EAM QuickView V1.0.0 (Aug. 25, 2025)

BER/ASCR SciDAC Partnership (PAESCAL)
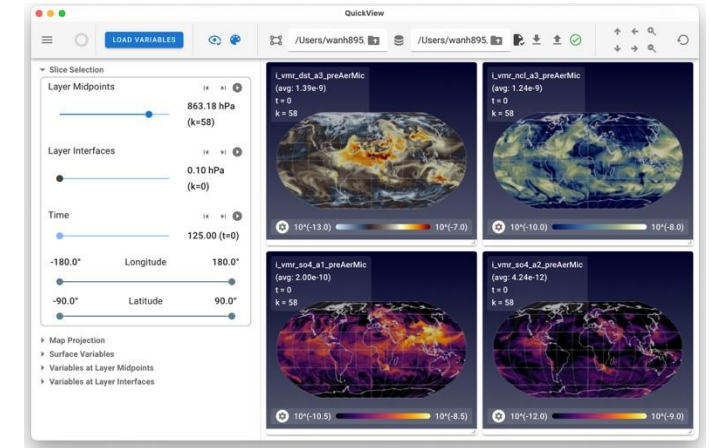
Scientific Achievement

- Developed a user-friendly visualization tool for EAM, the atmosphere component of DOE's Energy Exascale Earth System Model.
- Enabled simultaneous push-button inspection of many variables with the ability to restore prior work for continued analysis.

Significance and Impact

- The development and maintenance of complex numerical models like EAM requires analysis of numerous variables and their relationships. While scripting is tedious and distracting, advanced tools are not yet widely used by atmospheric scientists due to steep learning curves.
- Intuitive and interactive data exploration enabled by QuickView substantially speeds up model developers' workflow for quick inspection and code debugging.
- This deep collaboration between Industry and lab – and between computer scientists and physical scientists – has led to an interface strategy that is generally applicable to many disciplines.

Technical Approach

- Python and Trame are used to create a simple and intuitive User Interface (UI) to ParaView, a powerful, sophisticated, and general-purpose visualization tool.
- A lightweight UI targeted at a typical workflow helps to make QuickView easy to use.

A screenshot of the new visualization app EAM QuickView, which offers atmospheric scientists a lightweight, highly customized, and intuitive interface to ParaView. It facilitates atmospheric model development without the steep learning curve of modern visual analytics