

PDNWC Coordinated Water Resources Database Project Workshop

**Paso del Norte Watershed Council
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Texas A&M University
Agricultural Research
& Extension Center**

Acknowledgements

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 - ◆ Institutional support for the PDNWC
 - ◆ Start-up funding for the Database Project
- Efforts of Database Project Technical Committee
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- Logistic and technical support of Nancy Hanks, Ari Michelsen, Carol and Lee Placchi, and the NMSU Department of Geography
- The contributions of the regional data providers

Outline of Workshop activities

- Review of project background, history, tasks undertaken, and results
- Release of Final Project Report
- Demonstration of Project Website and database functions
- Open forum for discussion, suggestions for improvements, and next steps in project work

Early research efforts

- Iterative process of the origin of the idea for the Database Project & proposal development
- Initial discussions among project staff towards development of work plan
- Research into existing webpages to identify key elements of databases
- Development of a set of protocols by which PDNWC database and related webpage was be developed

Major findings of on-line research

- Most data are centrally located on project servers.
- Both spatial (GIS) & aspatial data are served.
- Tabular data are served via "cartoons," HTML tables, and downloads.
- Spatial queries are handled by keyword and also area of interest tools.
- Metadata range from FGDC/SDTS to the basic elements (source, spatial extent, date, variables involved, format, and details of access)

Insights for PDNWC project

- Early idea was a structure based on a warehouse model with some links to outside data – things do change!
- ArcIMS provides a "Map front end" and interactive means to execute a spatial query.
- Tabular data are handled as downloads of Excel or .dbf files, not HTML tables.
- Most accessible data are handled first (Hewlett map, WRR! and TAMU data, and UTEP and UACJ data).

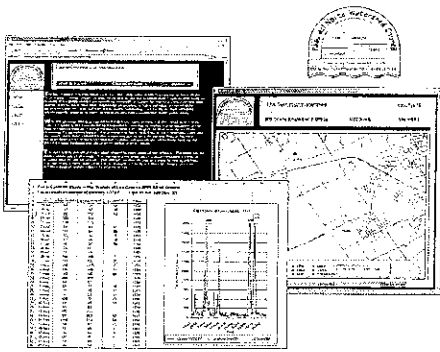
Continuing Project efforts

- Exploration of datasets to be used in pilot project development
- Development of HTML scripts, transfer of data to WRRRI server, and assembly of ArcIMS and HTML elements
- Documentation of project work via final project report, PDNWC workshop, and technical paper

Mechanics of PDNWC project

- Combination of ArcIMS front end and image map tiles provide spatial query (following graphic)
 - ◆ ArcIMS provides overall view of the study area
 - ◆ Pre-clipped tiles of larger map are served as image maps
 - ◆ Pop-up menus of available data are served off of image maps, number of data points allowing
- Basic metadata (source, spatial extent, date, variables involved, format, and details on access) are served via web-interface and published in Final Project Report

Mechanics of PDNWC project



Exploration of pilot datasets

- Hewlett data sets and other WRRRI data provided mapping background.
- Project staff in NM and Texas worked with their local data providers (EBID, EPCWID #1, EPWU, and CLC) to obtain data.
- Larger sets already served on-line by other agencies are incorporated (USGS, USBR, and IBWC).
- EPWU, UTEP, and UACJ data are currently being brought into the project.

Findings and outcomes

- Operational website is delivered at:
 - ◆ <http://www.pdnwatershed.org/>
 - ◆ <http://wrrri.nmsu.edu/arcims/pdnwc-map/tiles/home.htm>
- Final report is delivered to EPWU and Watershed Council Executive Committee members.
- Several findings and insights into future project development and enhancement have been uncovered.

Findings and outcomes

- Recommendations for enhanced water monitoring in the field are provided.
 - ◆ Suggestions are offered for enhanced operation and maintenance activities.
 - ◆ Recommendations for new monitoring sites are provided in Final Project Report.
 - Flood control gauges with EBID and IBWC
 - Water flow gauges with EPCWID#1 & USBR
 - Water quality monitoring with IBWC

Findings and outcomes

- ArcIMS and image map issues
 - ◆ Initial use of image maps for larger scale maps posed update challenges.
 - ◆ Converting Project completely to ArcIMS will resolve issues and increase functionality.
- "User interface plateau" – Portal structure yields range of user interfaces, not one seamless look.
- Some form of scripts installed on data providers' servers or a batch data transfer mode would resolve this issue.

Findings and outcomes

- Systems administration issues – UNIX operating system posed problems with ArcIMS service, remote access, and mapextent
- Data format and consistency issues – wide range of data sources argues for additional quality control and assurance measures
 - ◆ Locational data of spatial features
 - ◆ Consistency of data across multiple sources

Summary recommendations

- Complete migration of Project to ArcIMS
- Detail is provided on installation of new monitoring stations and equipment
- Enhanced levels of funding for regional data providers
- Incorporate UACJ, UTEP, and EPWU data more fully into next phases of project
- Exploration of scripting, automated FTP, and batch data transfers

Summary recommendations

- Inclusion of more groundwater data into future project phases
- Link the EPWU Database Project to the USACE-funded project and explore modeling efforts
- Additional funding to be sought for future phases of project work
- Other ideas from workshop attendees....