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

Szymon Kozlowski, Joshua B. Fisher, Christopher Doughty & Gregory R. Goldsmith

**Introduction:** The Application for Extracting and Exploring Analysis Ready Samples (AppEEARS) is a web-based platform provided by NASA and USGS for facilitating access to satellite remote sensing data. Many of the available data products, which include Aqua and Terra MODIS, ASTER, ECOSTRESS, DAYMET, SMAP, Landsat, and Sentinel-2 missions, are relevant to ecological studies. However, while users can make multiple requests for data using AppEEARS, the website limits the amount of data that it will provide per user request. As such, the web-based interface is such that making repeated requests requires a significant investment in time. Here, we present a tool that utilizes a script that drives remote control of the computer to automate the process of requesting large amounts of spatial data from AppEEARS.

**Methods:** The tool, which is written in Python using browser automation from Selenium, provides the user with a GUI where they can input their login credentials, specify the type of data they wish to access, and provide a timeframe and spatial extent. The script then parses the data and uses remote desktop control to repeatedly ask for additional sequential data. The script has been tested on both Windows- and Mac-based platforms and has a working .exe for Windows. Instructions and files are made freely available via GitHub.

**Results:** Whereas requesting a single day of spatial data on evapotranspiration, soil moisture, or primary productivity may take 30-60 seconds, requesting years of the same data using the tool (once setup on the user’s computer) will now take 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.

**Discussion:** Ecologists are increasingly engaging satellite remote sensing data to address their questions, creating a need for tools that facilitate the collection and organization of large amounts of data with minimal manual processing. Our tool provides one simple method for increasing the efficiency of engaging with these data sources.