

Contact: Diana Gonzalez

**RESEARCH FACULTY PRESENTATION AT THE UNIVERSITY OF IOWA:  
“IMPROVING AIR POLLUTION AND WEATHER PREDICTIONS USING BIG DATA”**

**Action Requested:** Receive the presentation.

**Executive Summary:** Air pollutants affect human health in a negative manner. They also influence the Earth’s weather and climate systems. The discussion by Professor Gregory Carmichael will focus on the use of big data to advance air quality and weather predictions. A brief discussion of informatics activities at the University of Iowa, accelerated by the Informatics Cluster, will also be presented.

Professor Carmichael is the Karl Kammermeyer Professor Chemical and Biochemical Engineering at the University of Iowa. He received his Bachelor of Science degree in chemical engineering from Iowa State University in 1974 and his master’s degree and Ph.D. in chemical engineering from the University of Kentucky in 1975 and 1979, respectively.

His research is focused on air pollution and climate change, where he uses comprehensive computer models and big data to simulate the interactions of air pollutants with weather and climate and to estimate resulting environmental impacts. His models are also used to evaluate effectiveness of various air pollution and climate change mitigation strategies. He has authored or co-authored more than 340 scientific publications, as well as six books and monographs, and mentored 36 master’s degree students and 38 doctoral students.

Professor Carmichael serves on numerous international advisory boards related to climate forecasting and atmospheric science, including NASA’s Earth System Subcommittee. He is chair of the scientific steering committee for the environmental programs at the United Nations World Meteorological Organization.

He is the director of the University of Iowa Informatics Initiative, a campus-wide effort established in 2014 to foster collaborations and open new research and scholarship opportunities across campus. He is also the co-director of the Center for Global and Regional Environmental Research (CGRER), which he co-founded in 1990. CGRER is a state-funded institute to study and better the environment.

Professor Carmichael is a fellow of the American Institute of Chemical Engineers (AIChE) and was the 2012 recipient of the AIChE Lawrence K. Cecil Award, which recognizes outstanding chemical engineering contribution and achievement in the preservation or improvement of the environment. He received the University of Iowa College of Engineering Outstanding Research Award in 1999, the Iowa Board of Regents Faculty Recognition Award in 1998, and the International Atmospheric Science and Application to Air Quality Research Recognition Award in 1998. He received a NASA Group Achievement Award in 2005 and 2009; in 2016, he was named to the University of Kentucky Hall of Distinction.