

P1.2 The WestMap Stakeholder-Driven Interactive Data Access and Analysis Interface for Fine-Scale Climate Data

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I. INTRODUCTION

The Western Climate Mapping Initiative (WestMap), a joint research-stakeholder collaboration, has developed a prototype web-based interactive access and resource interface, the *WestMap Climate Analysis and Mapping Toolbox*, to optimize public dissemination and usage of fine-scale spatial climate time series for the western United States. The western U.S. focus reflects the complex climate interactions and diverse geography that make resource management, policy considerations, and climate research challenging in this region.

The WestMap Initiative (Comrie et al., 2004) has evolved in direct response to a multitude of requests to the WRCC and the RISAs (Benequista et al., 1999) from public and private stakeholder communities for lengthy time series of fine-scale spatial climate aggregated to user-specified domains, and related user-friendly web-based access and analysis tools. Currently, the Initiative effort is being led by the University of Arizona Department of Geography and Regional Development, the Western Regional Climate Center (WRCC)/Desert Research Institute, and the PRISM group at Oregon State University. All are engaged in ongoing discussions with the broader community of stakeholders having an interest in climate and the application of climate information for specific purposes.

2. INTERFACE DEVELOPMENT

The prototype WestMap Climate Analysis & Mapping Toolbox (Figure 1; Comrie et al., 2006) is designed to link three stakeholder-driven components, 1) climate data development and operations (access, maintenance); 2) error assessment, data analysis, diagnostics, and related tools; and (3) data access, visualization, and educational resources.

Operational user components are designed to allow direct stakeholder access to user-specified fine-scale climate maps and time series as well as

resources most relevant to current needs in a timely manner. The main website, the entry point to the web-based interface, was built using a combination of HTML (of course) PHP, JavaScript and CSS. Throughout the site, graphics are created using the NCAR Command language (NCL), Image Graph (essentially a GD scripting package) maps and time series data most suitable for their purposes. MapServer will eventually be included for GIS image serving. Open source software has been used wherever possible. Users are not required to have expertise in any particular mapping or statistical software, or to obtain licenses to work with the Toolbox. The interface is entirely web-based with multiple options for download and/or print capabilities.

3. TOOLS AND RESOURCES

The Toolbox (Figure 1) provides multiple options for data access and analysis, as well as educational resources suitable for a broad range of stakeholders, yet offers user-specific capabilities based on user specified parameters.

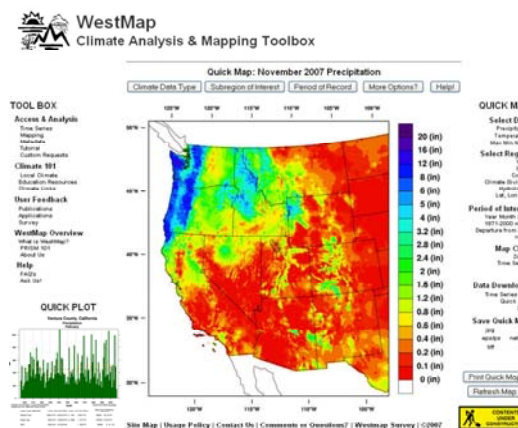


Figure 1: Preliminary design of WestMap Climate Analysis & Mapping Toolbox's initial user access web interface.

3.1 Climate Data

The 100-year PRISM 4km monthly temperature and precipitation series (Daly et al., 2002) serve as the initial data archive, updating automatically once in operational mode. Period of record is 1895-present.

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Users may view, access and analyze data at month, season, and annual time scales as defined by the user, or select from pre-defined options. Currently, the Toolbox offers data for the Western United States. Standard geographic regions specified as pre-defined selection options in the Toolbox include west-wide, state, county, climate division, and hydrologic units. Users may also specify pixel or lat/long coordinates to define a particular region of interest. However, the system is designed so that it can easily be adapted to provide data for the entire continental United States.

3.2 Tools

Stakeholder requested resources currently available include clickable maps, basic statistical analysis, time series visualization, and download/print capability. A Quick Look map (Figure 2) and time series plot (provides user with current map with limited subregion selection and time series display options).

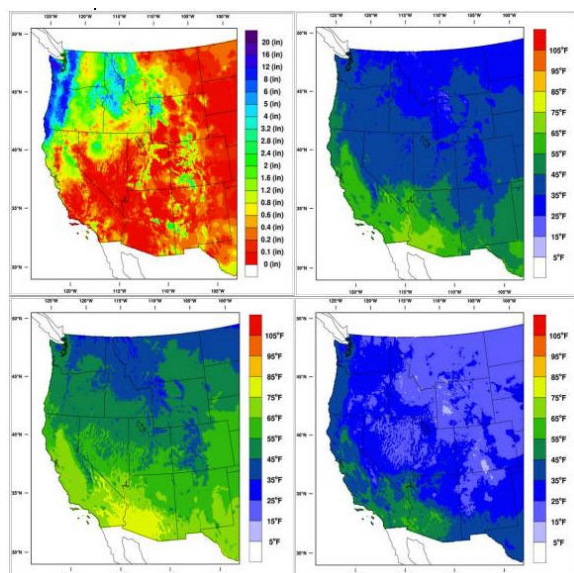


Figure 2: Four Quick Maps created by selecting options on the front page of the Toolbox interface.

For more unique or complex needs, users are led to the main Toolbox to interactively define additional user-specific options, then, access, analyze, and display (or print) data products that best suits their particular needs. Final products might include maps, time series plots, data tables, and/or the data used to create any of the above.

Additional options for regional aggregate and space-time composite capabilities, error assessment, and tutorials are in final development and/or internal testing stages. An archive of user-provided applications uses and publication abstracts will also be established to provide guidance for others in the greater stakeholder community.

4. STATUS

Though the WestMap Climate Analysis & Mapping Toolbox is in its pre-release development phase and still somewhat limited in available user options, the interface can be seen at <http://cefa.dri.edu/WestMap>. Phased testing of the WestMap Climate Mapping & Analysis Toolbox will continue with increasingly broader stakeholder participation through Spring 2008 with operational release planned for Summer 2008.

5. REFERENCES

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