A tool to increase the efficiency of access to satellite remote sensing observations

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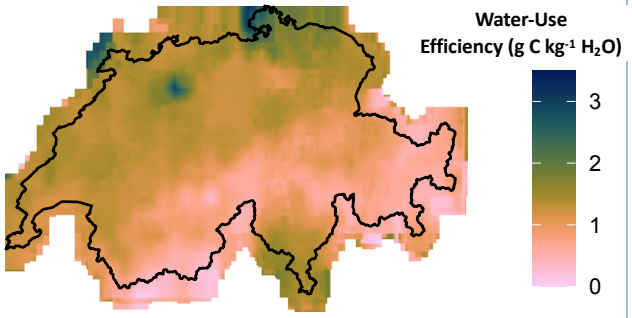
Accessing Remote Sensing Data

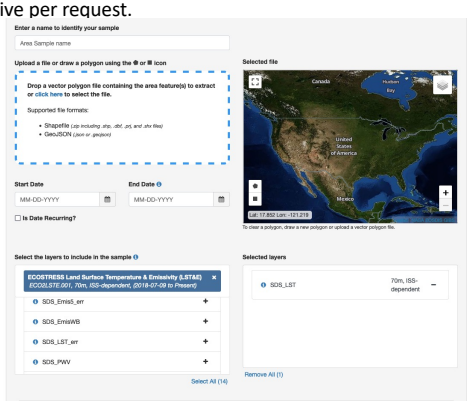


A number of web-based platforms have emerged for accessing remote sensing observations. These platforms increase the ease-of-access, particularly where access via file transfer protocol server (FTP) or application programming interface (API) is not preferable. .

Among these tools, AppEEARS (https://appeears.earthdatacloud.nasa.gov/) is a web-based NASA application that allows users to access point and area data from products including:

- ***-ASTER***
- ***-DAYMET***
- ***-ECOSTRESS***
- ***-LANDSAT***
- ***-MODIS***
- ***-SENTINEL***
- ***-SMAP***
- ***-VIIRS***

The key **problem** is that even through AppEEARS is exceptionally easy to use, it limits the maximum amount of data the user can receive per request.



Auto-AppEEARS

We developed Auto-AppEEARS to automate the process of downloading data from AppEEARS, allowing the user to significantly reduce the amount of time spent downloading spatial data.

QR Code to Access Open-Source Auto-AppEEARS

-Auto-AppEEARS uses Selenium Webdriver to assume remote control of your Mac or PC computer.

-The tool allows you to input a shapefile specifying the geographic extent of the data you wish to request.

-A script is run through Python that opens an interface where the user specifies their username/password and the timeframe. The script automatically makes successive request as soon as it determines that the previous request has been lodged.

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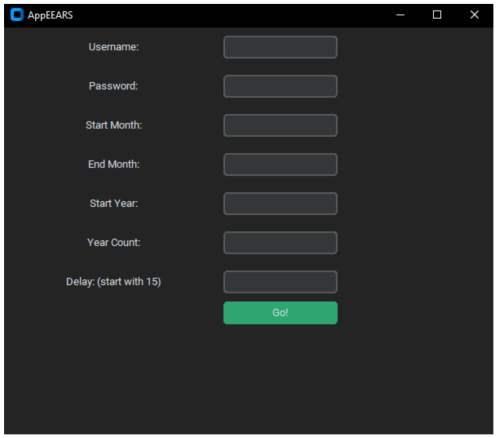


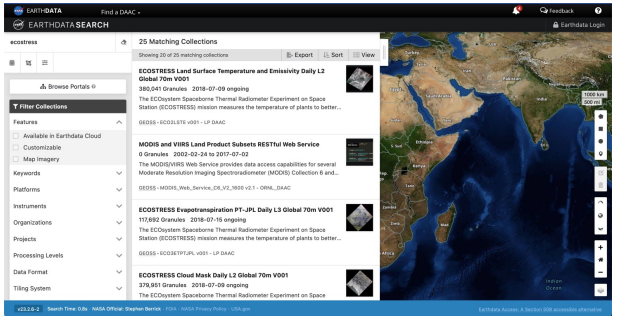
The Need for New Tools

The need to prevent misuses of AppEEARS creates limitations for those looking to engage with large spatial data sets.

Whereas requesting a single day of spatial data on a single data product using AppEEARS may take 30-60 seconds, requesting years of the same data using the tool (once setup) now takes only 30-60 seconds.

Receiving the data still requires the same amount of time and downloading the data from the AppEEARS website is still not automated.

Other platforms for accessing data (e.g., LP DAAC, NASA EarthData, USGS Earth Explorer) exist and have advantages and disadvantages.



Important need to balance flexibility and ease-of-access in designing interfaces. Unlikely that one size will fit all.

Next Steps

Currently developing a Python script that uses the AppEEARS API to facilitate a similar automated process and will generate a webapp for access (https://github.com/szykozlowski/).

Welcome feedback and contributions for the tools, as well as instances of frustrating use cases that we may be able to address moving forward.

Broader discussion of the need to build open access to publicly-funded remote sensing products while ensuring that access is not abused.

Acknowledgements

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