Technical Challenges and Lessons from the Migration of the GLOBE Data and Information System to Utilize Cloud Computing Service

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Global Learning and Observations to Benefit the Environment (GLOBE)

- Worldwide network of primary and secondary school-based science and education program
- Promotes and supports teachers, students and scientists to collaborate on inquiry-based investigations of the environment and earth system
- Environmental measurements in Atmosphere/Climate, Hydrology, Land/Oceans, Biology, Soils, and Phenology
- Began in April 1995 as a partnership between NASA, NOAA, NSF
- Grew to more than 48,000 trained teachers, 26,000 schools, 1.5 million students

GLOBE Data and Information System (DIS)

Top Functional Requirements

1. Provide training and material on the use of GLOBE, including measurement protocols
2. Receive, check, accept, and maintain observations entries compliant with protocols
3. Ingest data from automated weather stations and other sensors
4. Maintain records across protocols (over 127 million since 1995)
5. Visualize observations on a map
6. Provide data analysis tools, graphs, and data access tools via search and filtering
7. Export observations recorded across protocols
8. Enable user entry from mobile apps
9. Recognize contributions of GLOBE-trained students and teachers
10. Administer workshops, science days, help desk, email, mass mailing

GLOBE Data and Information System (DIS) Modernization

- In 2010, NASA Goddard asked to lead the evolution of the GLOBE DIS to a new architecture, software, and information technologies to achieve program goals.
- The Goddard-GLOBE DIS Team was formed and partnered with UCAR to develop a new enterprise portal, web application framework, and modern visualization and graphics features.
- Migration to new system completed July 2012

GLOBE Transition Objective, Tasks, Milestones

In 2013, NASA Goddard Science Data Systems was asked to transition the GLOBE DIS from UCAR to ensure its long-term stability, integrity, and continued improvement.

Launch Readiness Checklist and Responsibilities

AWS S3 Skills & Level

- Great support from GSI
- No significant change in GSI learning due to transition

Skills change in transition to GSI

- No significant change in GSI learning due to transition