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DataONE: A Distributed Environmental and Earth Science Data Network Supporting the Full Data Life Cycle

R. Cook (1), W. Michener (2), D. Vieglais (3), A. Budden (2), and R. Koskela (2)

(1) Oak Ridge National Laboratory, Environmental Sciences Division, Oak Ridge, TN, United States (cookrb@ornl.gov), (2) University Libraries, University of New Mexico, Albuquerque, NM 87106, United States, (3) Natural History Museum, The University of Kansas, Lawrence, KS 66045-7518, United States

Addressing grand environmental science challenges requires unprecedented access to easily understood data that cross the breadth of temporal, spatial, and thematic scales. Tools are needed to plan management of the data, discover the relevant data, integrate heterogeneous and diverse data, and convert the data to information and knowledge. Addressing these challenges requires new approaches for the full data life cycle of managing, preserving, sharing, and analyzing data. DataONE (Observation Network for Earth) represents a virtual organization that enables new science and knowledge creation through preservation and access to data about life on Earth and the environment that sustains it. The DataONE approach is to improve data collection and management techniques; facilitate easy, secure, and persistent storage of data; continue to increase access to data and tools that improve data interoperability; disseminate integrated and user-friendly tools for data discovery and novel analyses; work with researchers to build intuitive data exploration and visualization tools; and support communities of practice via education, outreach, and stakeholder engagement.