

Integrated Wireless Embankment Monitoring

EmbankNET is a revolutionary wireless modular system for monitoring civil and geotechnical instrumentation on embankment dams. There have been other wireless systems for similar applications, but EmbankNET uses the latest technology with proven data processing software to provide a truly end-to-end solution – at half the cost of similar systems.

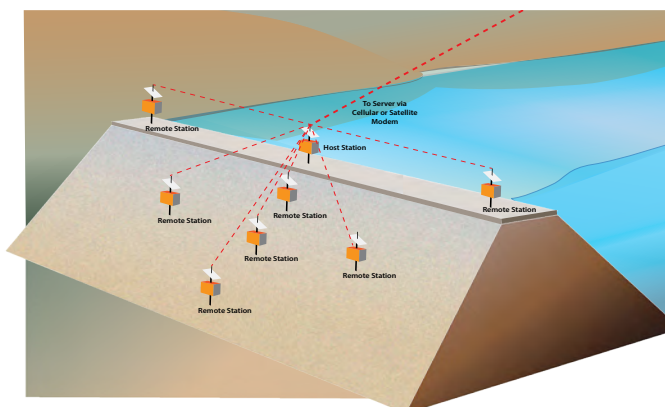
Benefits and Features:

- Modular for scalability and value
- Autonomous monitoring and control
- Low power components
- Appropriate for any sensor technology
- Built in memory for data storage
- Remote communication via Radio/Cellular/Satellite telemetry
- Vandal resistant stainless steel waterproof enclosures
- Integrated web-based display and reporting

The EmbankNET system, refined over a period of 15 years, incorporates the latest in digital and wireless technology to monitor most geotechnical sensors including In-Place Inclinerometers (IPI), Piezometers, Settlement Gages, and even weather stations and accelerometers.

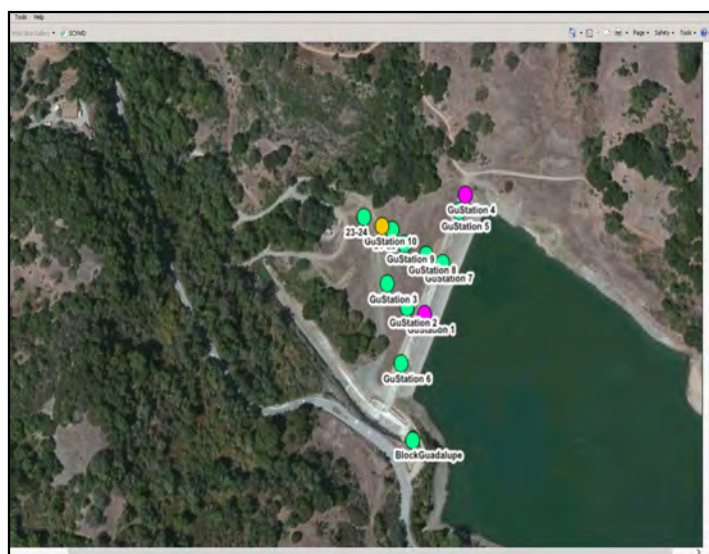


SiteHawk satellite image

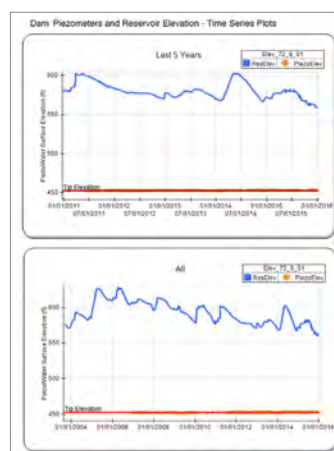


Graphic Representation of EmbankNET

Gone are the endless hours of post-collection QA/QC, cutting and pasting to assemble spreadsheets and mindless generation of graphical presentation for regulatory reports. The integrated Merlin software system provides real-time QA/QC, advanced notification of out-of-compliance readings and data gaps, and the ability to annotate data for export or presentation. Standard reports include time history, and offset from baseline reading over any date range. Reports are developed using SQL Server Reporting Services, so even custom reports can be developed in-house with standard database query and formatting skills.



SiteHawk Map Display



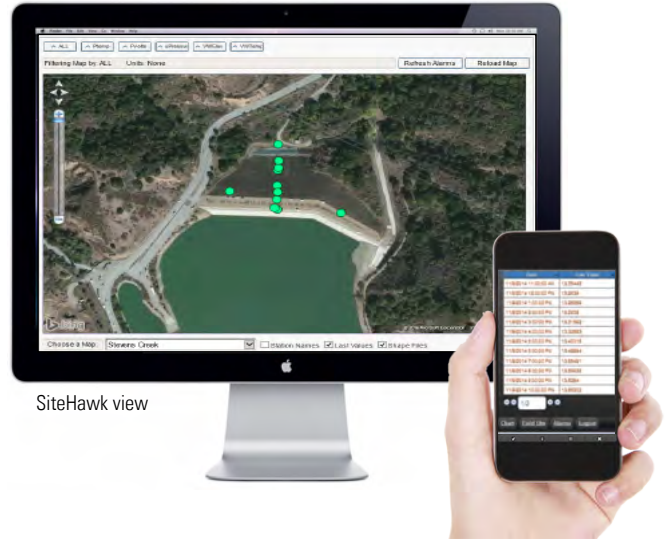
Grabdata Report.



QA/QC Filtering (top), Merlin Chart with interactive plotting (bottom).



A QuB monitoring station



SiteHawk view

Merlin Mobile

Anatomy of a Dam Monitoring System

EmbankNET is an end-to-end integration of components and processes dedicated to collecting, managing and reporting dam monitoring data easily and cost-effectively. Field stations are low power and ruggedized, telemetry is reliable, and data collection is designed for efficient reporting and display with minimal setup and configuration. It's as close to a plug-and-play system for dam monitoring available on the market today.



Remote QuBs: Each station, housed in a rugged stainless enclosure, is a stand-alone system designed to measure common geotechnical sensors - either vibrating wire sensors alone, analog sensors alone, or a combination of both. Depending on the sensor types each station will consist of a digital vibrating wire analyzer, a multiplexer (if necessary), a datalogger, a 900MHz radio, a power supply, and a shatterproof stainless solar panel.



Communications: Data from each station is collected by a host station located at the site using an aggressive and robust wireless radio network. The Host can be located anywhere on site – either co-located as a monitoring station, or in a control building. Data collection occurs on a predefined time interval controlled by the Host. If line of sight from a host station to a particular remote station is not possible, other stations can function as repeaters. Data collected by the host can be transmitted to a server via cellular modem or satellite modem.



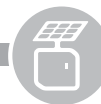
Database: All data is collected and stored in an MS SQL Server database in real time and requires no additional programming or setup – other than to define the engineering units (if different from defaults) and add custom names to the stations and sensors. Import data processing can also be configured to provide real-time QA/QC, threshold alarm reporting, chart generation and reporting to public agencies. Additional metadata can be added to enhance data display and reporting.



Web Display and Reporting: A full suite of web tools are available including interactive map-based displays (SiteHawk), charting applications (Merlin Chart), combined charting and reporting (Data Library), and mobile web pages (Merlin Mobile). The Merlin.Web application is deployable to your own web server, or available as a subscription service. It is fully configurable for multi-user/multi-level access using included credential provider. It is also fully integrated with Microsoft Reporting Services so any report can be generated from the user interface, or delivered automatically via e-mail. Some graphical presentations suitable for use in regulatory reports are provided, or custom reports can be developed using Microsoft's Business Intelligence Studio.



Sensor



QuB



Communication



Database



Display

