

Geospatial GIS Application for Environmental Data

Sponsor: Center for Environmental Research, Education & Outreach

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Abstract

- The CEREO Living Atlas is a unified, map-based platform for viewing and uploading environmental data.
- It was originally built to give CEREO a simple, accessible tool to support environmental research.
- Our team enhanced the existing Atlas by improving usability, expanding GIS capabilities, and resolving issues.

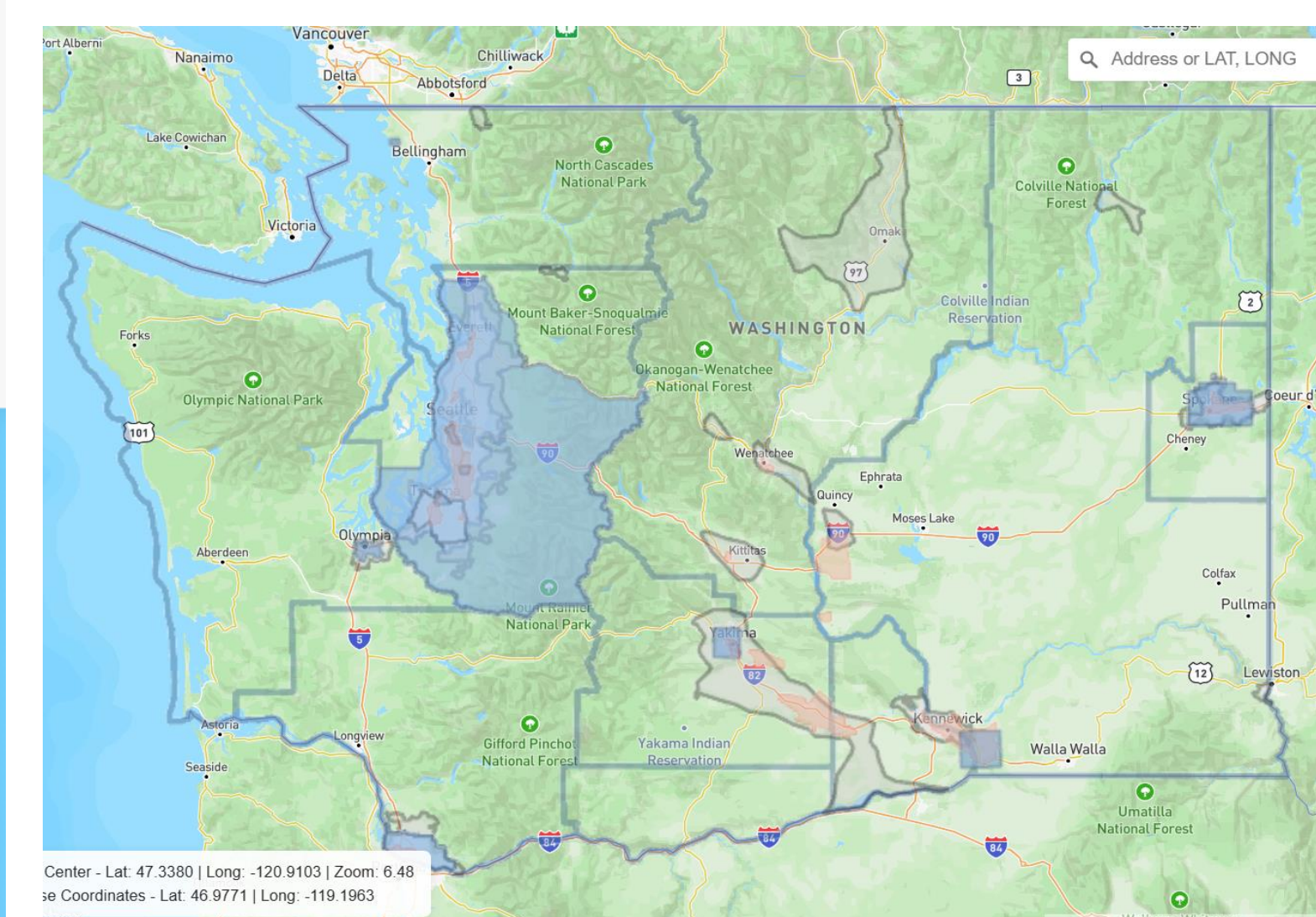
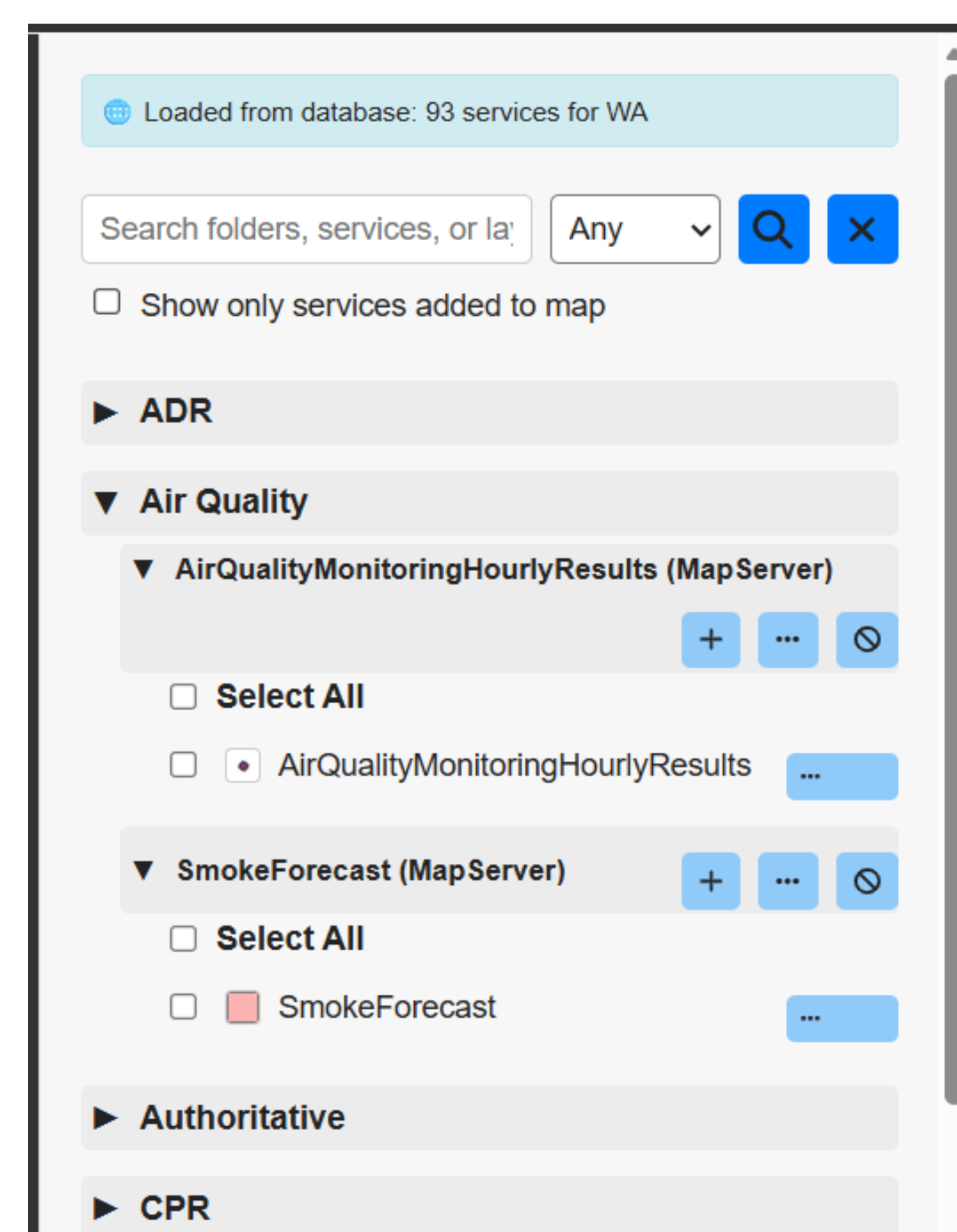
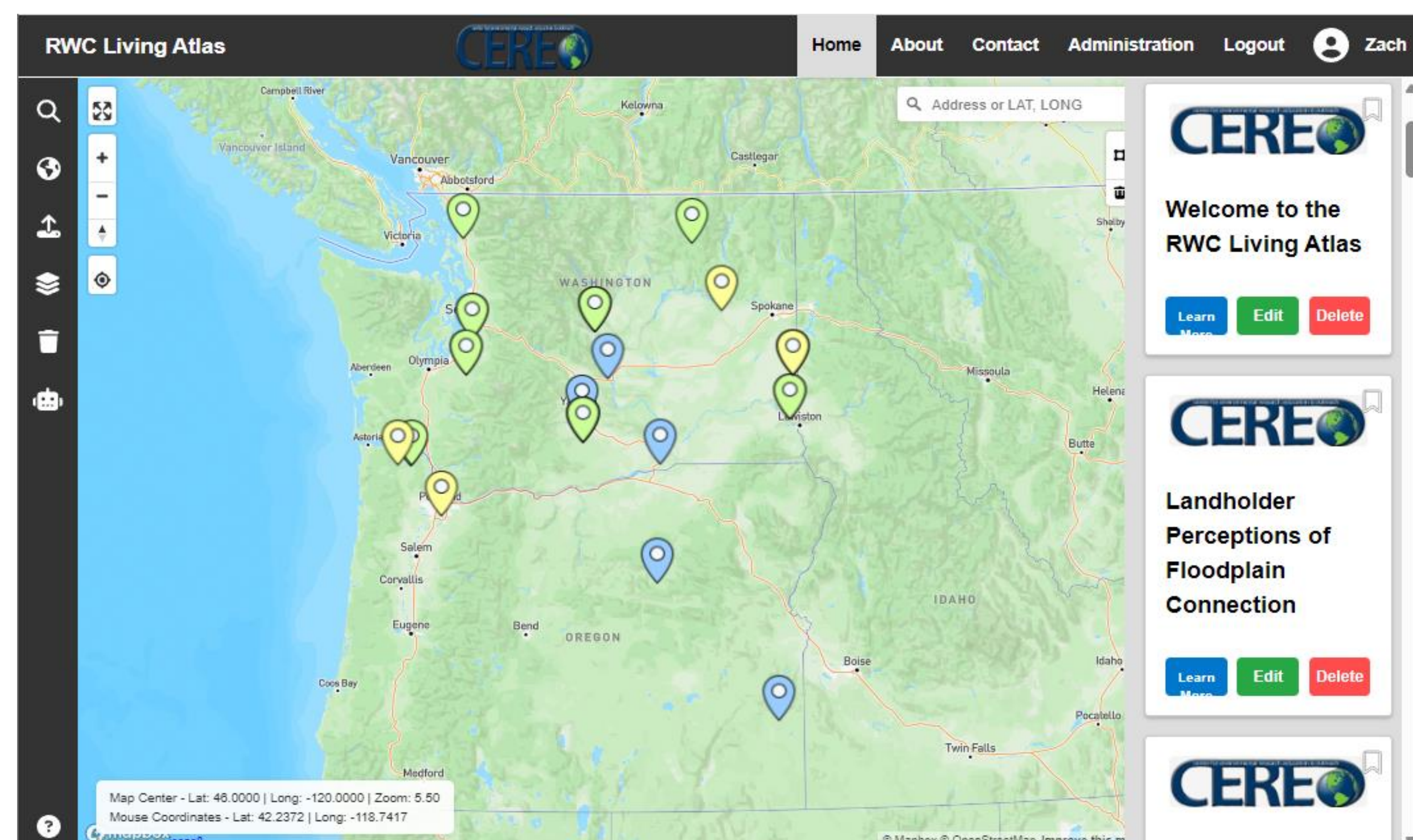


Problem

- **Limited Functionality For User-Added Data:** Previous versions allowed users to upload cards and edit basic information but lacked essential tools to interact with their own data.
- **Lacking Geospatial Data Usability:** Previous versions offered minimal geospatial features for users to visualize and monitor environmental conditions.
- **Technical Issues:** The app contained bugs that affected file attachment, password resetting, and card/pin display, along with other problems.

Solution/Improvement

- **User-Added Data Usability Enhancements:** Added sorting, bookmarking, file attachments, custom thumbnails, and click-to-locate for user-added data cards and pins.
- **Geospatial Data Visualization & Management:** Integrated ArcGIS MapServer data for viewing environmental layers and managing fetched items.
- **Bug Fixings:** Resolved the technical issues from previous versions.
- **UI Refinement:** Redesigned the interface for better user experiences and easier navigations.



Future Work

- **Performance:** Improve the loading speed when displaying ArcGIS data
- **Security:** Strengthen authentication, encryption, and overall data protection measures.
- **Usability:** Support additional types of ArcGIS data besides MapServer (e.g. FeatureServer).
- **User-friendliness:** Provide an in-app tutorial or AI assistant to help users navigate the application.
- **Accessibility:** Make sure the app complies with UPPM 10.45 and USER-01 Accessibility Policy



Glossary

GIS – A system for displaying and analyzing geographic information.

ArcGIS – A GIS software platform used to create, manage, and share geographic data.

MapServer – A type of ArcGIS map service used for displaying layers as raster images.

CEREO – Stands for Center for Environmental Research, Education and Outreach .

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CEREO Living Atlas Development Team