

TSUNAMI DETECTION & WARNING



Lighthouse Tide Station



Maldives



University of Puerto Rico

TSUNAMI WARNING FEATURES UNIQUE TO SUTRON SYSTEMS

Minimizing Loss of Life from Tsunamis Depends Upon 2 Things:

- ▶ EVENT DETECTION
- ▶ NOTIFICATION & WARNING

EVENT DETECTION

Eye-witness accounts of tsunami events typically contain the following from people near beaches. *"It was amazing! Suddenly, the sea receded, exposing the bottom for hundreds of yards out!"*

This classic tsunami indicator is a warning from nature that a huge, catastrophic wave is building. Volumes of shoreline water are forcefully sucked back into a massive mountain of water about to pound the beach. This recession of water is an accurate indicator that a tsunami is coming, & one of the easiest to detect. *A sudden drop in water level means that trouble is coming soon.*

The **SUTRON XPert DATALOGGER FOR TSUNAMI WARNING** offers the following:

- ▶ Highly programmable & can be interfaced to *every common form of water level measuring instrument.*
- ▶ Incorporates the US National Ocean Service methodology for detecting sudden surface drops associated with tsunamis. This detection algorithm works with raw &/or filtered data from any type of water level instrument. & is easily customized for special conditions.
- ▶ Uses true independent multi-tasking for sensor monitoring. A single XPert can be interfaced water level instruments & also to seismic instruments, or any other devices that detect ground or water motion. XPert's programmability allows data to be combined in any way desired by the user.

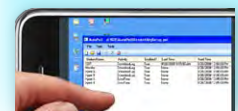
IMMEDIATE NOTIFICATION & WARNING

- ▶ Detection is useless if persons in the immediate area are not notified quickly. Additionally, emergency response staff need notification so that emergency action plans can be activated.
- ▶ Here again, the XPert shines. Every XPert can "talk" **simultaneously** over multiple communications ports. The US National Ocean Service typically uses GOES (geostationary satellites) & a form of cellular or land-line telephone. Some stations also use cellular packet capability, line-of-site radio, & hard-wire along with GOES & telephone. If you have a communications device, it is likely that the XPert can talk over it. Communications links can be used to send data, *or warning messages.* XPert with a voice modem actually talks, relaying audible messages to user phones (or similar receiver) about water levels, weather conditions, & data collected from its sensors.
- ▶ Not just an event logger, the XPert has an I²C "eye-squared C" industrial communications bus, & can be interfaced to digital output modules. Built-in programming allows the XPert to "turn on" digital outputs when events trigger it. The outputs control sirens, warning signs, pumps, & multiple emergency-related devices.

COMMUNICATIONS

- ▶ **SATELLITE** - GOES DCS, DOMSAT, NOAAPORT, IRIDIUM, METEOSAT, GMS, INSAT
- ▶ **MODEM** - Contact station on schedule, or station calls our control center
- ▶ **IP-ACCESSIBLE STATIONS** Contact static IP on schedule, or station connects via dynamic IP
- ▶ **CELLULAR** GPRS/GSM Modems
- ▶ **RADIO** Line-of-Sight, Repeaters
- ▶ **SERIAL** Direct Connection, Multiplexer, Terminal Server, Etc.
- ▶ **UP TO 4 COMMUNICATIONS Options per Station CONCURRENTLY**

Real Time Hydro-Met Data/Warnings & Remote Station Status - On-Demand, Scheduled or Triggered - Delivered Directly to Your Smart Phone (I-Phone, Blackberry, etc.)



For further information contact your Sutron Regional Sales Manager or Ashish Raval, VP, Integrated Systems at (703) 406-2800.