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# S21G-3479 DASCore: An open-source Python library for distributed acoustic sensing

 Tuesday, 10 December 2024

 08:30 - 12:20

 *Hall B-C (Poster Hall) (Convention Center)*

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## Abstract

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Distributed acoustic sensing (DAS) technology has driven transformative advancements in geoscience research. In recent years, its range of monitoring applications has expanded remarkably, impacting fields such as hydrocarbon exploration, hydrology, cryoseismology, urban geophysics, and earthquake seismology. Despite this progress, the lack of mature open-source software for DAS data has led to repetitive efforts in data management and processing. It also demands a relatively high level of programming skills from DAS users, further compounded by the large volumes of recorded data. To address this, we have developed DASCore, an open-source Python library designed to streamline working with DAS data. DASCore simplifies reading and handling multiple DAS file formats and archives, implements an object-oriented interface for performing common data processing and transformation routines, and supports simple data visualization. Additionally, DASCore integrates with other Python-based tools that enable the processing of massive datasets in cloud environments. With its object-oriented design, extensive automated testing, and comprehensive documentation, DASCore serves as the foundational library of the DAS Data Analysis Ecosystem (DASDAE). This initiative aims to facilitate the development of other DAS application-based packages by fostering a collaborative environment of DASCore-compatible software.

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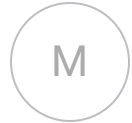
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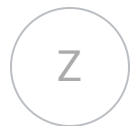
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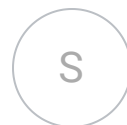
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