Photo credit: John Hannon, Reclamation

Data Management

Antonia Salas, Hydrologic Technician
Reclamation, Central Valley Operations Office

Data Management Documentation

- Document Link:
  - Data Management Plan
- Technical Memorandum Status:
  - Final Draft
  - Enhancements since Mid-Term Peer Review:
    - Minor modifications based on MTC feedback
    - Minor modifications based on Panel Comments

Purpose of Data Management System (DMS)

- **Goal:** Provide higher quality data for modelers to confidently and effectively:
  - Assess data
  - Develop models
  - Apply models

- **Intended Outcome:**
  - Produce more reliable data management to support decision making

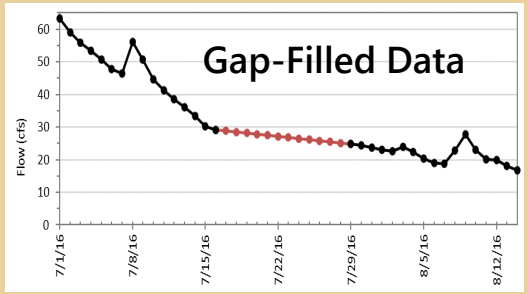
Reclamation's Perspective: Data Management Solutions

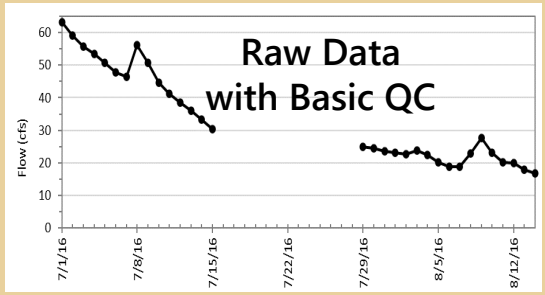
- Design:
  - Leverage database technology to efficiently store, modify, and extract data
- Implementation:
  - Dedicate experienced staff to Data Management
  - Generate "Model Ready" data near to real-time rather than after the fact

DMS - Provide Model Ready Data and Calibration/Validation Data

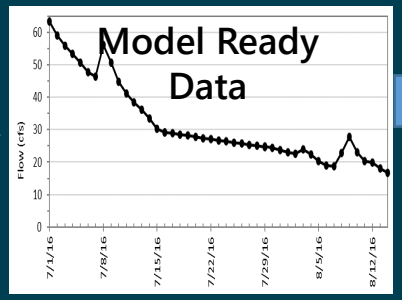
Raw Data Web Service To DMS

DMS





Web Service To WTMP



WTMP

Build Model or Apply Model (e.g., Forecast)

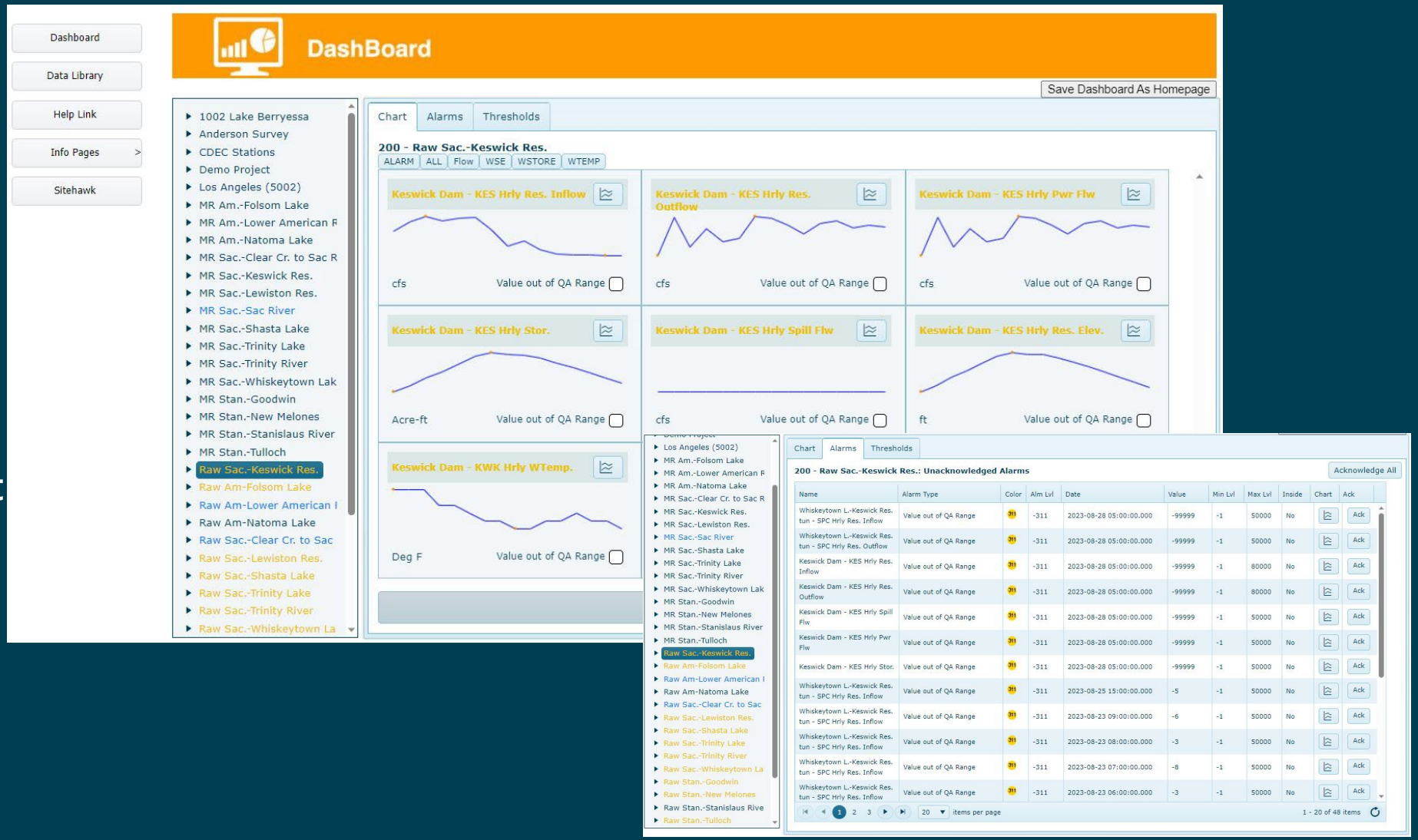
Test Model (e.g., Calibration/ Validation)

DMS Benefits

- Functions of a DMS with database structure
  - Store and organize data (rules-based organization)
  - Streamline data collection for efficiencies with small staffing
  - Visualize data for quality checks
  - Create and track metadata
  - Adaptable design for anticipated future modifications
- WTMP Features
  - Quality Codes – metadata
  - Model Ready Data – common formats and no missing data
  - Web Access – automated data communication

DMS – Streamline Data Collection Shown in the Dashboard

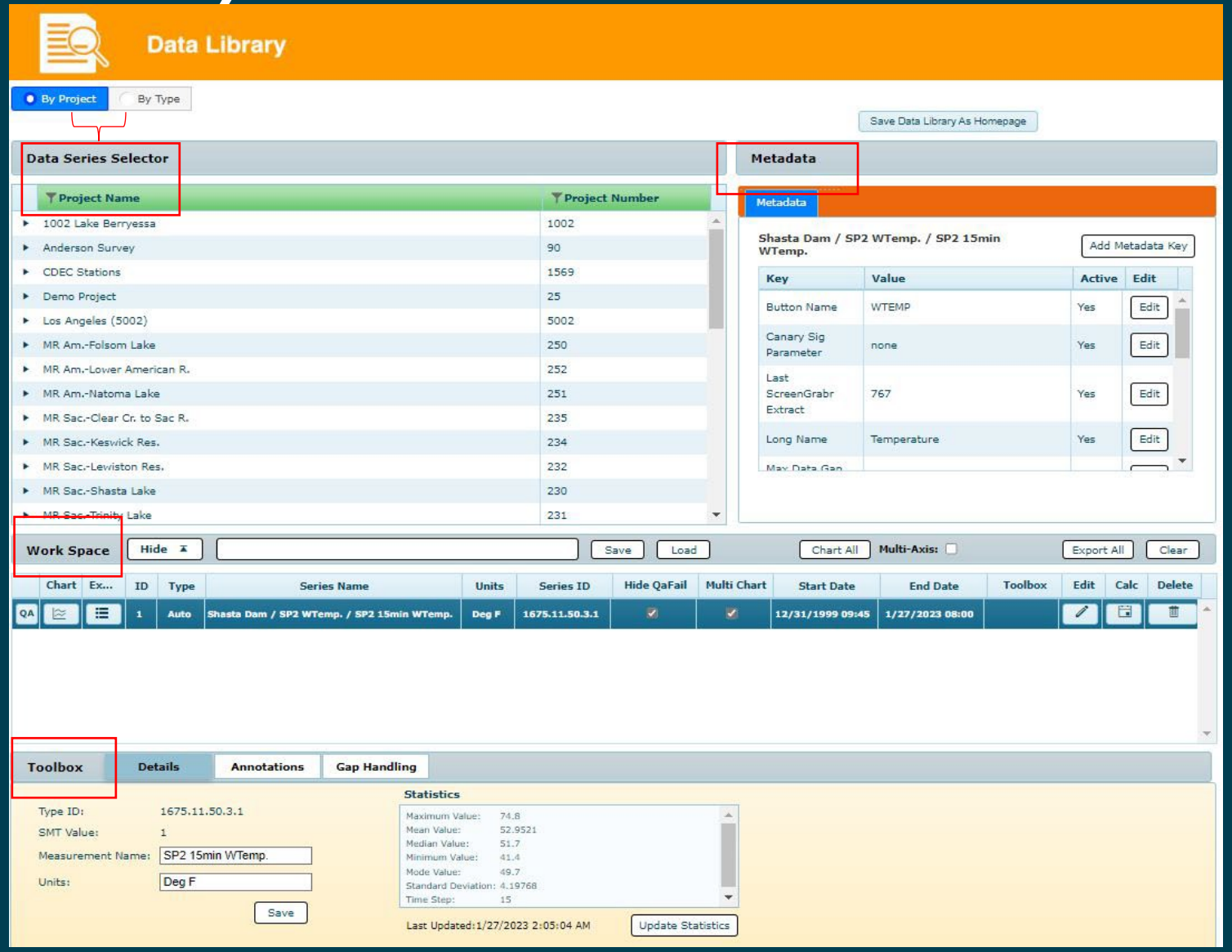
- Most time series data collected in near real time from on-line sources.
- Data is imported with native quality codes if they exist.
- Thresholds can be applied to filter out ‘bad’ data.



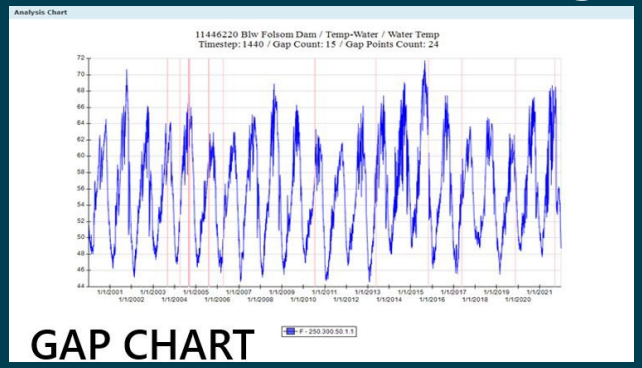
DMS - Store and Process Data in the Data Library (Part I)

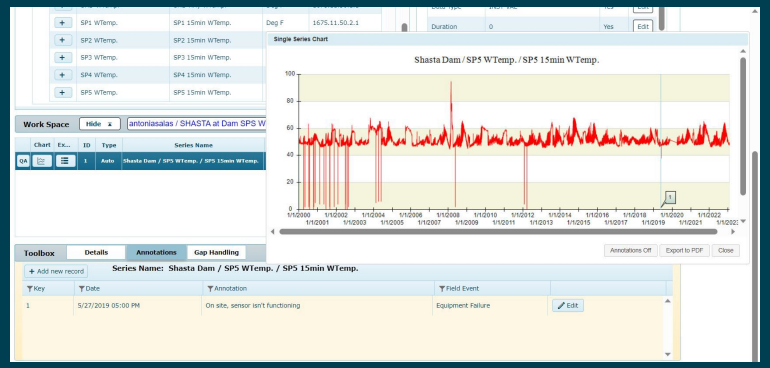
- Time series organized by "Project" that equates to Model Domain.
- Includes all projects, metadata, visualization (charts and graphs), and processing tools (gap handling).
- Applying Quality Codes in the QA screen

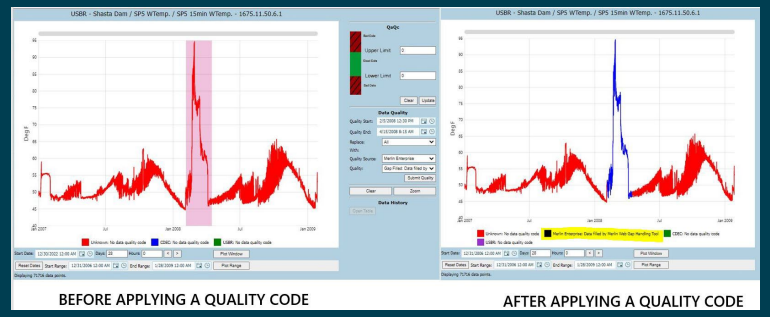
...circling back

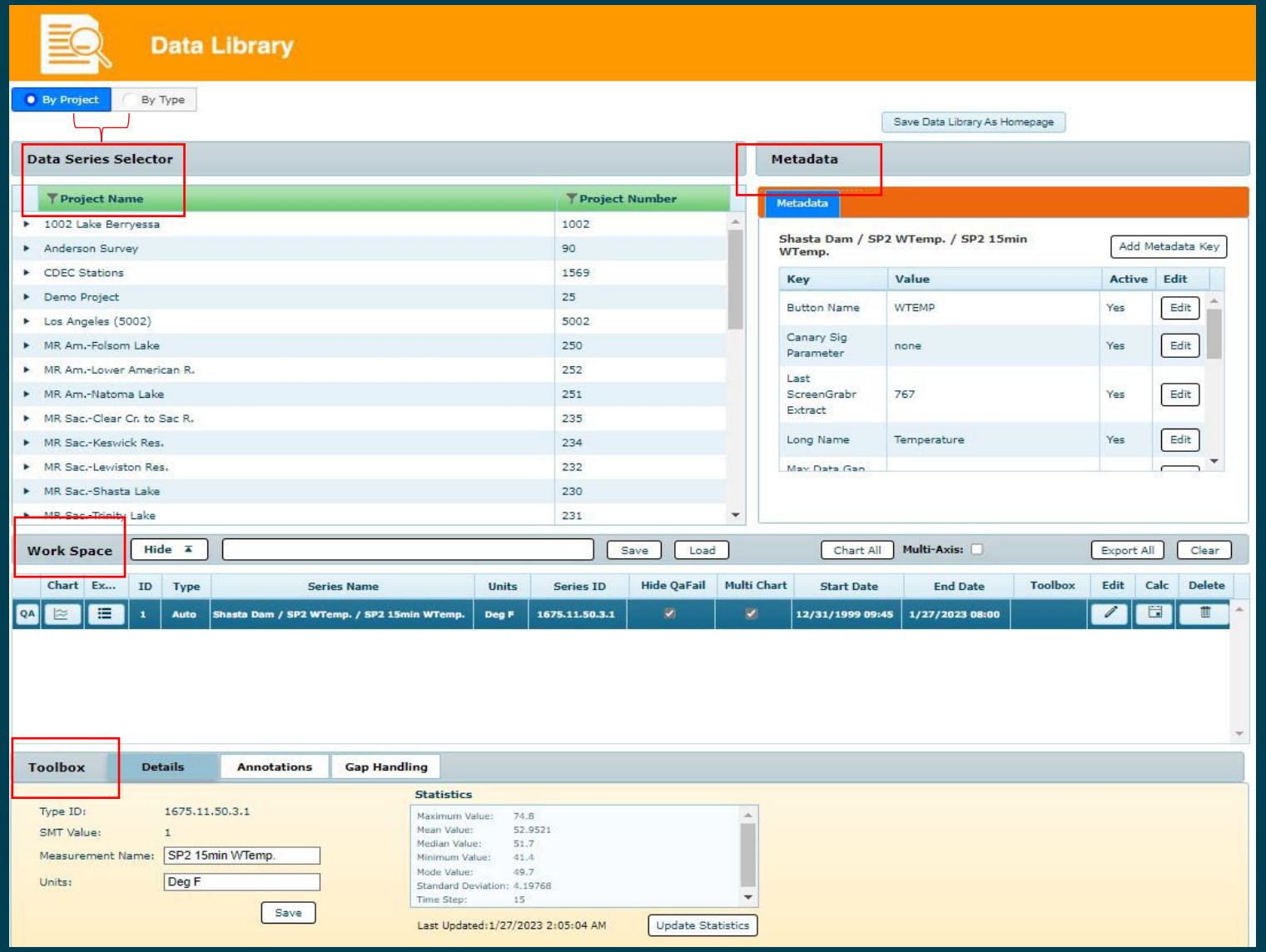


DMS - Store and Process Data in the Data Library (II)



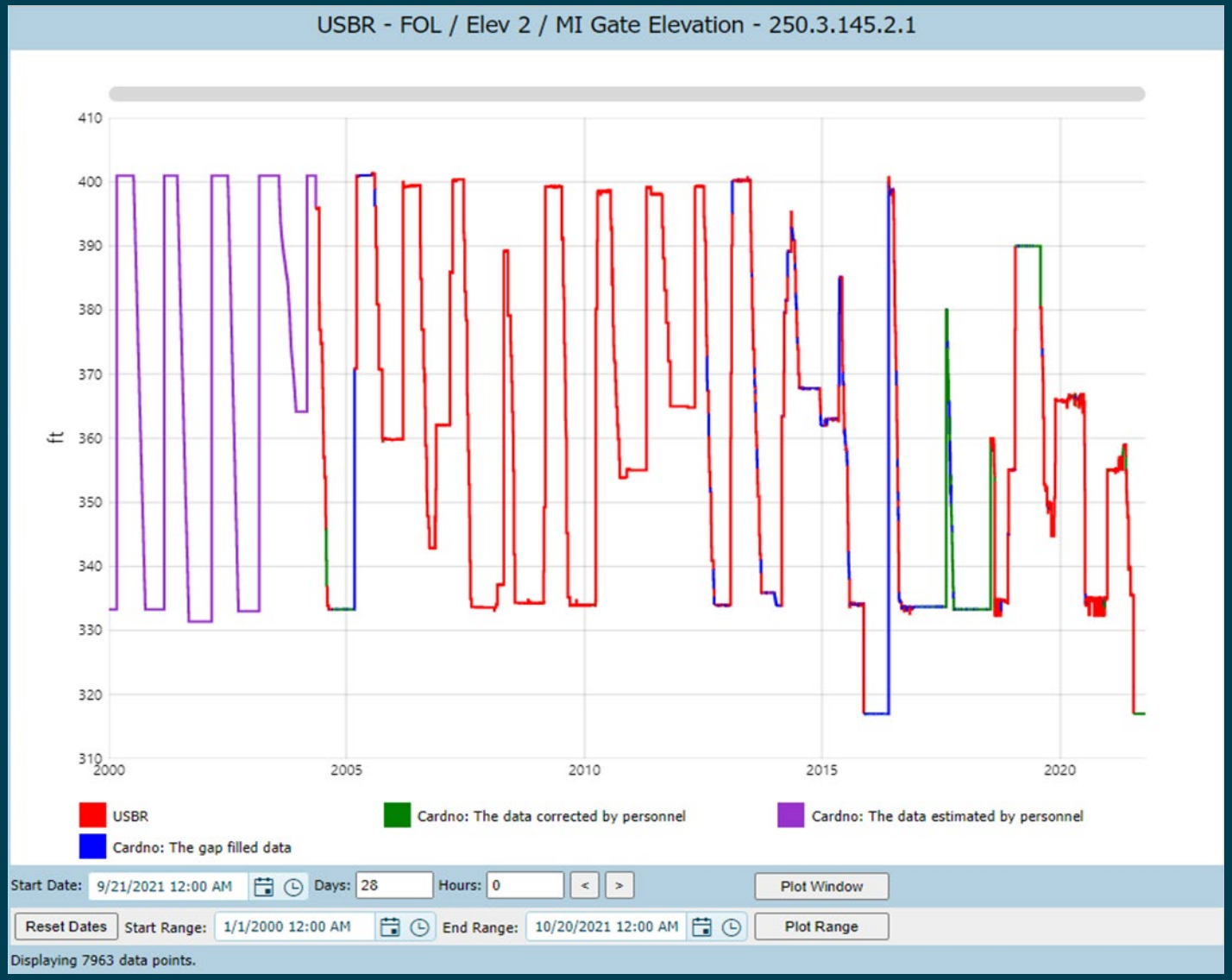






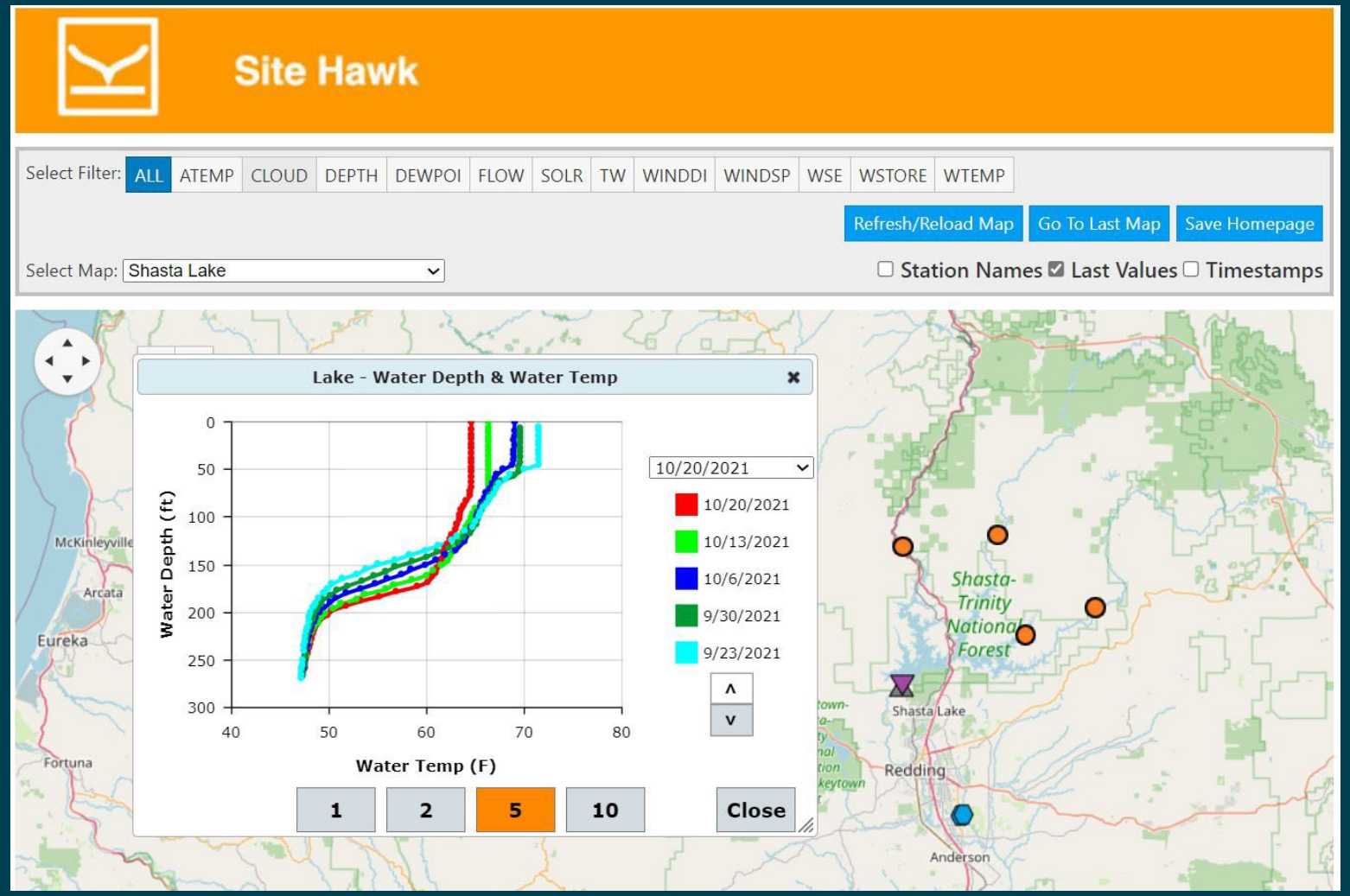
DMS - Create and Track Quality Codes

- Quality codes assigned to data set allow tracking of data history
- Allows development of “Model Ready Data”
- Model Ready Data
  - Complete boundary conditions (no gaps) for use in the WTMP models



DMS - SITEHAWK

- Displays all gauges and data loggers on a map
- Upon hovering over each project (denoted by a shape; square, triangle, etc.) it will display all parameters at that station



Data Management Development Summary

- Accomplishments:
  - WTMP DMS has matured from a repository of the Calibration/Validation data set to a functioning Quality Assurance/Quality Control tool capable of treating raw data and preparing it for “model ready” application.
- Assessment:
  - Features and preliminary testing support real-time implementation