The continuum of ever-evolving data management systems affords great opportunities to the enhancement of knowledge and facilitation of science research. To take advantage of these opportunities, it is essential to understand and develop methods that enable data relationships to be examined and the information to be manipulated.

This presentation describes the efforts of the Earth Science Information Partners (ESIP) Federation Earth Science Data Analytics (ESDA) Cluster to understand, define, and facilitate the implementation of ESDA to advance science research. As a result of the void of Earth science data analytics publication material, the cluster has defined ESDA along with 10 goals to set the framework for a common understanding of tools and techniques that are available and still needed to support ESDA.

In short, we have a lot of heterogeneous data that we really have not provided opportunity for users to holistically 'mine'.

ESIP Federation Earth Science Data Analytics: Definition

The process of examining, preparing, reducing, and analyzing large amounts of spatial (multi-dimensional), temporal, or spectral data encompasses a variety of data types to uncover patterns, correlations and other information, to better understand our Earth.

The five types of Data Analytics that describe Business Analytics (descriptive, predictive, etc.), do not fit the science paradigm.

For Earth Science:

- We do not necessarily come up with the answers, but typically come up with discoveries that explain, at least for now, an answer.
- Analytics are goal oriented