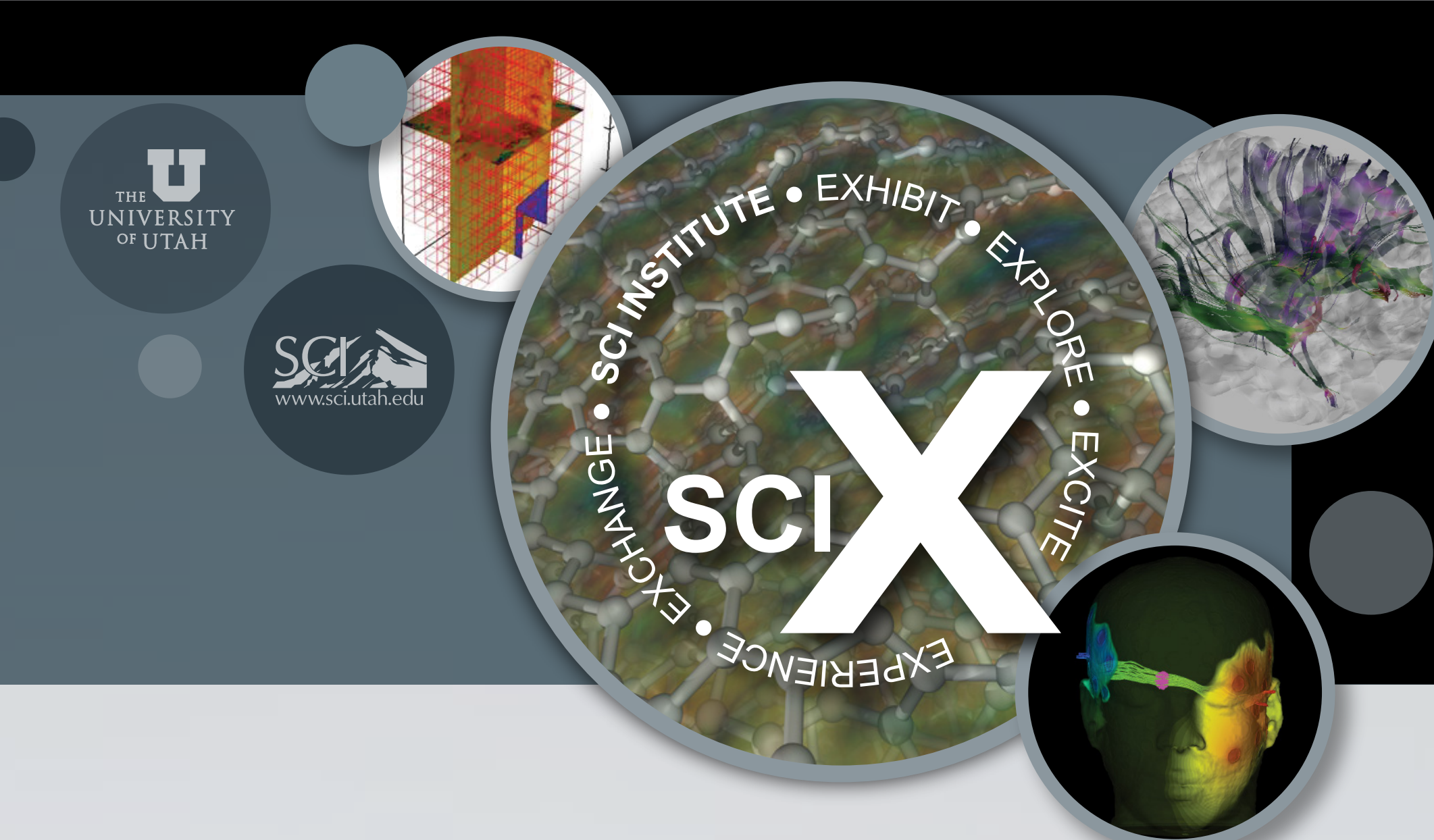


Interactive Analysis of Petascale Climate Datasets

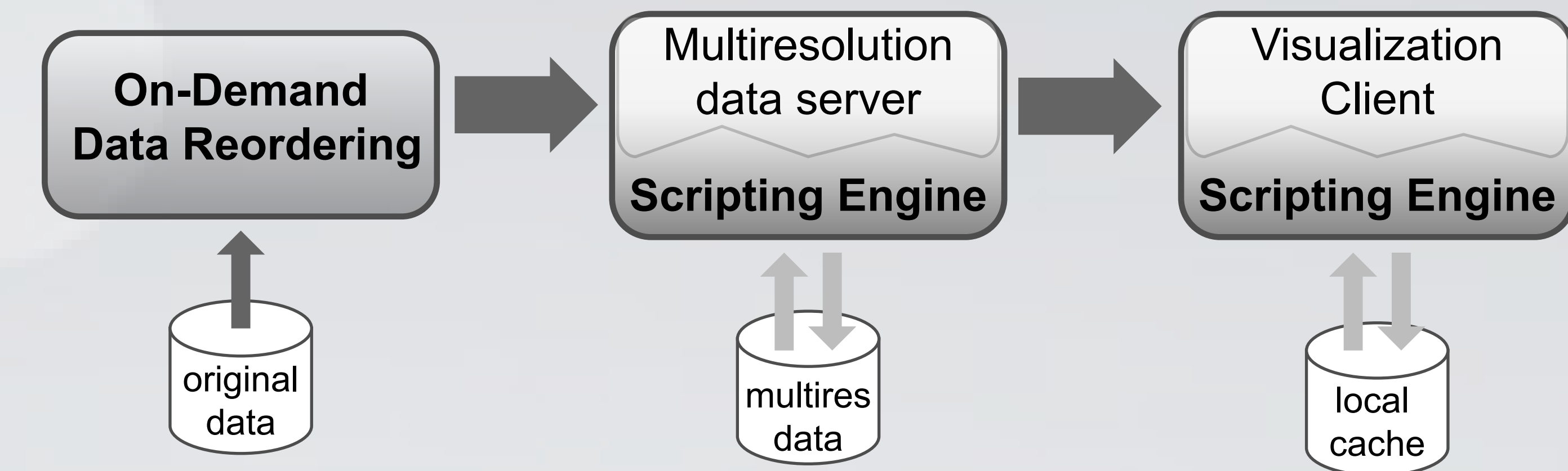
Cameron Christensen, Shusen Liu, Peer-Timo Bremer, Valerio Pascucci



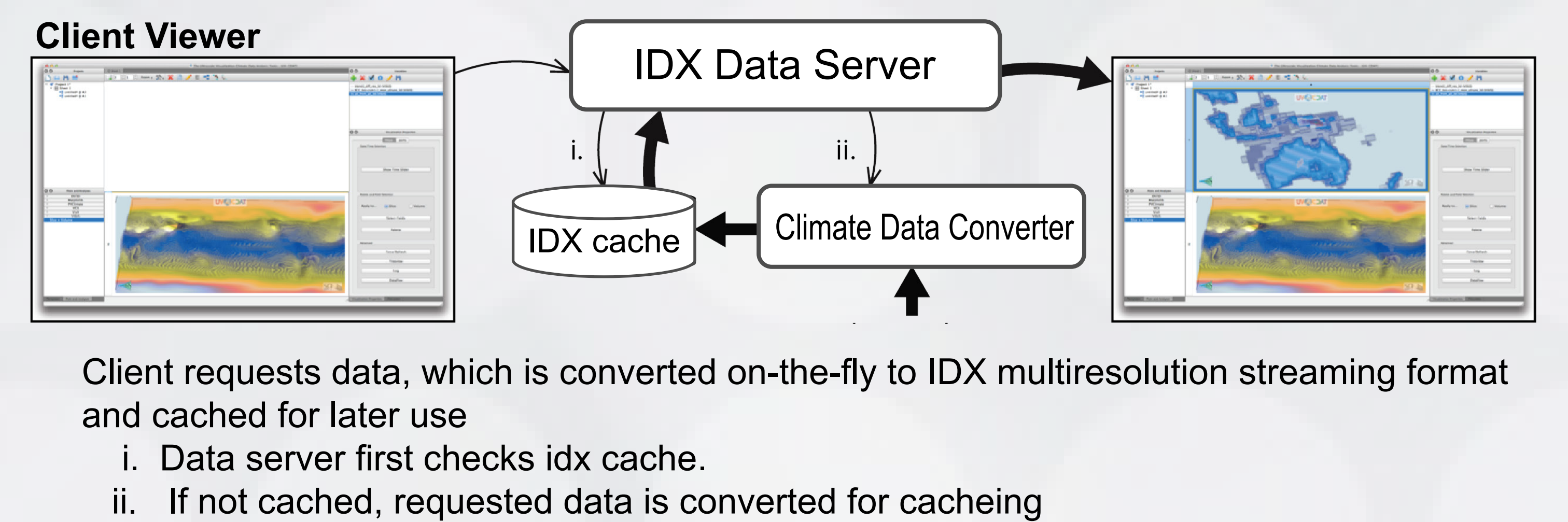
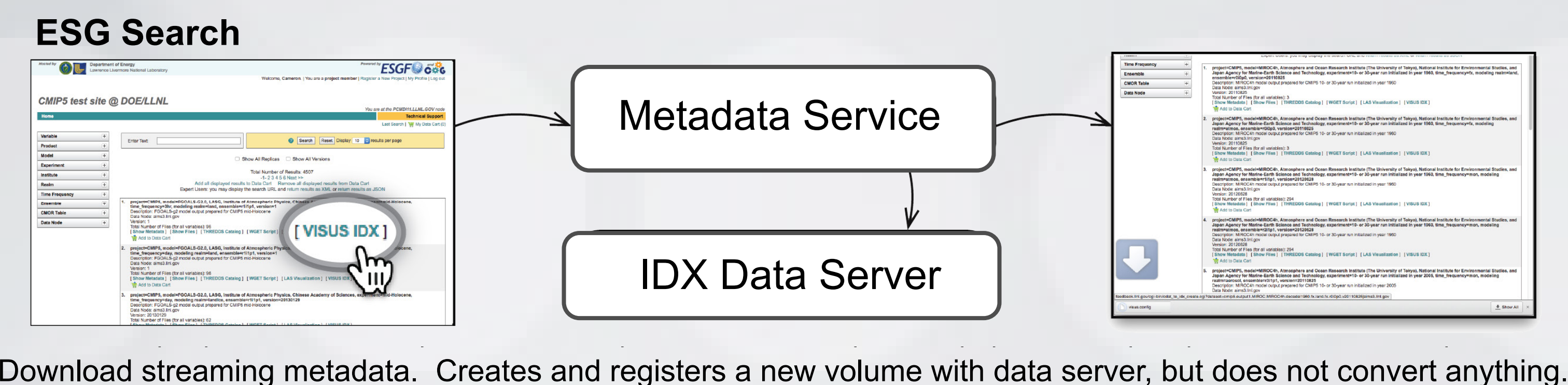
Challenge: Interactive Analysis of Petascale Datasets

- Spatiotemporal datasets, such as **global climate simulations**, are large and remotely located.
 - Offline batch processing using large computing clusters means analyses can take **hours to days**.
 - Many communities are simply unable in any practical way to analyze large datasets.
- Problems result in **limiting exploratory investigation**.

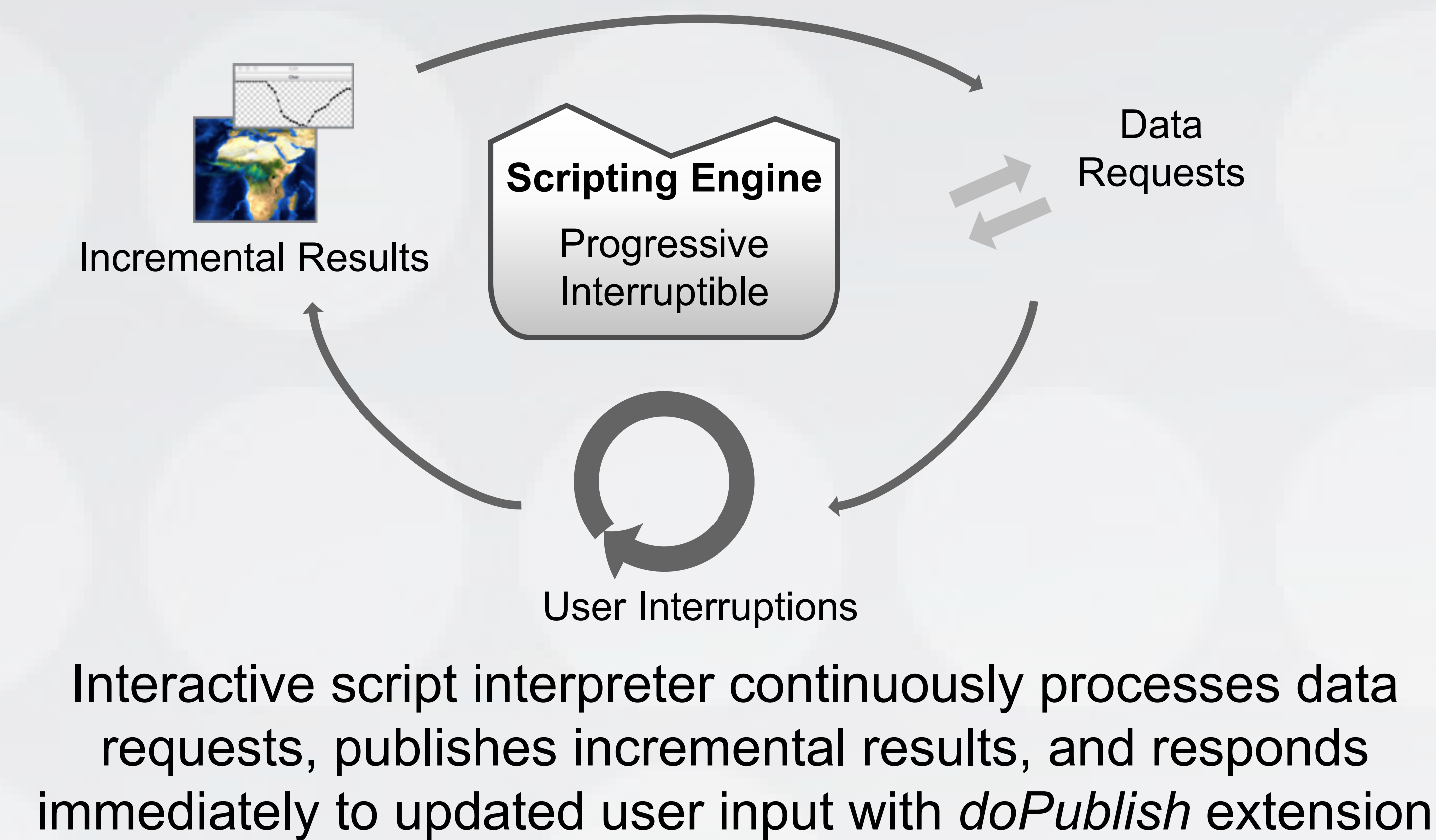
Solution: Embedded Domain-Specific Language (EDSL) for Incremental Multiresolution Processing enables interactive analysis and visualization of massive, disparately-located data.



On-Demand

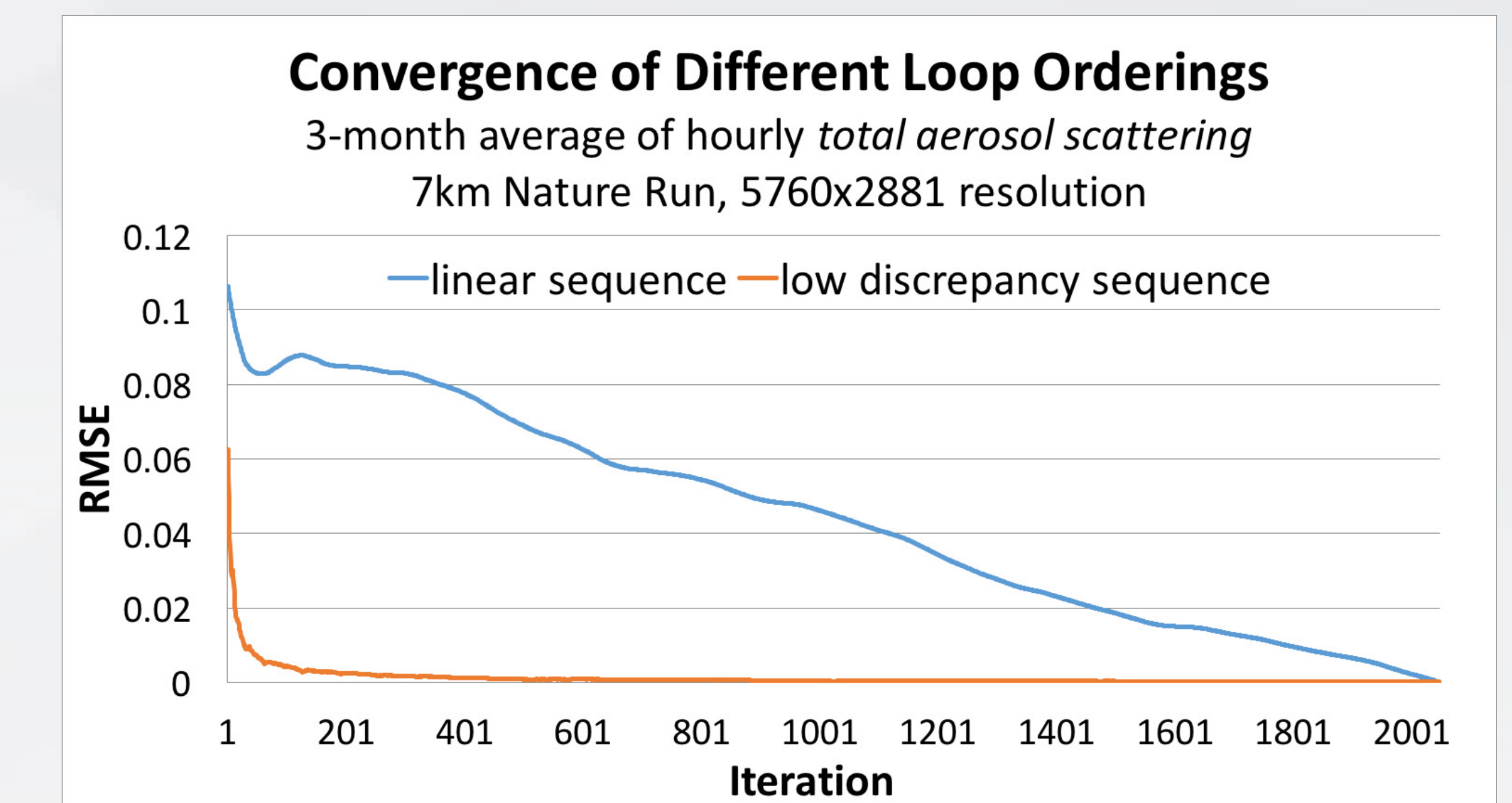


Scripting Engine



Loop reordering

Faster convergence of incremental results with alternate loop orders



Case Studies

Compare massive disparately located spatiotemporal datasets



Climate scientists used our EDSL to quickly discover previously unknown errors in a widely-used dataset: the first day of each month of the 3D fields in the dataset was mistakenly repeated for the rest of the days!

