Integrated Access to Pacific Region Data Assimilation Model Outputs

(who really deserves credit)

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and many other contributors ...
1/12°
HYCOM
Pacific model

DEPTH (m): 200
TIME: 24-JAN-2003 00:00

sea water salinity (PSS)
Relevance of the Project

“NOAA has inadequate capacity to provide timely data and services to Hawaii, the NW Hawaiian Islands, and American Flag Territories”

• Why? The historical legacy of “stovepipe” projects.

• We need a marine community framework and standards for integration

• The IOOS/DMAC Plan (May ‘05) has outlined a strategy - used in this proposal
Project Description

• The DMAC Plan recommends (provisionally)
  - “OPeNDAP” for data transport
  - LAS (Live Access Server) for product delivery

• We have used these components, focussing on:
  - Data assimilation model outputs
  - Pacific Island regions
  - Integrating a range of other data sources
    NOAA, Navy, NASA, academic & international
Hawaiian Islands Regional Datasets

Forecast Products
- Wave Ocean Model (WAM) 10 hour forecast from NAVOCENAO
  - peak wave period
  - significant wave period
  - wave direction
  - wave height

- RCM (Pacific Ocean Model from RSMAS)
  - sea surface salinity
  - sea surface height
  - sea surface temperature
  - surface current vectors

- RIL (Regional Ocean Modeling System, RSMAS)
  - sea surface salinity
  - sea surface height
  - sea surface temperature
  - surface current vectors

- NEMO (NCCM Ocean Model)
  - sea surface salinity
  - sea surface height
  - sea surface temperature
  - surface current vectors

Satellite Products
- Landsat 7 satellite
  - sea surface salinity
  - sea surface height

- QuickSCAT satellite wind
  - sea surface wind speed
  - sea surface wind direction

In-Situ Data
- Coastal Ocean Observation Network
  - USHCO
  - French Polynesia
  - Hawaii
  - Alaska
  - California
  - Baja California
  - Mexico

- Coastal Ocean Observing Network
  - California
  - Mexico
  - Hawaii
  - Tahiti

- Coastal Ocean Observing Network
  - California
  - Mexico

- Coastal Ocean Observing Network
  - California
  - Mexico

Select region for access to data.
... from many sources:

Models
- (*) HYCOM (academic) 1/12 deg. op. model
- (*) NLOM (Navy) 1/32 degree operational model
- NOAA/NCEP met and ocean models via NOMADS
- (*) Wave Ocean Model (WAM) (from NAVOCEANO)

Satellite
- (*) AVISO satellite fields (from AVISO/France)
- (*) QuikSCAT Surface Winds (via APDRC)
- GHRSST (internat’l) (via US GODAE Server)
- NASA PODAAC
- NOAA CLASS (future)

In-situ obs
- (*) University of Hawai’i Sea Level Center
- NOAA/NDBC moorings
- Argo floats (via US GODAE GDAAC)
- GTS realtime surface and subsurface obs

Bathymetries, climatologies, climate models, ...
Relevance of the Project

Theme areas with examples:

• Risk Management
  e.g. hazardous spill trajectories

• Marine and Coastal Ecosystems
  e.g. physical models with embedded bio-geo-chemical modules

• Climate and Coastal Communities
  e.g. sea level height on time scales of climate, nowcast, and forecast
What remains to be done

1. Host this server at APDRC
   - Work with Shen Yingshuo to blend with APDRC

2. Configure remaining PRIDE island regions

3. Add additional datasets
   - GHRSSST (via US GODAE server)
   - Bathymetries
   - Climatologies (Levitus, COADS, Reynolds)
Opportunities

The opportunities are huge.
Key among them:

1. **GIS integration**
2. Custom-tailored user interfaces
3. Bio-geo-chemical (ecological) models
4. Other capabilities (not shown here)
LAS & GIS

ArcIMS "back-end" to LAS
Opportunities

The opportunities are huge. Key among them:

1. GIS integration
2. Custom-tailored user interfaces
3. Bio-geo-chemical (ecological) models
4. Other capabilities (not shown here)
Tailored user interfaces: e.g. GIS style
“Adopt-a-Drifter” is simply a tailored user interface for grade school education.
Opportunities

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Key among them:

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Discussion? Questions?