Group session (numerical model)

a. Current plan of forecast/simulation/reanalysis
   NICAM, COAMPS, WRF, CReSS, ALERA
b. Data policy of model (forecasts/hindcasts/reanalysis)
   access, timing --- synchronous to observational data ?
c. Real time support and comparison on the CINDY web
d. How to organize CINDY/DYNOAMO numerical studies (MIP, reforecast of MISMO campaign ?)
e. Feedback and Requests to Observations

List of model activities (by attendees of WS)

1. Real time forecasts

- CReSS (Shinoda)
- JMA-NHM (Moteki)
- regionally stretched NICAM (Nasuno & Satoh)
- COAMPS/NCOM/SWAN (Chen)
- UH ECHAM-ocean CGCM (Li)

2. Hindcasts

- WRF (Takemi)
- NICAM (Nasuno & Satoh)

3. Reanalysis

- WRF 3D-Var, assimilation (Li)
- ALERA (Moteki)

List of model activities (others)

1. CSRMs
- SAM
- Alan-Reunion model (France) 3D-Var assimilation, dx=8km
- Meso-NH (France) coupled model, dx~1km

2. SCMs (DYNAMO project)

3. large-scale models
- Global WRF
- Tropical WRF (nested inner domain)

4. GCMs
- NCAR CAMS (Maloney ?)
- ECMWF models
- LMD-Z GCM (France)

Operational forecasts, diagnostics (working)

- NCEP/CPC (Gottschalck) special products for IO region

http://www.cpc.noaa.gov/products/precip/CWlink/MJO/mjo.shtml

- ABOM (Wheeler & Hendon)

http://cawcr.gov.au/staff/mwheeler/maproom/RMM/

- NOAA/ESRL/PSD

http://www.esrl.noaa.gov/psd/MJO/

- JMA (GSM)
- ECMWF

http://www.ecmwf.int/products/data/archive/descriptions/od/index.html

- SINTEX-F1 (IO seasonal forecast, JAMSTEC)

http://www.jamstec.go.jp/frcgc/research/d1/iod/sintex_f1_forecast.html.en

- US CLIVAR MJO WG, YOTC TF, AAMP (diagnostic tools)

http://climate.snu.ac.kr/mjo_diagnostics/index.htm

Operational reanalysis (working)

- ECMWF-interim

http://www.ecmwf.int/products/data/archive/descriptions/ei/index.html

- NASA-MERRA

http://gmao.gsfc.nasa.gov/merra/

- NCEP-GFS http://www.nco.ncep.noaa.gov/pmb/products/gfs/
- NOGAPS
- JMA-JCDAS

Group session (numerical model)

1. Real time support and comparison on the CINDY web

   ◎ link to CINDY web

   ・ collect digital data and coordinate (make diagnostics) on CINDY/DYNAMO web ・・・ need man power

2. Data policy of model (forecasts/hindcasts/reanalysis)

   most of the simulation data will be opened by individual requests (to collect all the model results is not practical)

   timing of data release depends on forecast (earlier)/ hindcast/reanalysis (~ 1 year after OP).

   list of model simulations (experimental design, and contact person) will be provided on CINDY web.

Group session (numerical model)

3. How to organize CINDY/DYNOAMO numerical studies (MIP, reforecast of MISMO campaign ?)

・MIP for CINDY/DYNAMO OP:

productive in evaluating model performance (e.g., cumulus parameterization, microphysics, etc)

need to select target period, target domain and variables to compare (coordination with DYNAMO)

・MIP of test simulation cases:

i) reforecast of MISMO campaign

Global model (MJO diagnostics, Katsumata et al. 2009; Yasunaga et al. 2010) … 7-km mesh NICAM hindcast (Miura et al. 2009)

CRMs (mesoscale events Yamada et al. 2010)

ii) Apr. 2011 pre-run

Group session (numerical model)

4. Feedback and Requests to Observations

skin SST, ocean mixing, mixed layer depth, surface fluxes, radiative fluxes

boundary layer processes

Q1, Q2, dh, heating profile to force GCMs

convective momentum transport,

microphysics

U, V, W, RH, convergence, vorticity

Western IO

Both active and suppressed phase

Quality Control

Group session (numerical model)

5. Aircraft observation … high-resolution forecast will be most required
6. Satellite data

   SDSU = mainly offline use

   Combined use of in-situ data, satellite data, and numerical simulation data is a new challenging task.

NICAM simulation (tentative plan)

1. Near-realtime prediction with regionally stretched NICAM

   operation: Oct. – Nov. 2011 → Mirai (e-mail), web (internal access)

   option: Sep., Dec. 2011, Jan.-Feb. 2012 → web (internal access)

   14~28km mesh in 90deg x 90 deg domain (center: 80E, 8S)

   7-days integration (5-days prediction)

   3 times / week (Wed., Fri., Sun.) → every day ??

Release plan:

Image: web access (CINDY/DYNAMO members during IOP)

digital data: (> 12TB in total)

available via order form within a year (contact: T. Nasuno)

data lists and sample data will be provided on CINDY web site

NICAM simulation (tentative plan)

2. Hindcasts with full (global) NICAM (mainly conducted after IOP)

… ES computational resource approval, Mar. 2012

1-2 month run with 14 km (Oct. – Nov. 2011 and/or prominent event)

→ 7 km mesh run (hopefully)

option: 1-2 month run with 14-km mesh (~20 sets)

(e.g., 2~3 week intervals or 5 ensemble run x 4 periods)

* Initialization, validation using WRF reanalysis data (in collaboration with Prof. Li)

(It takes ~ a year to finish hindcasts after the end of OP)

data release: data will be opened to collaborators by individual negotiation (contact: T. Nasuno). available datasets will be announced to CINDY/DYNAMO members

IPRC Plan (Li)

1. Real time MJO forecast:

Model: UH hrbrid coupled GCM, ECHAM4 T42/ocean 0.5 degree

Domain: ECHAM4: global, UH 2.5-layer ocean model: 30S-30N

period: Sept 2011 - Jan 2012

forecast length: 30 day

forecast frequency: once per 5-10 days

initialization strategy: non-filtering initialization scheme

Model data release: yes, imediately after forecast

(same model can be used for MJO hindcast intercomparison project)

IPRC Plan (Li)

2. Reanalysis/data assimilation

Model: WRF 3DVar/4DVar

Resolution: 10 km

period: Sept 2011 - Jan 2012

Domain: Tropical Indian Ocean 40-110E, 20S-20N

Model data release: yes

time line: estimated by end of 2012, depending on time we get all in-situ data

contact person: Tim Li

COAMPS Plan (tentative)

Model: COAMPS

Domain & resolution: atmosphere 27x9x3x1 km , Ocean (1/8deg), wave (1/4deg), 25 S-25 N, 40-140 E. inner nests (9x3x1 km) will only cover the CINDY/DYNAMO area.

Period: 1 Oct – 30 Nov 2011, 7 days forecast once a day in real time

Release plan: images available in real-time on the EOL DYNAMO web site, whether COAMPS forecast digital data can be also hosted on EOL need to be discussed. Otherwise, the digital data is available upon request.

Timeline: April, 2011

Contact person: Sue Chen (sue.chen@nrlmry.navy.mil)

We also plan to perform reanalysis and hindcast of this CINDY/DYNAMO IOP period. However, the reanalysis and hindcast COAMPS data will not be released until our work is published.

Kyoto Univ. Plan

Model: WRF

Domain: Mesoscale domain nested within JMA's GSM analysis

Resolution: 100 m (innermost domain)

Period: Case study basis; hindcast simulation and idealized experiment

Release plan: Yes. A year after the end of the field campaign (upon request). Via internet.

Timeline: Spring 2011.

Contact: Tetsuya Takemi (Disaster Prevention Research Institute Kyoto University) takemi@storm.dpri.kyoto-u.ac.jp

Nagoya Univ. plan

Model	CReSS (CReSS-NHOES)
Domain	1500 km × 1500 km or wider
Resolution	2.5 km or less → depend on domain and resolution → also depend on Lab. plan
Period	Oct. - Dec. (Nov.) 2011
Forecase/Hindcast/Reanalysis	Forecast Basically using same configuration on PALAU2010
Release plan	YES for snapshot: realtime at web with password for data: please contact me
Timeline	?
Contact person	Taro Shinoda <shinoda@rain.hyarc.nagoya-u.ac.jp>