

## **The Science of Space Weather**

As our technological civilization becomes more dependent of space technology, we become more vulnerable to changes in the space environment in which that technology functions. These environmental changes are known as “space weather.” In this talk I will discuss what drives space weather and how it affects human activities both in space and on the Earth. I will also discuss recent efforts to create physics-based numerical simulations of the magnetosphere to be used in forecasting space weather.

## **Biography**

Ramon E. Lopez received his B.S. in Physics in 1980 from the University of Illinois, and his Ph.D. in Space Physics in 1986 from Rice University. He is currently a Professor in the Department of Physics at the University of Texas at Arlington (UTA) where he leads a research group that works in both space physics and science education. He is also a Co-Director for the UTeach Arlington teacher preparation program. His current research focuses solar wind-magnetosphere coupling, magnetic storms, and the application of research-based pedagogy to upper division and graduate physics courses. Dr. Lopez is the author or co-author of over 120 peer-reviewed publications, as well as the popular science book “Storms from the Sun” (H-index=35). Dr. Lopez has served on numerous committees of the National Academies, such as the Committee of Solar and Space Physics and the 2012 Decadal Survey Steering Committee, as well as NASA’s Living with a Star Program Steering Committee, among other community service roles. Dr. Lopez is active in promoting science education and diversity in science at all levels. He was one of the Co-Chairs of the writing team that produced the *Next Generation Science Standards*, and he is the current Chair of the College Board Science Advisory Committee. He has also served on several scientific or education-related committees of the American Geophysical Union, the American Physical Society (APS), the National Academy of Sciences, the American Association for the Advancement of Science (AAAS), the American Association of Physics Teachers (AAPT) and he has served as a member of the Board of Directors of the Society of the Advancement of Chicanos and Native Americans in Science (SACNAS). He is the President of the National Society of Hispanic Physicists for 2018 and 2019. Dr. Lopez has won numerous awards for his work in both space physics and science education, including the 2002 APS Nicholson Medal, the 2010 SACNAS Distinguished Scientist Award, the 2012 APS Edward A. Bouchet Award, two NASA Group Achievements Awards, the 2018 Great Minds in STEM Education Award, and he is a member of the UT System Academy of Distinguished Teachers. Dr. Lopez is a Fellow of the APS, the AAAS, and the AAPT.