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Sharing Field Campaign Data using IPFS

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In the recent atmospheric and oceanic measurement campaigns (EUREC4A and ORCESTRA), we use the InterPlanetaryFileSystem (IPFS) to store, use, synchronize and share measurement data. IPFS uses content addressing (instead of location-based addressing) and provides an easy-to-set-up peer-to-peer network for sharing data on servers and portable devices.

Because of these features, we were able to immediately start collaborating on newly collected data using local network connections while in the field. At the same time, the data was continuously synchronized with external data centers so that it was also available to outsiders. Since the data is addressed globally by content (CID), data access remains unchanged regardless of where the data is stored or analyzed. Scripts using the data could therefore be exchanged immediately between participants on site and remotely, and of course still work after we have dismantled our infrastructure in the field.

We plan to continue to build on our practical experience and develop more tools and user interfaces around the current setup. This should eventually lead to a replacement of the currently used data management platform, which was previously used to store the data recorded by the research aircraft.

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