3rd DYNAMO Planning Workshop

6-8 July 2010, APL/UW, Seattle WA

Objectives:

- Update planning status
- Identify needs for operation support
- Initiate individual proposal coordination:

– cross observing platforms

– between observations and modeling

– cross different models

Workshop Agenda

- Day 1 (Tuesday, 6 July)

  Morning: Current Status

  Afternoon: Synergy, gaps, flexibility

  Breakout – specific issues pertaining to radar, ship, aircraft, water vapor measurement, modeling
- Day 2 (Wednesday, 7 July)

  Morning: Aircraft update; Needs for operation support

  Afternoon: Breakout – observation-modeling connection

  Remaining issues
- Day 3 (Thursday, 8 July)

  Morning: student participation, timeline, remaining issues, action items

Expected Outcome

- Connections between PIs (observation, modeling, analysis/forecast) for proposal writing
- A list of needed real time forecast/analysis products and post-field reanalysis products (variables, resolutions, etc.) from NCEP and ECMWF
- Identified support needed from the Project Office and Operations Center
- A plan for student/postdoc participation in the field campaign (numbers, recruitment, training, funding)
- A list of PIs/proposals that will use data from NCAR facilities (S-PolKa, ISS, dropsondes)
- A statement on DYNAMO observation-modeling connection requested by NSF and NOAA
- Action items and timeline for moving forward the planning of the field campaign

DYNAMO: Current Status

- NOAA CPO Earth System Science Program Funding Opportunities for DYNAMO (April 2010) – proposal due late August/early September
- ARM AMF2 proposal submitted (decision to be made in September 2010)
- SPO and EDO approved by NSF; individual proposals due 20 August 2010 (decision to be made in December 2010)
- ONR DRI in place
- NCAR S-Polka Ka-band test positive
- Preliminary site survey (Gan Island, February 2010)
- 3rd DYNAMO workshop 6-8 July, 2010, Seattle, WA
- 1st International CINDY2011 workshop, 8-10 November, 2010, JAMSTEC, JP
- Ship time availability to be determined

Comments/Suggestions/Questions from Reviews of SPO and EDO

1. scale interaction missing
2. direct benefit to improvement of cumulus parameterization
3. island effects on observations
4. role of diurnal cycle
5. local vs. upstream initiation
6. integration of field observations from different instruments
7. integrated water vapor data (soundings, GPS, dropsondes, etc.)
8. integration of field observations and auxiliary data – satellite, reanalysis, etc.
9. DYNAMO – TOGA comparison
10. forecast/hindcast experiments for the field campaign period
11. avoid duplications, maximize collaboration between PIs and data sharing
12. junior scientists (students, postdocs) involvement from planning stages
13. participation of underrepresented groups
14. involvement of countries around the Indian Ocean rim
15. contributions from ECMWF

Other Observations

- Drifters (sea surface temperature and velocity) from the US ship, funded by NOAA (Rick Lumpkin, NOAA/AOML)
- Micro Rain Radar, MPL lidar (PBL height, aerosol), KT19-85Wintronics (skin SST), whole sky camera, microtops (aerosol optical thickness, liquid water content), from R/V Mirai, pending ONR, (Piotr Flateau, Scripps)
- Satellite data analysis (Waliser/Stephens, JPL)

Potential ECMWF Support

- Real time forecast (10 days) and operational analysis (16 km resolution, 25 pressure levels, 46 model levels, 2 times a day) during the field campaign can be made available to DYNAMO at no cost

– Which variables are needed?

- Post-field reanalysis (T225 or 50 km, 25 pressure levels, 4 times a day) can be done with DYNAMO support (a postdoc)

– What observations that can be assimilated but are not on GTS?

Student/Postdoc Opportunities

1. S-PolKa Ka-band moisture (Gan): 105 days
Essential: 1 – 2 radar scientists (1 per shift), 30-50 days/person, 2 – 12 total
Optional: 0 - 4 per day (2 per shift), 30 – 50 days/person, 0 – 12 total

2. SMART-R (Gan): 6 months
Essential: 2 per day, 60 day/person, 6 total

3. TOGA radar (ship): 80 days
Essential: 2 per day, 40 days/person, 4 total

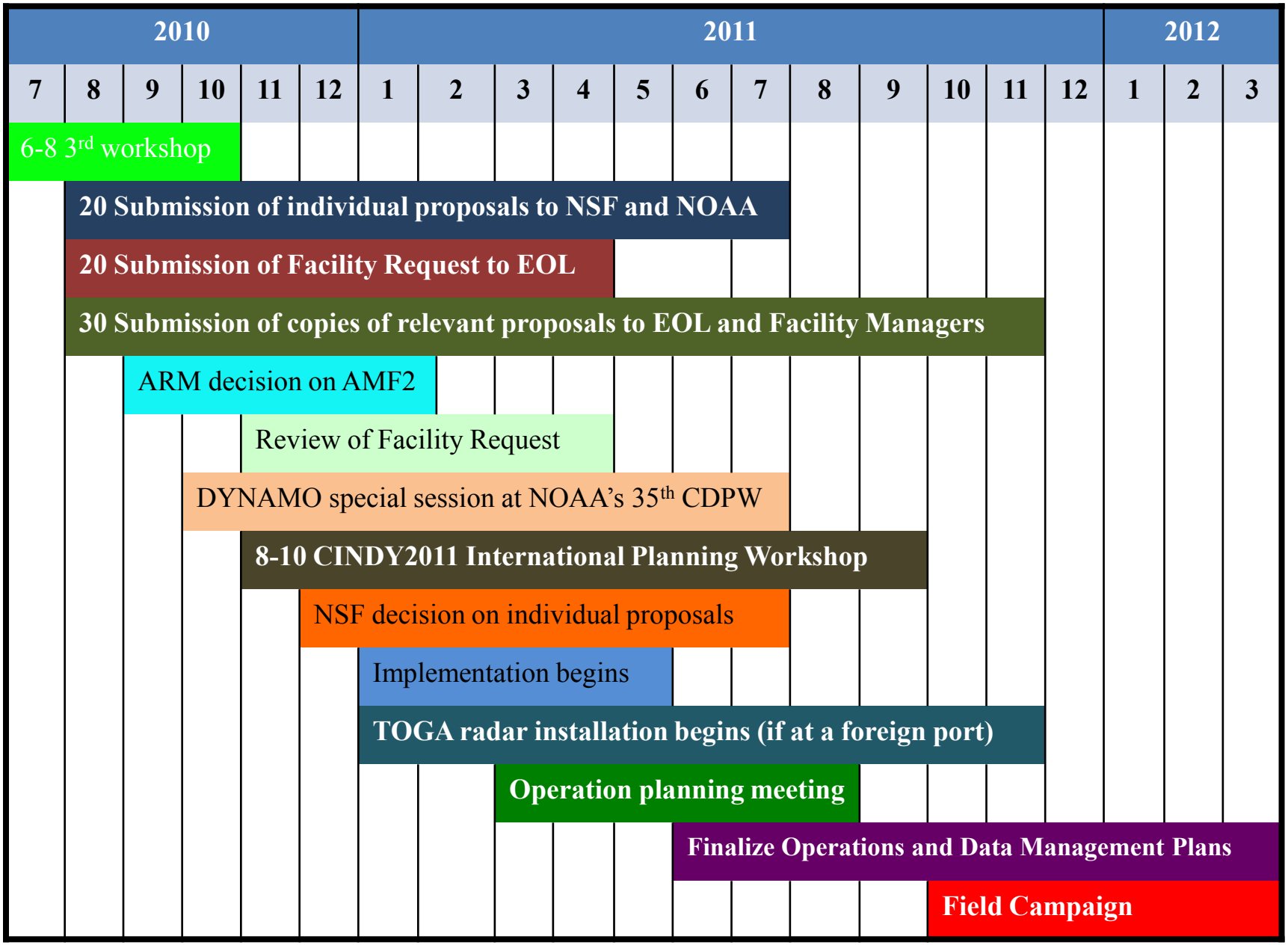
4. Soundings (ship): 80 days
Essential: 2 per day, 40 days/person, 4 total
Optional: 1-2 per day, 40 days/person, 2 – 4 total

5. Soundings (Diego Garcia): 105 days
Essential: 2 per day, 30-50 days/person, 4 – 6 total
Optional: 1-2 per day, 40 days/person, 2 – 4 total

Expected Outcome

- √ Connections between PIs (observation, modeling, analysis/forecast) for proposal writing
- \- A list of needed real time forecast/analysis products and post-field reanalysis products (variables, resolutions, etc.) from NCEP and ECMWF
- √ Identified support needed from the Project Office and Operations Center
- √ A plan for student/postdoc participation in the field campaign (numbers, recruitment, training, funding)
- \- A list of PIs/proposals that will use data from NCAR facilities (S-PolKa, ISS, dropsondes)
- \- A statement on DYNAMO observation-modeling connection requested by NSF and NOAA
- √ Action items and timeline for moving forward the planning of the field campaign

DYNAMO Timeline



Action Items

Information inquiry:

1. HARIMAU: sounding frequency; data sharing with CINDY2011/DYNAMO PIs (Katsumata)
2. Berth needs from R. Lumpkin and ONR PIs (Moum)
3. Personnel on Gan (Houze/Ellis/Schumacher/Long/Moore)
4. Vertical resolution of 50-channel microwave radiometer humidity profiles (Brown)

Immediate actions:

1. Get workshop agenda/presentation online (Meitin)
2. Aircraft group mailing list (Meitin)
3. Determine the need of a microwave radiometer on Gan
4. Submit proposals to NSF and NOAA (PIs)
5. Send a copy of proposal to Chidong Zhang (pass to NSF, NOAA, OFAP)
6. NCAR facility (S-PolKa, ISS, dropsondes) request (Houze, Johnson, Wang, Zhang)
7. Write a statement on observation-modeling connection (Maloney/Houze/Schumacher/Zhang)
8. Propose to NSF/NOAA/ONR for a DNAMO Project Office
9. model radar simulators (Schumacher/Maloney/Medina)
10. Link ONR DRI and DYNAMO ocean modelers (Shinoda/Lien/Moum)
11. Gan logistics (Moore/Meitin)
12. Group issues (ship, radar, aircraft, modeling,….)
13. Implement isotope schemes in GFDL and NCEP models (Noone)
14. Survey of need from ECMWF forecast/operational analysis (Zhang)

Questions/Issues

Other actions:

1. Propose a travel fellowship fund to support junior scientists (students, postdocs) to participate in the filed campaign (Zhang)
2. entrain African scientists/weather service (Schumacher)
3. Evaluation of forecast from NCEP, ECMWF, NRL, BOM, JAMSTEC (Zhang coordinates)
4. Dry run of data stream/feed of forecast and analysis (Vintzileos/Moore)
5. Real time satellite data need for field operation (radar and aircraft groups)
6. Integrated precipitation dataset (satellite + radar + raingauge) (Zhang inquires NASA)

Issues for the CINDY2011 November workshop:

1. Exact height of all surface pressure measurement
2. Delay the start of the SOP to allow instrument shake-down
3. Ship longitude (80E vs. 79E)
4. Call-in participation in the workshop

Integrated (gridded) datasets:

water vapor (Ciesielski)

surface flux (Khelif)

radar cloud statistics (Schumacher)

Proposal Submission

NSF (Atmosphere, Ocean)

- Deadline: 20 August, 2010
- Submission: Fastlane (ATM/Climate Dynamics, Eric DeWeaver)
- DYNAMO overview will be provided to reviewers and panelists
- "explain how their particular project fits into the campaign and how it addresses the scientific hypotheses".
- Mention in the abstract or introduction specific field observations to be used.
- Decision: December 2010

NOAA:

- Deadline: late August - early September, 2010
- Submission: Grant.gov (James Todd)
- Same as NSF proposals

NSF/NOAA:

- Identical proposal with NSF budget via Fastlane and NOAA budget via Grant.gov

Budget for field travel: Only essential personnel (excluding travel for student training/experience)