HYCOM and GODAE Product Server
Activities at the IPRC: A status report

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Outline:
1) Data and Product Serving
2) HYCOM Regional model

HYCOM NOPP GODAE Meeting
RSMAS, Univ. of Miami
27-29 October 2004
Welcome to the
Asia-Pacific Data-Research Center

The APDRC is building towards a vision of one-stop shopping of climate data and products for our users.

Our mission is to increase understanding of climate variability in the Asia-Pacific region by developing the computational, data management, and networking infrastructure necessary to make data resources readily accessible and usable to researchers and general users, and by undertaking data-intensive research activities that will both advance knowledge and lead to improvements in data preparation and data products.

Easy Access to Data and Products via the APDRC Servers
(atmospheric, oceanic, and air-sea flux)

Live Access Server

EPIC for All Data Sets
APDRC Datasets

Datasets served by the APDRC may be accessed through the options below. Data has been categorized by the data type (e.g., in-situ observations, model data, etc.), server type (e.g., EPIC data, LAS data, etc.), region (by ocean basin), grid type (regular grid, along-track data, single point time series, etc.), or by variable name. Note that there is not a single path to a particular dataset. To directly access a specific dataset, select it from the comprehensive list on the left. Otherwise, select from the following pull-down menus. Note that "local-access only" datasets are marked in red.

Select one of the following options:

Access data by server type: [All]
Access data by data type: [All]
Access data by region: [All]
Access data by grid type: [All]
Access data by variable: [Any/all variables]
- Temperature
- Salinity
- Nutrients
- Bathymetry
- SST
- Sea level
- Surface winds
- Surface heat flux
- Elevation

List data sets by discipline:
- Air-sea flux data
- Ocean data
- Atmospheric data

List data sets by source:
- In-situ data
- Satellite data
- Reanalysis data
- Model data
APDRC's Service

<table>
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<th>Grid and Sequential Data</th>
<th>In Situ Data</th>
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<td>Live Access Server</td>
<td>EPIC for All Data Sets</td>
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<td>Downloading Data</td>
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<td>DAPPER</td>
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<td>OPeNDAP Servers</td>
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<td>GDS Server</td>
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<td>WOD on LAS</td>
<td>FNMCC/GODAE Daily Real-Time Profile Data</td>
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What's New?
Do you want to compare NRL's NLOM SST with Tchoku Univ. New Generation merged sst?

New Links
Experimental Real Time Forecasting of Southeast Asia Intraseasonal Variability link to Georgia Tech
Activities-

• Data Server System operation and development
• Data management and product archiving
• Value-added product development

NEW-
Applications development

1) GODAE Product Server

2) Hawaiian Islands high-resolution regional models (ocean and coupled) (exportable to other island regions)
APDRC Data Server System

Application Software:
Matlab, IDL, ferret, GrADS,
Fortran, JOA, ncBrowse

Desktop

Web Browser

User

DODS/OPeNDAP Catalog Aggregation Server

APDRC Server & Storage System

LAS, EPIC

Remote data 1
Remote data 2
Remote data N

Local data

Distributed Data

NFS

http/data

http

http/data

http/data

http/data

http/data
APDRC Servers
(web-based search, display, access)

• Sun Enterprise 450, 4 processors, 8 TB RAID storage
• EPIC Server for in situ (station versus gridded) data (from PMEL)
• Live Access Server (LAS) for gridded products (from PMEL)
• Grads DODS Server (GDS) (from Univ. of Maryland)
• DODS/OPeNDAP Server for product transfer between sites
• Catalog-Aggregation Server (CAS) and GDS for multi-file aggregation
APDRC as a GODAE Product Server

Legend:
- Sources of Inputs
- GODAE common
- Users of GODAE outputs
- IPRC & EWC coordination
- GODAE partners
- POIS NETWORK
Pacific Islands and the EEZ
UH HYCOM Activity Goals

• Help serve standard HYCOM products to users
• Implement high-resolution (operational) HYCOM for Hawaii using Pacific HYCOM for boundary conditions. (much regional data for evaluation and assimilation)
• Include tides (barotropic and baroclinic)
• Evaluate in Hawaii region
• Implement parallel effort for other island region users (Guam, Samoa, Fiji,…..)
• Identify users, their needs and get user feedback (research, applications, and general users)
Large-scale domain for Hawaii region
NRL NLOM, 24 October 2004

LAT 8.3.0/Ferret 5.00 -- NOAA/PMEL

TIME: 24-OCT-2004 00

DCOS URL: http://apdrc.soest.hawaii.edu:9090/dcos/
DATA SET: nlon_ssh

SSH (cm)
Regional domain
NLOM, 1/16 degree, 24 October 2004

SSH

LASS 4.3.9/Portel 0.6c -- NOAA/PMEL

NLOM SSH

SST

LASS 4.3.9/Portel 0.6c -- NOAA/PMEL

NLOM SST
Staff

Yanli Jia 50% Team Leader, implement model
Max Yaremchuk 25% implement assimilation scheme
Jim Potemra 25% regional model evaluation
Peter Hacker 10% “ “ “ “

UH effort started in May 2004
Tasks

• Downscale by factor of ~8 to resolution of ~ 1 km
• Optimize vertical grid for local density field
• Include 1 km bathymetry
• Include tides
• Experiment with domain size, especially western boundary
• Force with local UH and NWS winds, ~ 2 km resolution
  (operational product exists)
• Implement assimilation scheme
• Develop regional web pages for regional users
Accomplishments

Pacific HYCOM, 1/12 degree
Jan. 2001-July 2002
SSH

Hawaii Regional, 1/12 degree
* relax to BC at domain edge
* 18 month run

Domain-
16-26 N, 152-164 W
Technical issues

IPRC computer: SGI Origin 3000
Time for run at 1/12 degree:
  1 processor- 23 hours per model month
  16 " ~2 " " " " "

Experimentation is feasible on our machine.
Forecasts are feasible.
Summary

- APDRC receives NOAA funding to support GODAE infrastructure
- APDRC can help serve standard HYCOM products (fine resolution in time and space. Indo-Pacific region)
- APDRC will develop and serve regional, high-resolution products
- We would like to coordinate closely with NOPP HYCOM activities

http://apdrc.soest.hawaii.edu