

# Lake Temperature Tools



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# Basic Lake Temperature Tools



Staff



Onset Computer Corp.

Instrumentation



Logistics

A place to put the data...



# Challenge

- Temperature arrays
  - Placed at regular intervals over a depth (max. 100m)
  - One array, 11 sensors, hourly for 365 days = 96,360
- Current deployment for SWAN
  - 4 temp. arrays in Katmai NP&P
  - 2 temp. arrays in Lake Clark NP&P
  - About 481,800 values per year!
- Metadata (location, calibration, service, SOP's, conditions, etc.)
- Spreadsheets work great at first...



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# Solution

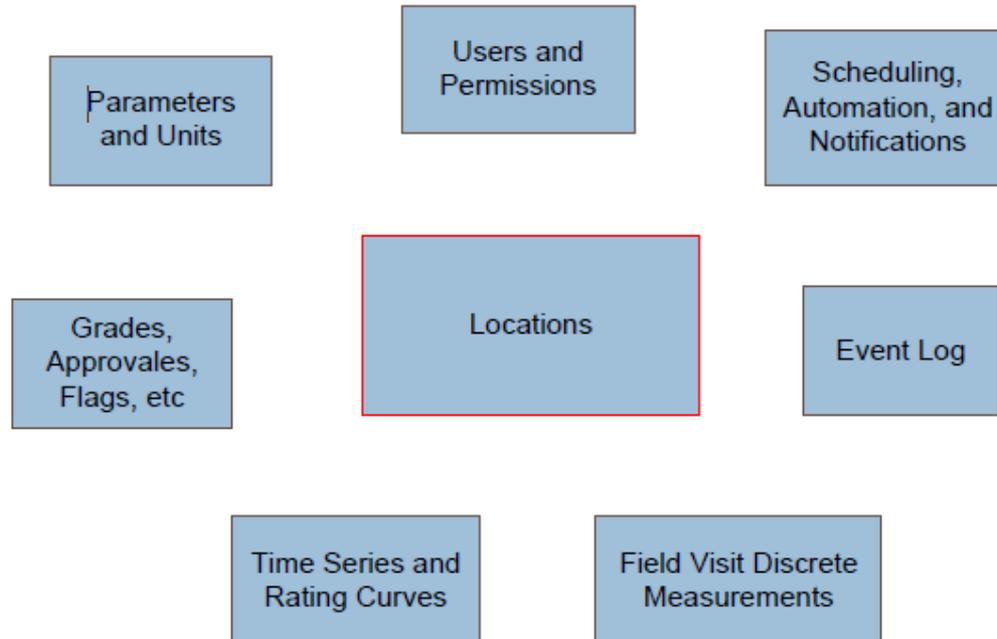
- Time-series analysis/water quality software already exists....let's use it!
- Extend the time-series software to cover metadata gaps...we must make our own.
  - instrument/sensor information
  - calibration
  - service
  - SOP's
  - project info, etc.
- Integrate the two ideas...



# Solution



**AQUARIUS**  
TIME-SERIES™ SOFTWARE



# Solution

- Tools
  - Aquarius Workstation - import, flag, correct, analyze, report time-series data
  - Aquarius Database (SQL Server) – store time-series data, all-time-series data available in one place!
  - Custom Metadata Database (SQL Server) – home-brewed to hold expanded metadata that Aquarius does not hold; integrated with time-series values



# NPS Solution

- Resources at National Level...
  - 5-user license of Aquarius Workstation at national NPS level.
  - Full-time Database Administrator available
  - Enterprise backup and support
  - SQL Server 2008

