News Release

June 18, 2024

Knepper presents advances in weather modeling technology at the International Conference on Digital Government Research

Taipei, Taiwan - Rich Knepper, principal investigator of the I-WRF project and director of Cornell University's Center for Advanced Computing, showcased the latest advances in weather modeling technology at the 25th Annual International Conference on Digital Government Research. Held from June 11-14 at National Taiwan University, Knepper presented "I-WRF: Containerized Framework for Weather Modeling, Verification, and Visualization." His presentation was part of an esteemed panel discussing "Cyberinfrastructure Innovation Supporting Research, Equity, and Discovery."

Knepper presenting I-WRF weather modeling technology at International Conference on Digital Government Research

Knepper emphasized the critical importance of accurate weather prediction for national interests such as trade, transportation, agriculture and public safety. "The scarcity of training atmospheric scientists poses a significant challenge," he noted. "Current methods for using the Weather Research and Forecasting Model (WRF) are complex, requiring knowledge of multiple compiler frameworks. About 50% of new users have difficulty completing tutorials at the National Center for Atmospheric Research (NCAR) due to challenges in compiling WRF."

To tackle these issues, Knepper leads a collaborative effort between Cornell University and NCAR to develop "I-WRF." This integrated framework combines WRF with METplus for enhanced verification and visualization capabilities within a containerized environment. "I-WRF will democratize access to advanced atmospheric simulations," Knepper explained. "It simplifies usage across diverse research disciplines, enabling multi-node, large-scale simulations on cloud platforms and supercomputers while facilitating training for new atmospheric scientists directly on laptops."

"Our mission is to broaden participation in atmospheric science," Knepper added. "This necessitates accessible training resources and scalable solutions."

Initial applications of I-WRF include studying the effects of urban land use on extreme weather events and evaluating the impact of climate change on renewable energy resources like wind and solar power as well as the air quality in urban corridors.

Knepper & Taoyuan Mayor Chang San-cheng

For more information on I-WRF and advancements in weather modeling technology and training, please visit https://i-wrf.org or contact Rich Knepper at help@cac.cornell.edu.