



Challenges in Development of Online Visualization and Analysis Tools for Satellite Data

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Motivations

- Fast and easy access to data archives at NASA DAACs (Distributed Active Archive Center) to maximize the use of satellite and other datasets
- Explore a large collection of satellite and other datasets at NASA DAACs
- Multidisciplinary research and applications
- Users at different levels, especially non-professional users (students, citizens, etc.) around the world



Challenges

- NASA data and systems are evolving (file size, data structure, format, spatiotemporal resolution, etc.)
- Data are archived at different discipline-based DAACs across the U.S.
- Visualization and analysis tools available only for specific missions/datasets
- Barriers in interdisciplinary research and applications (e.g., definitions, vocabularies, units)
- Access difficulty for users at all levels, particularly for non-professionals (e.g. students, citizens)
- Orbital dataset search, visualization and analysis
- Personalized features (preferences, order history, customized services, etc.)
- Difficult to upload personal data for analysis and visualization



Solutions

- Collection and analysis of use cases and requirements from different disciplines
- Collect best practices and develop testbeds
- Standard development and common tools (Giovanni, Panoply, etc.). Fewer and better.
- User experience improvement
- Involvement from interdisciplinary scientists
- Close collaboration among users, data scientists and software developers
- State-of-the-art technologies such as natural language processing (NLP) to simplify user interfaces