



Who will use your API?

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Since 2010, the Marine Institute has been delivering data over an HTTP REST-like Application Programming Interface (API) by brokering a number of data sources through an instance of NOAA's Erddap data server software¹ (Simons, 2016). These data sources are wide ranging and include relational databases; no-SQL databases; and NetCDF files behind Thredds servers (Leadbetter et al., 2016). Providing access to these data through Erddap has allowed the development of integrated data portals, such as Ireland's Digital Ocean², which received 13,000 visits from 6,400 users in 2017; with usage peaking at the time ex-hurricane Ophelia made landfall in Ireland.

As powerful as a data broker like Erddap is, it does not fit neatly into modern software development paradigms as a data access source, nor does it lend itself to being easily integrated as a data source into virtual research environments (including Jupyter notebooks) by scientists.

In this presentation we will demonstrate how we have attempted to bridge the gap between data broker interface and end user. The bridging has taken the form of exposing the Erddap API through a GraphQL endpoint. GraphQL is a data query language for APIs, developed by Facebook since 2012. While GraphQL provides a flexible means to explore an API, in usage it also requires a different mindset to traditional APIs and software development. To ease this transition we have developed, and will demonstrate, GraphQL translators to JavaScript; Matlab; Python; and R which allow for code to be copied and pasted and for greater uptake of the API by a wider range of audiences.

References

Leadbetter, A.M.; Smyth, D.; Fuller, R.; O'Grady, E.; and Shepherd, A. (2016). Where Big Data meets Linked Data: Applying standard data models to environmental data streams. In *2016 IEEE International Conference on Big Data*: 2929-2937.

Simons, R.A. (2016). *ERDDAP*. <https://coastwatch.pfeg.noaa.gov/erddap> . Monterey, CA: NOAA / NMFS / SWFSC / ERD.

¹<http://erddap.marine.ie>

²<http://www.digitalocean.ie>