

Kerry A. Emanuel, awardee in the Climate Change category (12th edition)

It is my great honor to accept this 12th edition of the BBVA Foundation Frontiers of Knowledge Award in the Climate Change category. It is truly humbling to join the list of highly distinguished scientists who have received this award. We climate scientists have had to learn how to respond to vigorous criticism and worse from some politicians and members of the general public, but we are not so well practiced in accepting any kind of praise. In spite of the troubles we have faced, we all share in the wonderful joy of discovery that lies at the heart of all science. Part of that joy is the chance to share a life of research with colleagues and students. I take this opportunity to thank especially all the terrific students I have worked with over my 43-year career. There is little better in life than shared discovery and the chance to help a few generations of young scientists begin their own careers. I also owe a great debt of gratitude to my wonderful wife of 31 years, Susan Emanuel.

When I first began my research career, climate scientists were free to engage in an unadulterated pursuit of basic understanding, driven by curiosity largely unencumbered by the need to solve immediate societal problems or produce short-term economic returns. Curiosity-driven science has been the engine for most major advances in science and has yielded as well great leaps forward in technology and medicine completely unanticipated at the outset of the research. Without basic science, we would not have such marvels as GPS, whose accuracy is made possible by general relativity, and it would have taken a decade rather than a year to develop the COVID vaccines that have saved millions of lives. Basic science has thrived in several developed nations whose enlightened governments created agencies, such as the National Science Foundation, that promoted science and protected it from being chained to short-term applications.

But the intellectual environment in which climate science was being carried out changed during the late 1980s and 1990s, as it became apparent that anthropogenic climate change poses a serious risk to civilization. Many climate scientists responded to the recognition of this risk by redirecting much of their research efforts into focused attempts to better quantify climate risk, while continuing their efforts to better understand the climate system. To effectively convey their research, they organized, through the United Nations, the Intergovernmental Panel on Climate

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Change (or IPCC) to periodically survey the latest research and summarize it in comprehensive reports. The IPCC is arguably the largest effort ever organized to summarize and convey scientific findings. And while the global ship of state has been slow to change course in response, it is now perceptibly turning onto a path of cleaner and safer energy.

It has been my privilege to contribute to a small piece of our collective advance in understanding weather and climate. And my main desire now is to celebrate continuing advances in climate science and to applaud the BBVA Foundation for establishing a climate change category for its highly prestigious awards. The BBVA Foundation's visible recognition of climate science serves as a beacon for practicing and aspiring climate scientists throughout the world.