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Geophysical fluid data publication, search, visualization, and interactive knowledge accumulation: Gfdnavi

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In recent years, many data centers and research groups provide data on geophysical fluids such as the atmosphere and oceans through the Internet along with on-line visualization. However, their services are not available once data files are downloaded. This paper presents open-source software named Gfdnavi developed to reduce the limitation and to support data handling beyond initial quick-looks. Gfdnavi extracts metadata from scientific data and stores them in a database. They can be accessed with web browsers for search, analysis, and visualization. It supports a wide range of usage such as public data services, group data management, and desktop use. As its unique feature, Gfdnavi supports writing and archiving documents based on knowledge obtained through data analysis. The documents are linked with the original data and analysis/visualization procedures. It has a wide variety of applications such as interdisciplinary- and collaborative-study support, a realization of falsifiability, and educational use.

Keywords: Data server, Geophysical fluid, Visualization, Web application, Knowledge archive