

Types, Uses, and Data Management of Continuous Monitoring

NJDEP and Rutgers U.

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Continuous Monitoring

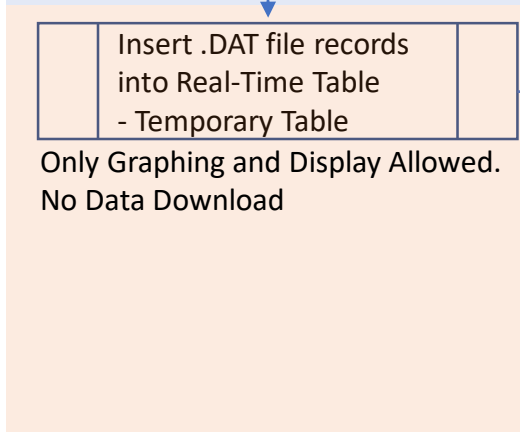
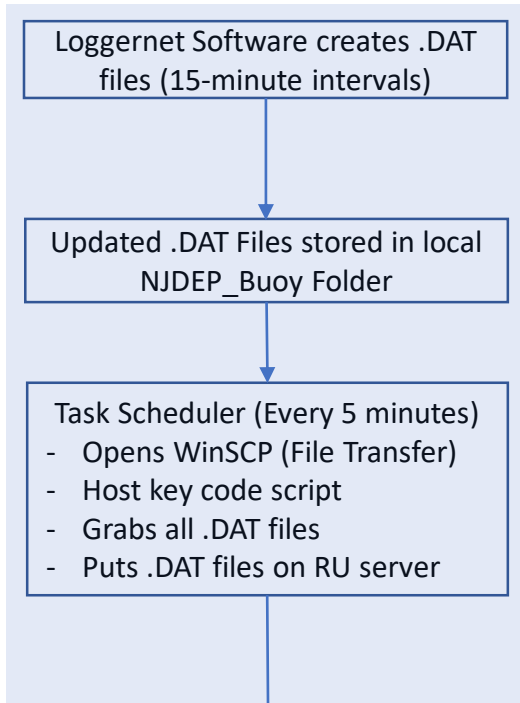
- There are various types of continuous monitoring.
- Fixed station Real-time.
- Fixed station short term deployment.
- Non fixed station spatial, short term data collection.
- Non fixed station multidimensional data collection intermediate time frame.

Background

- NJDEP started with the use of continuous monitors for short term deployments in 1996.
- Added Real time telemetry in 2002 through an EPA EMPACT grant, 4 buoys for use in southern coastal bays.
- Now NJDEP operates 8 buoys in Marine Waters, 1 buoy and 1 land-based in Fresh water.
- A Continuous Water Quality Webpage
- 3 BBP units are also posted through the site as a partner and for Barnegat Bay.
- Developed, and annually use Aircraft Remote Sensing for chlorophyll since 2007.
- Use Slocum Glider in the Ocean 3 times per year since 2011.
- All data is done through approved QAPP's.

NOTE: Excludes all up-front work for calibration, modems, electronics, equipment purchasing, and data analysis of results

AUTOMATED Data Flow

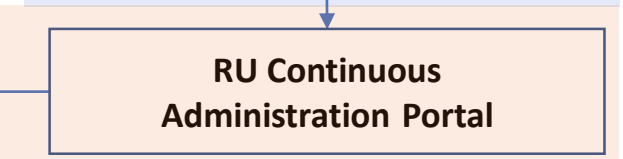
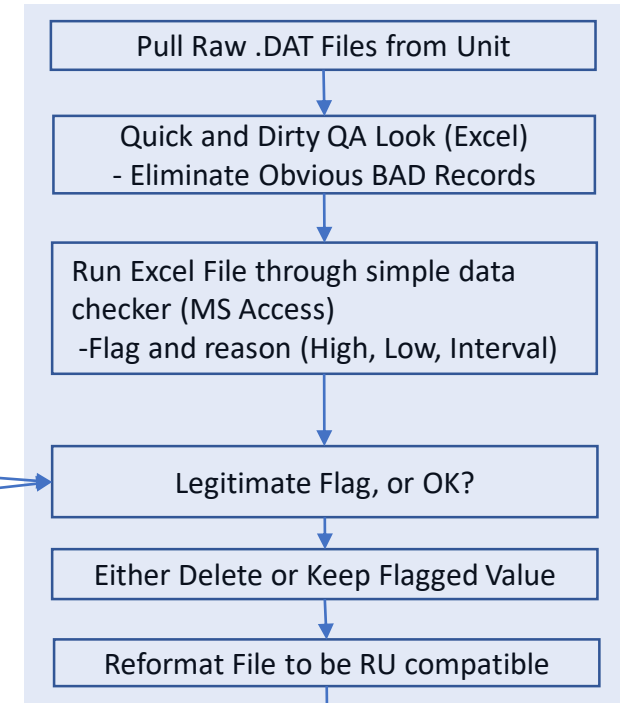


■ **DEP Environment**
■ **RUTGERS Environment**

Tides
USGS Tide Gauges

Rutgers Rainfall Website/DB
<https://njdep.rutgers.edu/rainfall/>

MANUAL Data Flow



RU Front End: <https://njdep.rutgers.edu/continuous/> ← Developed by Rutgers → RU Admin Portal: <https://njdep.rutgers.edu/portal/>

Continuous System

Actual System

- Front-End (Public Facing)
 - <https://njdep.rutgers.edu/continuous/>
- Back-End (Administration Portal)
 - <https://njdep.rutgers.edu/portal/>

Continuous System

IT Components

- Server
 - CentOS 8 Linux OS
 - Apache web server
- Database:
 - MariaDB (MySQL opensource alternative)
- Server-Side Code:
 - PHP
- Client-Side Code:
 - HTML/CSS/Javascript
 - Bootstrap CSS framework
 - JQuery
 - HighCharts (graphing/dashboard visualizations)
- Web Mapping:
 - ESRI ArcGIS API for Javascript
 - Calcite Maps theme for Bootstrap