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Open Source Platform for Federated Spatiotemporal Analysis

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In recent years, NASA has invested significantly in developing an Analytics Center Framework (ACF) to encapsulate the scalable computational and data infrastructures and to harmonize data, tools and computation resources to enable scientific investigations. Since 2017, the Apache's Science Data Analytics Platform (SDAP) (<https://sdap.apache.org>) has been adapted by various NASA-funded projects, including the NASA Sea Level Change Portal, GRACE and GRACE-FO missions, the CEOS Ocean Variables Enabling Research and Applications for GEO (COVERAGE) Initiative, etc. With much of existing approaches to Earth Science analysis are focusing on collocating all the relevant data under one system, running on the cloud, this open source platform empowers the global data centers to take on a federated analytics approach. With the growing community of SDAP centers, it is now possible for researcher to interactively analyze observational and model data hosted on different centers without having to collocate or download data to their own computing environment. This talk discusses the application of this professional open source big data analytics platform to establish a growing community of SDAP-based ACFs to enable distributed spatiotemporal analysis from any platform, using any programming languages.