Pacific Regional Integrated Data Enterprise (PRIDE)

A Tsunami Focused Data Sharing Framework

Wave and Water Level Data and Visualization through Web Services

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Agenda

• Motivations
• Timeline To-Date
• Architecture – Sea Level Station XSD
• Implementation – Prototype Web Svc
• Implementation – Tide Tool Data Set
• Accomplishments
• Future Activities Being Considered
• Related Activities – HI-RISC
• Discussion
Motivations

• Upgrade Data Sources to Data Services
• Loosely Coupled Data Environments
• Dynamic (Real Time) Interactions
• Heterogeneous Platforms
• No “Centralized” Control / Data Node
Timeline

- Oct 2005 – PRIDE FY05 Web Services Prototype
- Dec 2005 – Workshop I
- Mar 2006 – IODE/ODINAFRICA, Oostende
- May 2006 – IOTWC Working Group, Melbourne
- Oct 2006 – Formalize Tsunami Bulletins
- Nov 2006 – Expose Tide Tool Dataset
- Dec 2006 – Update Schema Definition
  Transform to XML/KML (enable Google)
- Jan 2007 – Presentation Layer Updates
  Expanded dataset to global
- Feb 2007 - Backend Automation (Push/Pull)
- Apr 2007 – Production, Maintenance
- Oct 2007 – GIS Ingest (enable HI-RISC GIS Client)
Objective

Develop a *distributed* metadata system describing sea level stations, starting with pilot activities in a regional framework, focusing on tsunami detection and warning systems being developed by various agencies.

- UNESCO document [IOC/INF-1226](https://www.unesco.org) of April 2006
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**Project Goals**

- **Expose Sea Level Station MetaData**
  - Data schema
    - Semantic (Plain English)
    - Formal XML Schema (XSD)

- **Harvest Tide Gauge Data**
  - Remote Procedures Specification
  - Web Service Desc Language (WSDL)
  - Prototype Implementation
Tactical Issues

• Biggest hold-up: lack of real data and demonstrable clients.

• Start with exposing, a data set that “we” already have - namely the metadata used by the PTWC Tide Tool.

• Demonstrate the value of the XML based service enabling a variety of clients.
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CONOPS

Service Oriented Architecture

Data Sources
- provider

- station
- systems
- data
- products

Web Service
- integrator/aggregator

Web Service API

Clients
- user

GIS

- station managers
- warning system managers
- emergency managers
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Tide Tool Metadata

- Station ID, Name, Location (Lat, Long)
- Data Communication Platform ID, Header
- Sensor Transmission Rate, Sample Interval
- Data Units, Format, Keys, Flags
- Operator (Organization Acronym)

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- Operational Status
- Country Codes
- Data URL

Additional Fields

PTWC

Data
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Tools

Station Metadata

Collates

Data Flow 1 of 3

(PTWC)

PUSH

OR

PULL

UPLOAD

EMAIL (*)

put

get

FTP

HTTP (*)

To Web Service
Data Flow 2 of 3

From Data Provider

Station Metadata

Additional Data

Parser

stations.xml

Other Adapters
Data Flow 3 of 3

Stations.xml

- Raw
  - (Browser)
  - (XML Editors)
- Transformers
  - (KML)
  - (HTML)
  - (XSL)
- Digestors
  - (GIS Ingest)
  - (Custom Objects)
- RPC
  - (Various Apps, Extensions, Integration)
• Client #1: Google Earth

• Client #2: GIS Client
NEXT STEPS

Initiate contact with individual sea level station operators in the Pacific and explore opportunities to stand-up operator-based web services.

Refine the XML-based sea level station metadata schema to include additional metadata elements and, as such, be applicable to other marine hazard warning systems.

Facilitate creation of a web-enabled client-application that harvests and displays sea level station metadata and other relevant information and that, at a minimum, could be used by tsunami warning system managers.

Continue communication and coordination with interested parties, building upon the discussions described in the UNESCO document IOC/INF-1226 of April 2006.

See Paper for further detail