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DAS Data Management Challenges and Needs

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Distributed Acoustic Sensing (DAS) is a relatively recent technology that has the capability to collect seismic (and other data) time series data using optical fiber as sensors. These optical fibers may be custom deployments or re-purposed telecommunication fibers. The range of applications is increasing rapidly, and recent studies include subsurface monitoring, earthquake hazard, geotechnical engineering, and ice flow. As the number of uses and studies increase, it is expected that the need for archiving of the datasets will also increase. Archiving of DAS faces multiple challenges at present. These include the need for large amounts (100's TB) of storage, associated data transport and processing, and a standardized metadata format. As part of the DAS Research Coordination Network (RCN), a DAS data management working group is constructing a metadata model for DAS data that will address these needs. The objective is to develop a common metadata standard for archival purposes and guide data collection at experiments. The metadata requirements include: 1) accommodation of most use cases (data collection scenarios); 2) permitting of cloud-based processing; 3) allowing of pre-processing; and 4) reduction of the burden of data transport. Standard metadata principles, such as findability, accessibility, interoperability, reusability (FAIR), and machine-readability, will be adhered to. The purpose of this presentation is to inform potential users of these efforts, encourage adoption of the proposed standard, and invite community input.

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