NASA in 2013, but at age 77, he feels his work is not done. Today, from an office at Columbia University, he spends his time fighting the government he once served. He is an expert witness for a lawsuit that young people have filed in Oregon against the federal government, contending that its failure to tackle climate change is a threat to their constitutional rights of life and liberty.

His granddaughter, Sophie Kivlehan, is one of the plaintiffs in the case, which has gotten much farther than many legal experts thought it would. The case may go to trial later this year.

Prophets of impending calamity are rarely thanked for their efforts, especially when they turn out to be right. But Dr. Hansen did receive a form of thanks recently, sharing half of a \$1.3 million prize for his attempts to warn the public about the risks of climate change.

The congressional failure to respond to his warning might be seen now as a harbinger of the political crisis that has since engulfed the United States. How can Congress tackle global warming if it lacks the capacity to solve far smaller problems?

Lately, Dr. Hansen has been thinking about the connection between the political crisis and the climate crisis. He is a strong proponent of a new system of voting, called ranked choice, that has been adopted in many other countries and a few parts of the United States, with the goal of recreating a political center.

"It's very hard to see us fixing the climate," Dr. Hansen said, "until we fix our democracy."

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