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UNAVCO Data Center Initiatives in CyberInfrastructure for Discovery, Services, and Distribution of Data and Products

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The UNAVCO Data Center in Boulder, Colorado, archives for preservation and distributes geodesy data and products in the GNSS, InSAR, and LiDAR domains to the scientific and education community. The GNSS data, which in addition to geodesy are useful for tectonic, volcanologic, ice mass, glacial isostatic adjustment, meteorological and other studies, come from 2,500 continuously operating stations and 8000 survey-mode observation points around the globe that are operated by over 100 U.S. and international members of the UNAVCO consortium. SAR data, which are in many ways complementary to the GNSS data collection have been acquired in concert with the WInSAR Consortium activities and with EarthScope, with a focus on the western United States. UNAVCO also holds a growing collection of terrestrial laser scanning data.

Several partner US geodesy data centers, along with UNAVCO, have developed and are in the process of implementing the Geodesy Seamless Archive Centers, a web services based technology to facilitate the exchange of metadata and delivery of data and products to users. These services utilize a repository layer implemented at each data center, and a service layer to identify and present any data center-specific services and capabilities, allowing simplified vertical federation of metadata from independent data centers.

UNAVCO also has built web services for SAR data discovery and delivery, and will partner with other SAR data centers and institutions to provide access for the InSAR scientist to SAR data and ancillary data sets, web services to produce interferograms, and mechanisms to archive and distribute resulting higher level products. Improved access to LiDAR data from space-based, airborne, and terrestrial platforms through utilization of web services is similarly currently under development.

These efforts in cyberinfrastructure, while initially aimed at intra-domain data sharing and providing products for research and education, are envisioned as potentially serving as the basis for leveraging integrated access across a broad set of Earth science domains.