

Abstract

This bachelor thesis concerns the design of a web GIS application tailored for tree-ring chronology data processing. It describes the development of a script tool in Python computing the medians of Cropper values from input dendrochronological data. The medians then enter a regression function. The approximated values obtained by the regression are afterwards interpolated within a region in the north of the Kokořínsko protected landscape area, designated for this case study. The procedure of publishing the tool as a geoprocessing service at an ArcGIS Server is described next, as well as its subsequent use within a preset sample widget. The customized widget with the geoprocessing service connected to it is then embedded into a web application created in the ArcGIS Web AppBuilder environment. The functionality of the application is designed to allow the presentation of geoprocessing service analysis results.

Keywords: dendrochronology, Cropper values, tree-ring chronologies, spatial regression, spatial interpolation, web application, web GIS, ArcGIS Pro, ArcGIS Enterprise, ArcGIS Server, geoprocessing service, web tool, Python script, arcpy module, Web AppBuilder, custom widget