DIGITAL MAPPING TECHNIQUES 2024

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The USGS Intermountain West Seamless Geologic Map Explorer Publication Process

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The USGS Geologic Framework of the Intermountain West project is developing new methods of data delivery through the use of web applications that can be updated with new and revised geologic map data. Hosted feature services can be published to ArcGIS Online (AGOL) and used in web applications, but the process has been challenging as a result of limited documentation. Has this process improved enough such that it can be utilized to deliver data in an efficient and timely manner? Intermountain West project workflows incorporate a multi-user, enterprise geodatabase for collaborative geologic mapping using SIGMa-GeMS. Once peer reviewed and bureau approved, completed areas of geologic mapping are clipped from the enterprise geodatabase using custom built python tools. Geologic mapping is published as stand-alone geologic map databases, that once published, are integrated into a "seamless" geologic map.

The Intermountain West Seamless Geologic Map Explorer is built using ESRI Experience Builder. Development of the map explorer using Experience Builder proved to be more cost-effective approach compared to developing a fully customized web application from the ground up. However, limitations in Experience Builder compromise data linkages between feature classes and non-spatial tables that rely on relationships. To reduce dependencies on relationships, workflows were developed to flatten attributes from non-spatial tables into feature classes that are published to AGOL hosted feature services. Repetition of this process if performed manually can introduce inconsistencies that would impact functionality of the map explorer. To eliminate user error from this process, a workflow was designed for exporting and publishing data to AGOL using Model Builder in ArcPro.

Implementing Model Builder to automate these workflows ensures consistent schema and data content for each iteration as new data are added to the seamless database. As Experience Builder incorporates new capabilities, functionality in the map explorer can be expanded; feature services published using this workflow can be modified with simple changes in Model Builder to accommodate changes to the map explorer.

Link to the Geologic Framework of the Intermountain West website:

https://www.usgs.gov/centers/geosciences-and-environmental-change-science-center/science/geologic-framework

Link to the Intermountain West Seamless Geologic Map Explorer:

https://apps.usgs.gov/intermountain_west_seamless_geologic_map_explorer/