



To Eric
Warmest Regards
Doris Day

30-20

MAGIC

Ernie Lewis

elewis@bnl.gov



Atmospheric System Research (ASR) Science Team Meeting

Potomac, MD

Wednesday, March 20, 2013, 7:00-8:30 pm

Agenda

MAGIC Overview and Status

Ernie Lewis

Logistics and Layout of AMF2 during MAGIC

Nicki Hickmon

Correcting Radar Data for Ship Motion

Karen Johnson

A First Look at MAGIC Cloud Radar Doppler Spectra

Ed Luke

Preliminary Analysis of Cloud, Precipitation, and Boundary-Layer
Structure Observations during MAGIC

Pavlos Kollias

Early Results from the MAGIC Radiosonde Data

Maureen Dunn

Energy Fluxes during MAGIC

Mike Reynolds

How Can Shortwave Hyperspectral Observations Complement
Phase II of MAGIC?

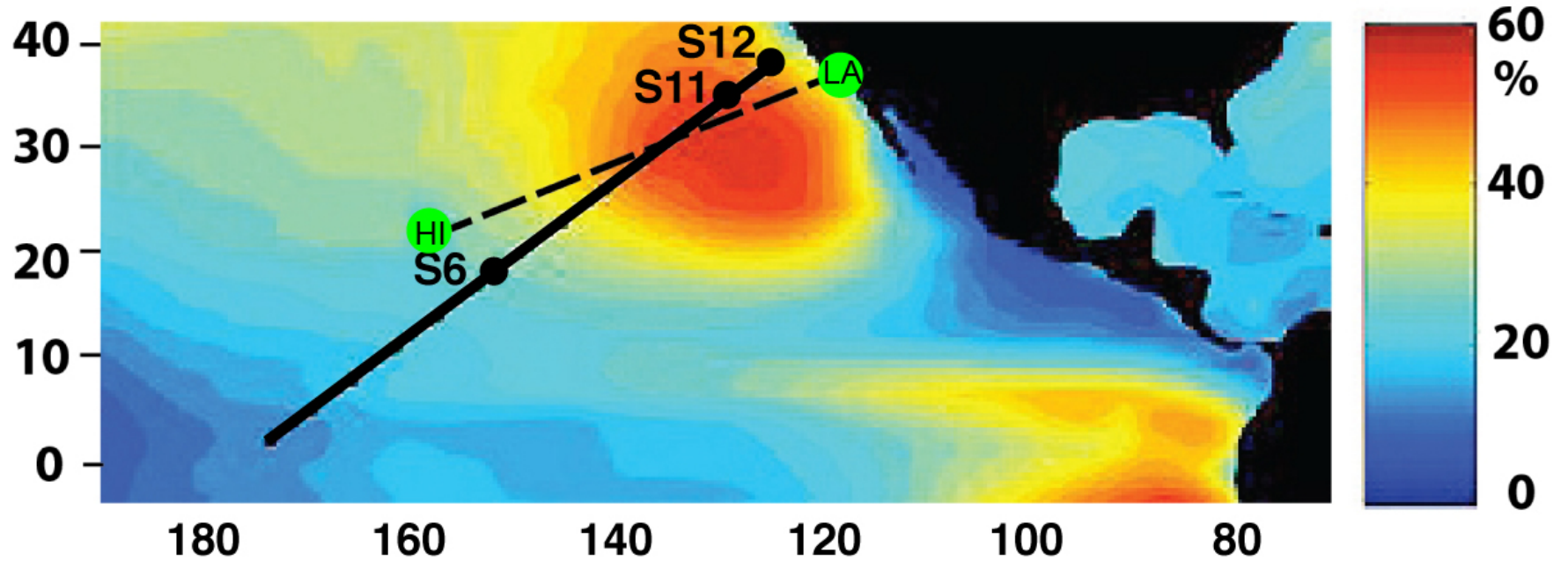
Patrick McBride

MAGIC

Overview and Status

Ernie Lewis

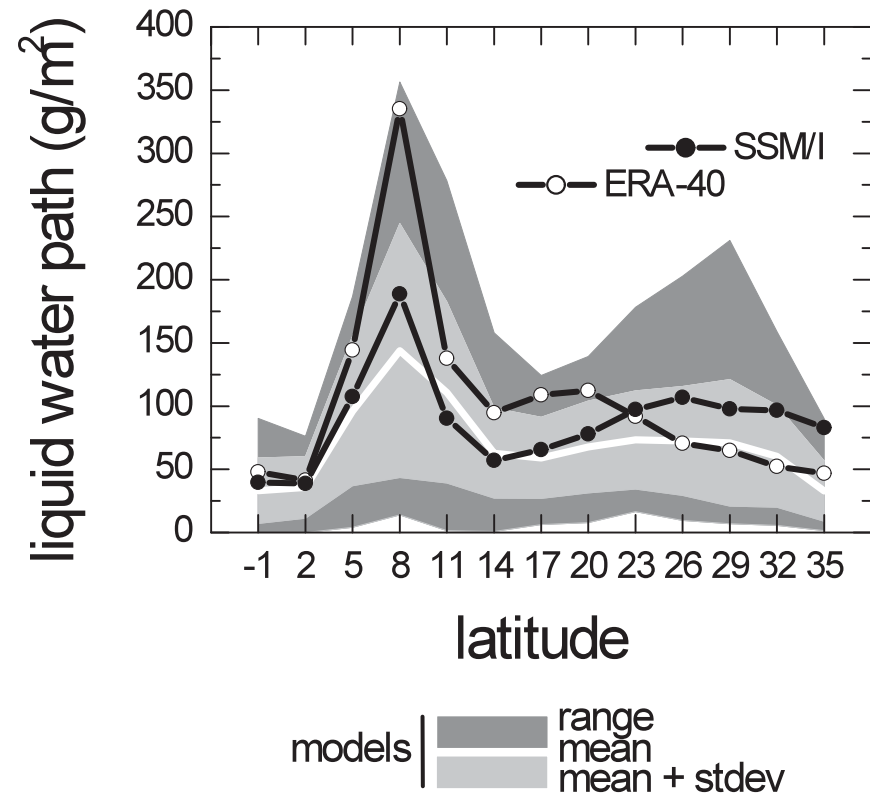
MAGIC: Marine ARM GPCI Investigation of Clouds



MAGIC route with annual average low-level cloud cover, GPCI transect, & CGILS points.

From Teixeira et al., J. Climate, 2011

Models Exhibit *Some* Disagreement

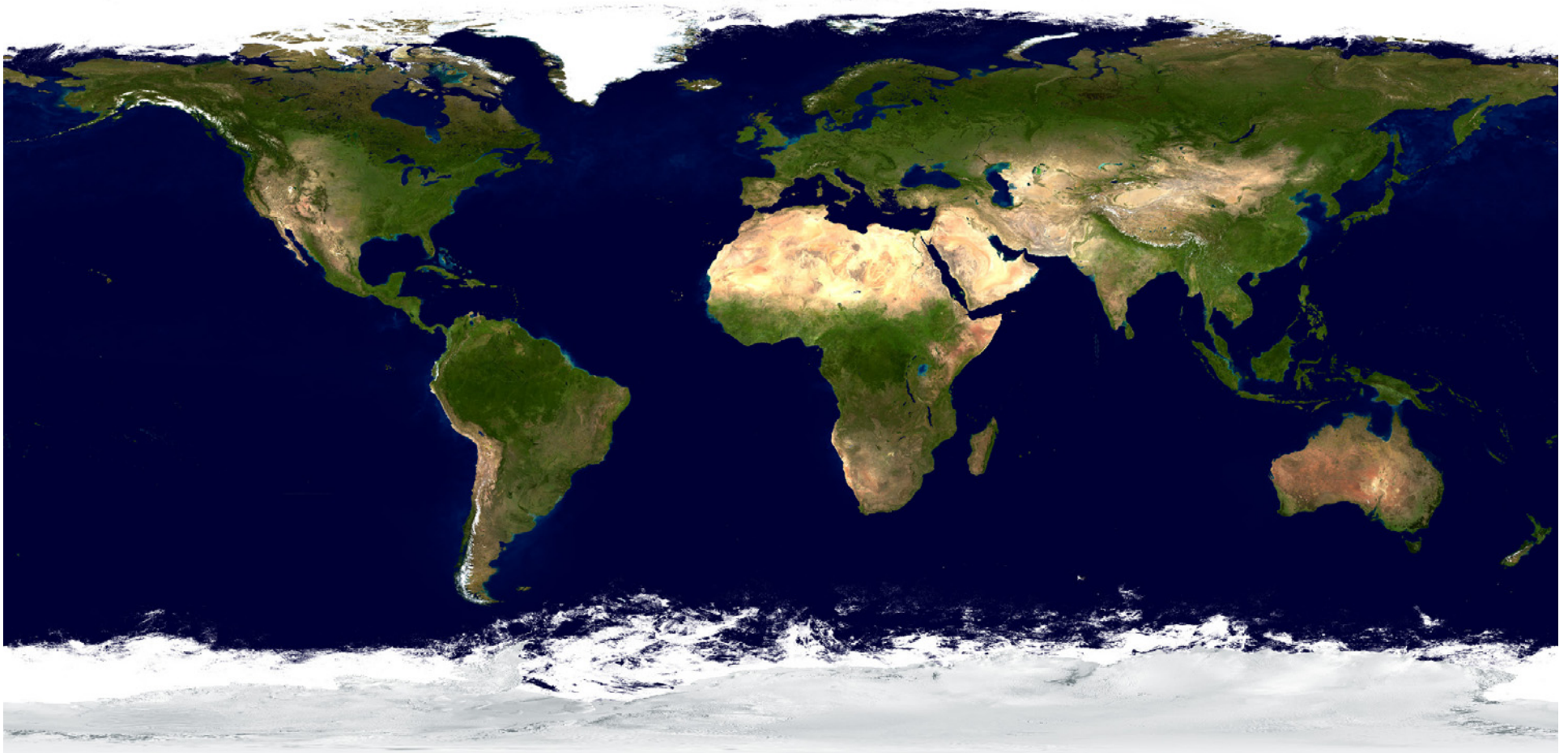


from Teixeira et al., 2011

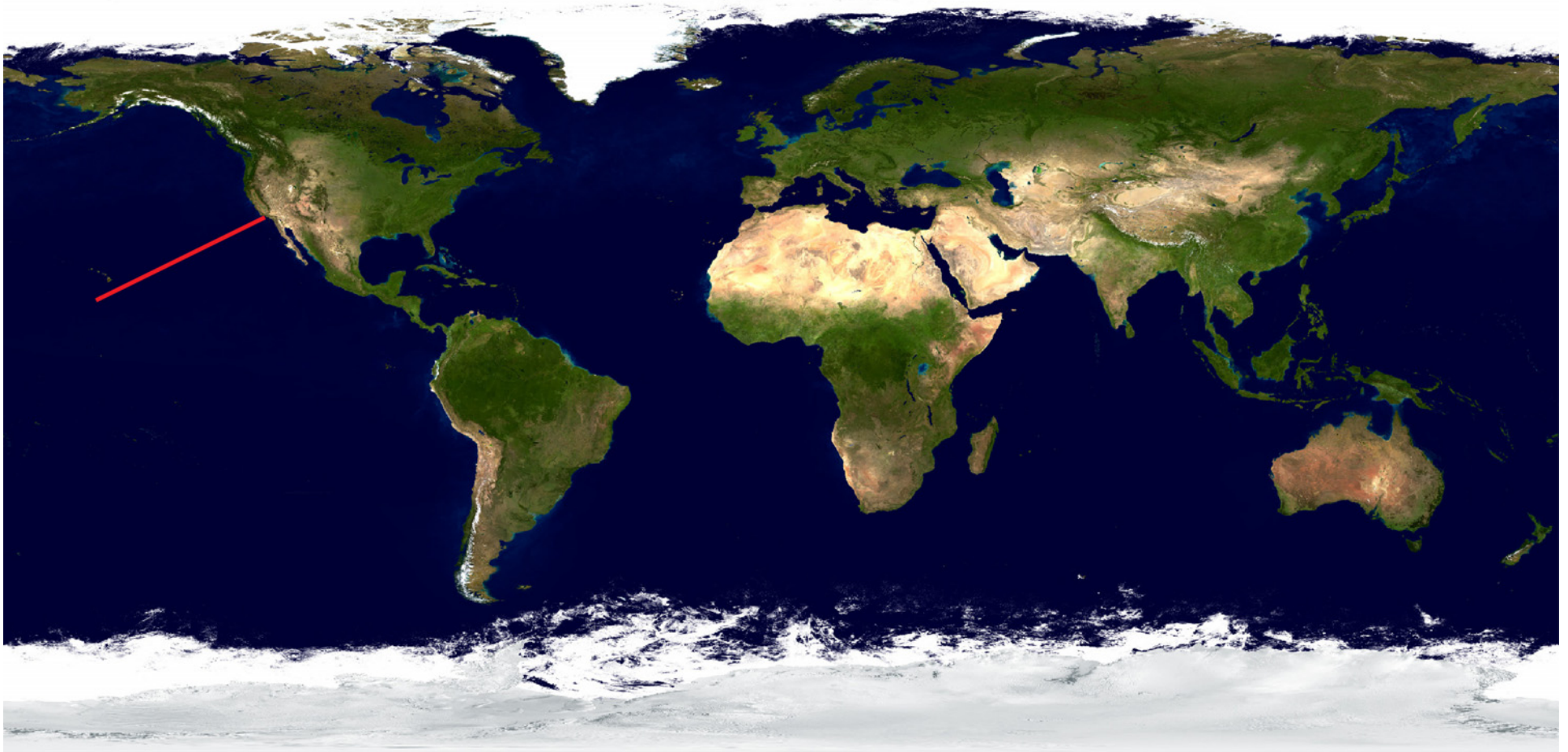
For JJA 1998 along GPCI

Ensemble results from 23 models; mean plus or minus standard deviation

Range extends from minimum to maximum values.



70% of Earth's surface is covered by oceans



70% of Earth's surface is covered by oceans

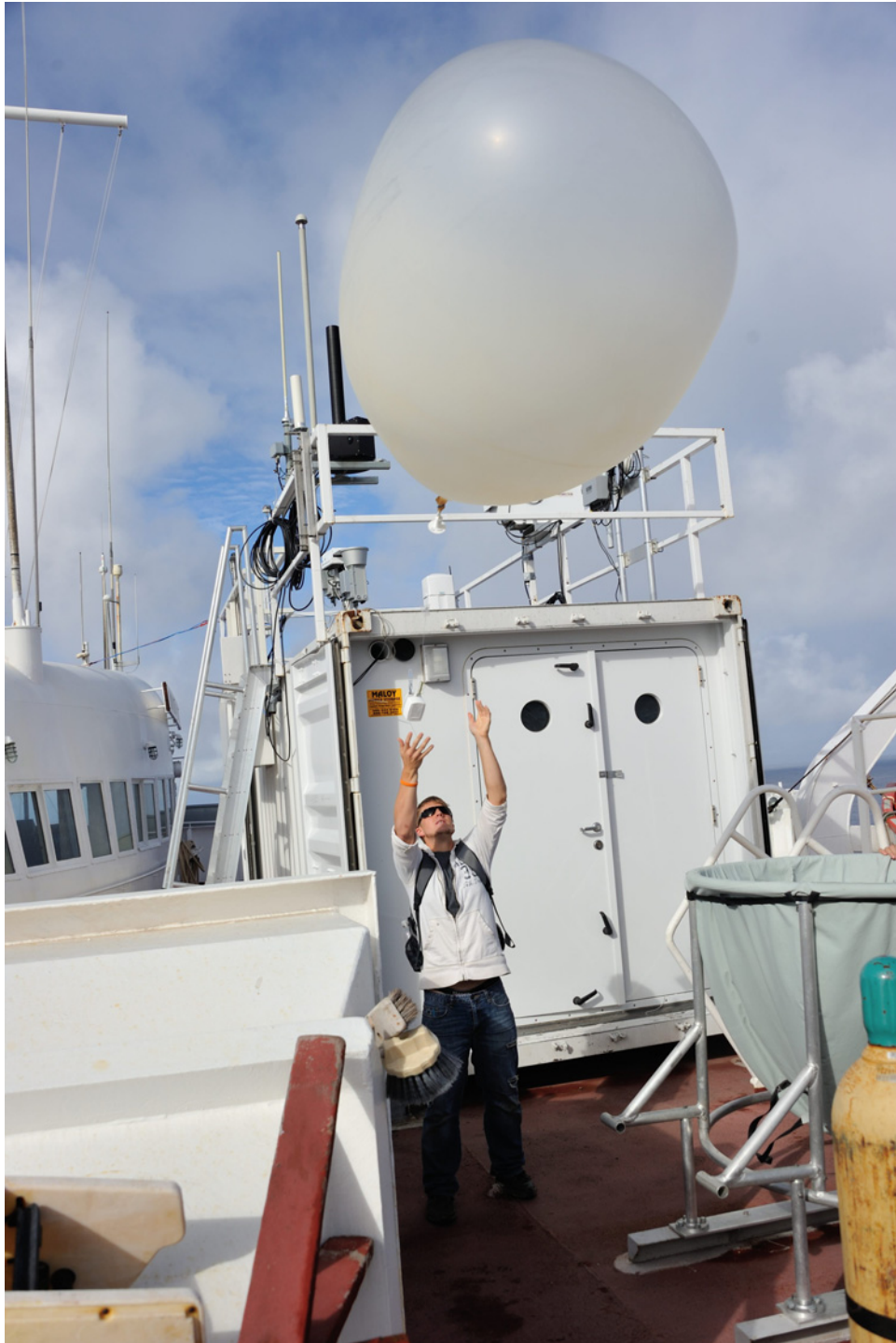
 **HORIZON LINES**





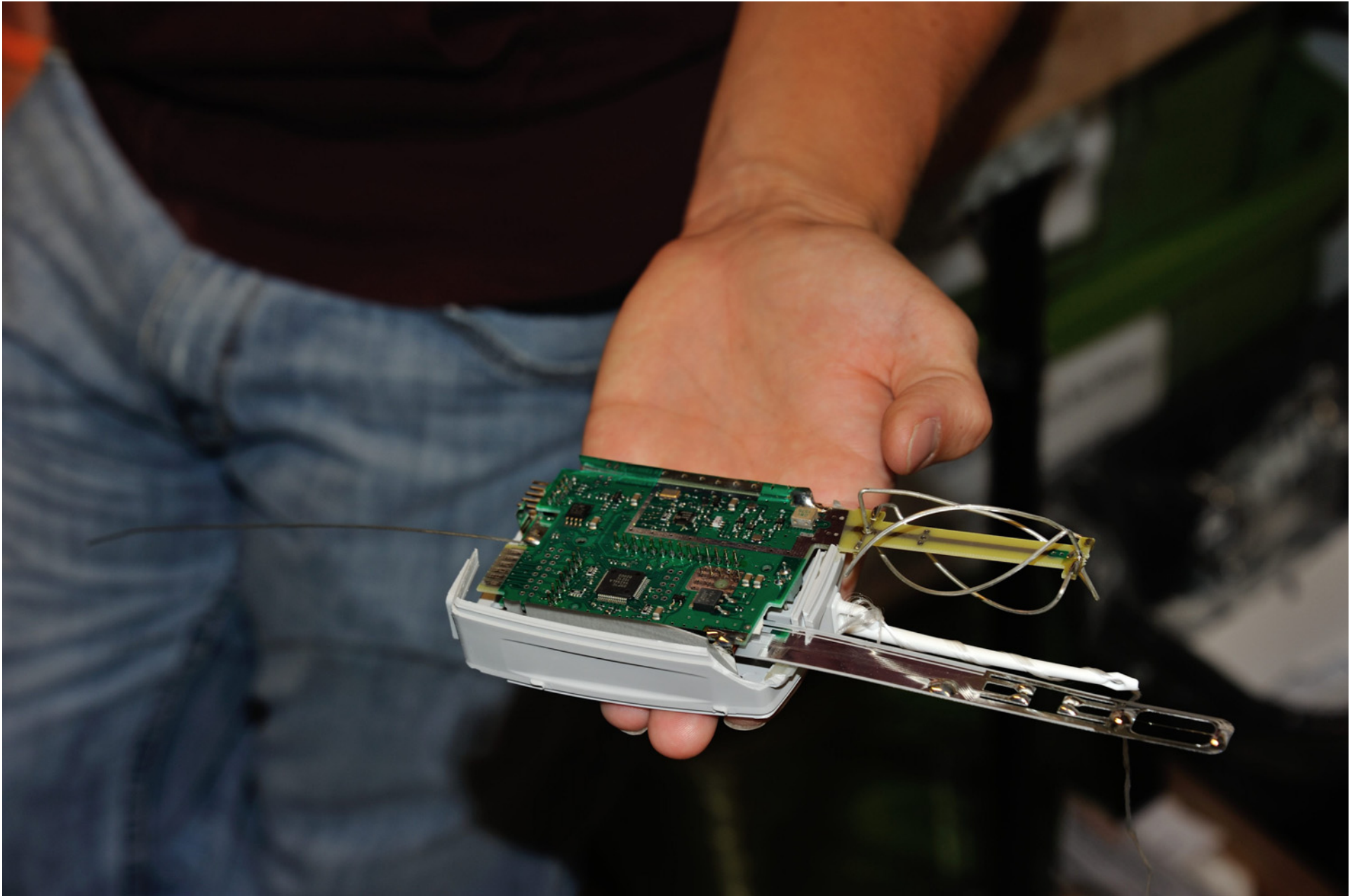


Mark, Tom, Brett, Pat









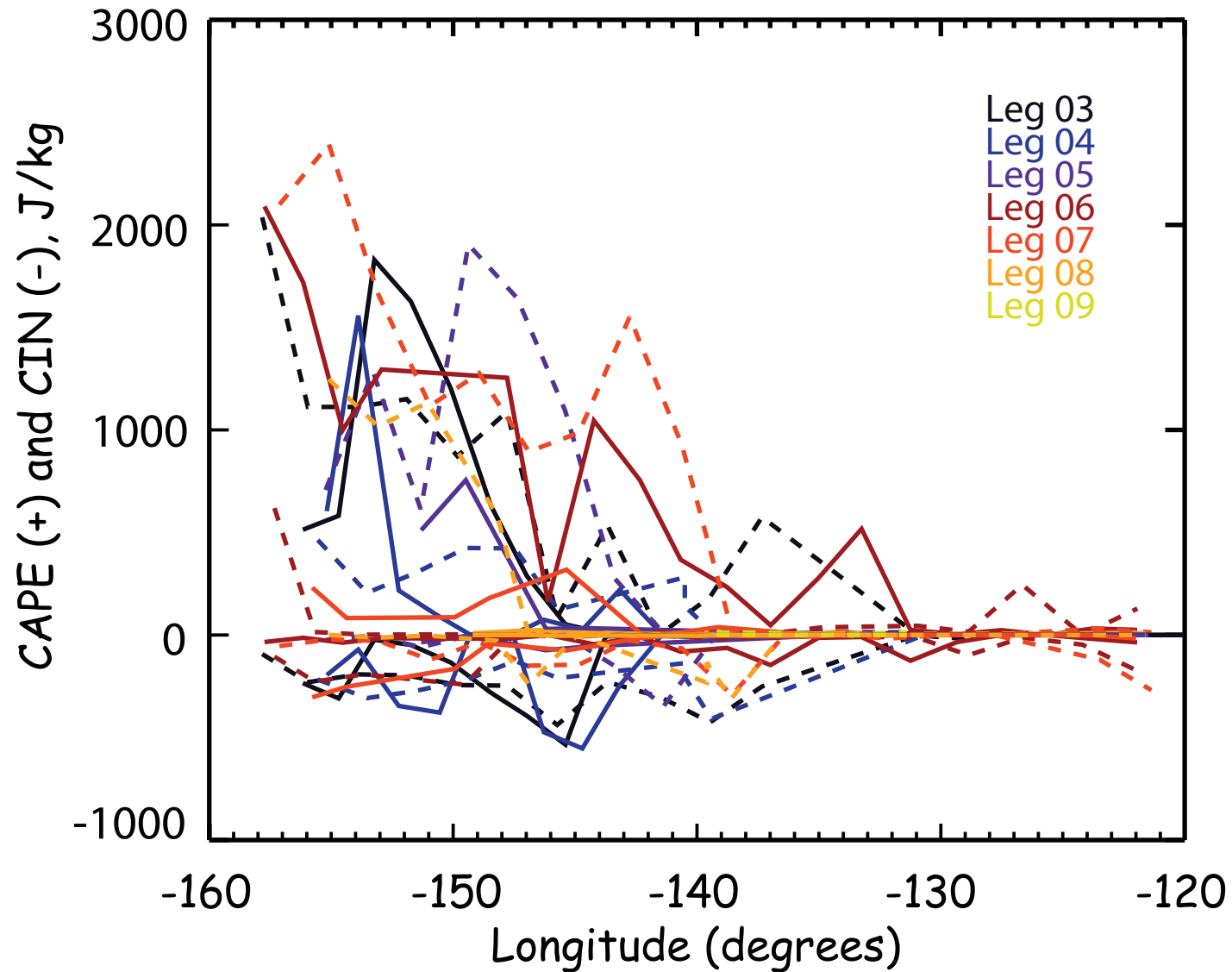
Sonde Launch Spreadsheet

| launch date | launch time UTC | surf TempC | surf RH% | wind dir | rel ws m/s | max ht km | min Pmba r | comments |
|---|-----------------|------------|----------|----------|------------|-----------|------------|------------------------------------|
| at end of cruise please email to elewis@onl.gov | | | | | | | | |
| thank you | | | | | | | | |
| 20121020 | 1800 | 15.5 | 89.9 | 052 | 23.9 | | | TF Terminated after launch |
| 20121020 | 1820 | 15.6 | 85.1 | 060 | 24.1 | 17.800 | 79.6 | |
| 20121020 | 2335 | 16.5 | 94.7 | 070 | 22.7 | | | TF Terminated sounding due to high |
| 20121021 | 0530 | 17.2 | 82.4 | 031 | 12.7 | 28.700 | 13.9 | |
| 20121021 | 1130 | 7.8 | 77.2 | 021 | 7.8 | 26.900 | 18.3 | |
| 20121021 | 1730 | 18.9 | 70.9 | 004 | 9.7 | 28.529 | 14.3 | |
| 20121021 | 2330 | 20.1 | 74.0 | 353 | 11.4 | 27.686 | 16.2 | |
| 20121022 | 0530 | 19.9 | 80.2 | 350 | 10.9 | | | MS |
| 20121022 | 1130 | 20.7 | 77.6 | 013 | 15.1 | | | TF Terminated sounding. Sonde hit |
| 20121022 | 1730 | 21.5 | 68.2 | 020 | 11.7 | 27.450 | 16.8 | |
| 20121022 | 2330 | 20.7 | 81.2 | 033 | 2.5 | 25.698 | 22.1 | MS |
| 20121023 | 0530 | 20.7 | 87.9 | 066 | 0.9 | 25.697 | 22.1 | MS |
| 20121023 | 1130 | 22.1 | 77.3 | 350 | 4.7 | 27.028 | 17.9 | MS |
| 20121023 | 1730 | 22.5 | 76.2 | 294 | 5.5 | 26.754 | 18.7 | TF |
| 20121023 | 2330 | 23.8 | 74.0 | 342 | 11.7 | 27.814 | 15.9 | TF |
| 20121024 | 0530 | 23.9 | 70.2 | 323 | 7.3 | 27.639 | 16.4 | TF |
| 20121024 | 1130 | 23.7 | 73.4 | 343 | 5.0 | 26.399 | 19.7 | TF |
| 20121024 | 1730 | 24.3 | 68.6 | 318 | 12.3 | 28.175 | 15.0 | MS |
| 20121024 | 2330 | 25.0 | 71.6 | 301 | 10.9 | 28.581 | 14.0 | MS |
| Arrived in Hawaii 25Oct2012 061. | | | | | | | | |





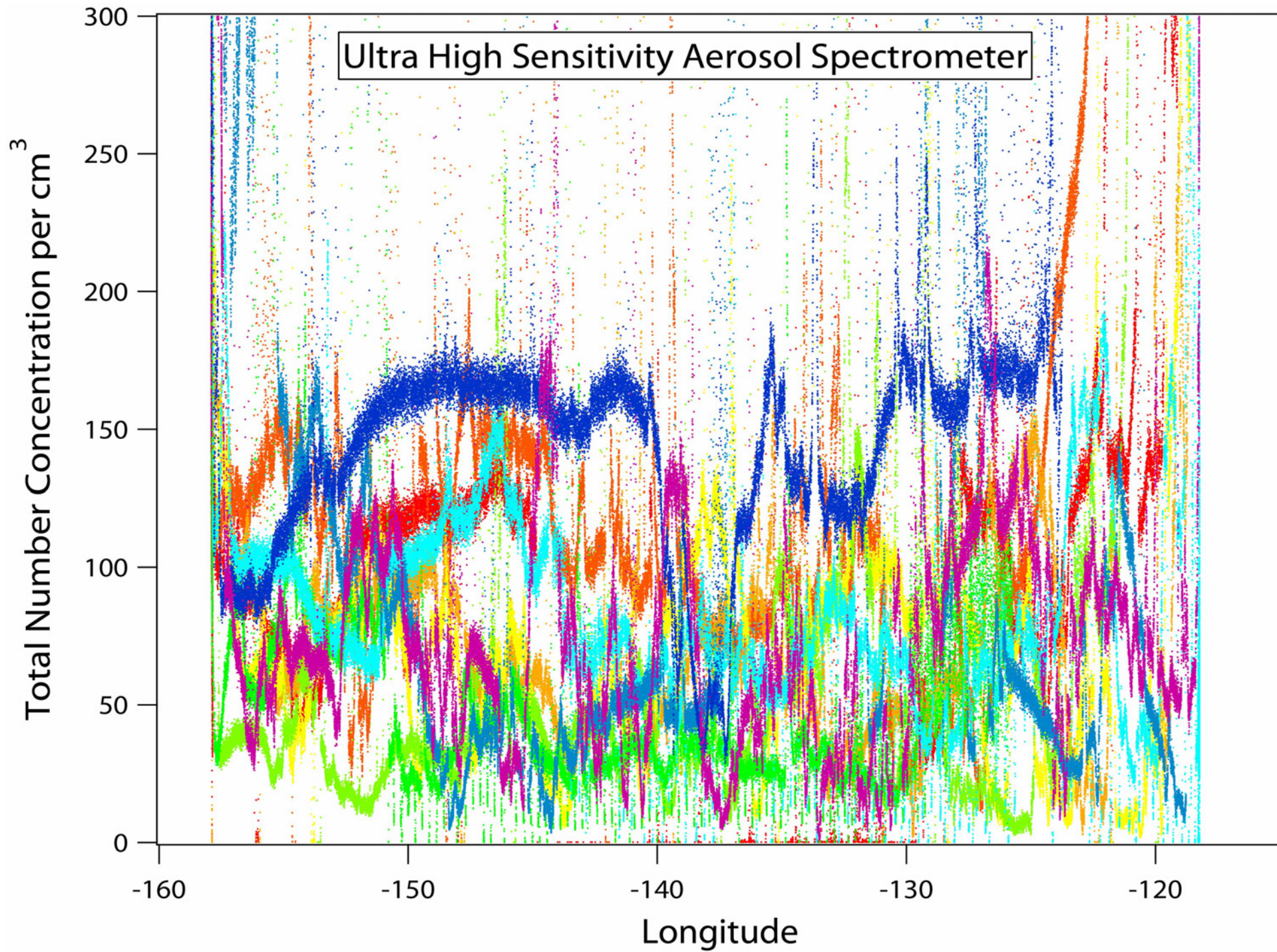
Convective Available Potential Energy (CAPE) and Convective INhibition (CIN)



Graph courtesy Tami Toto

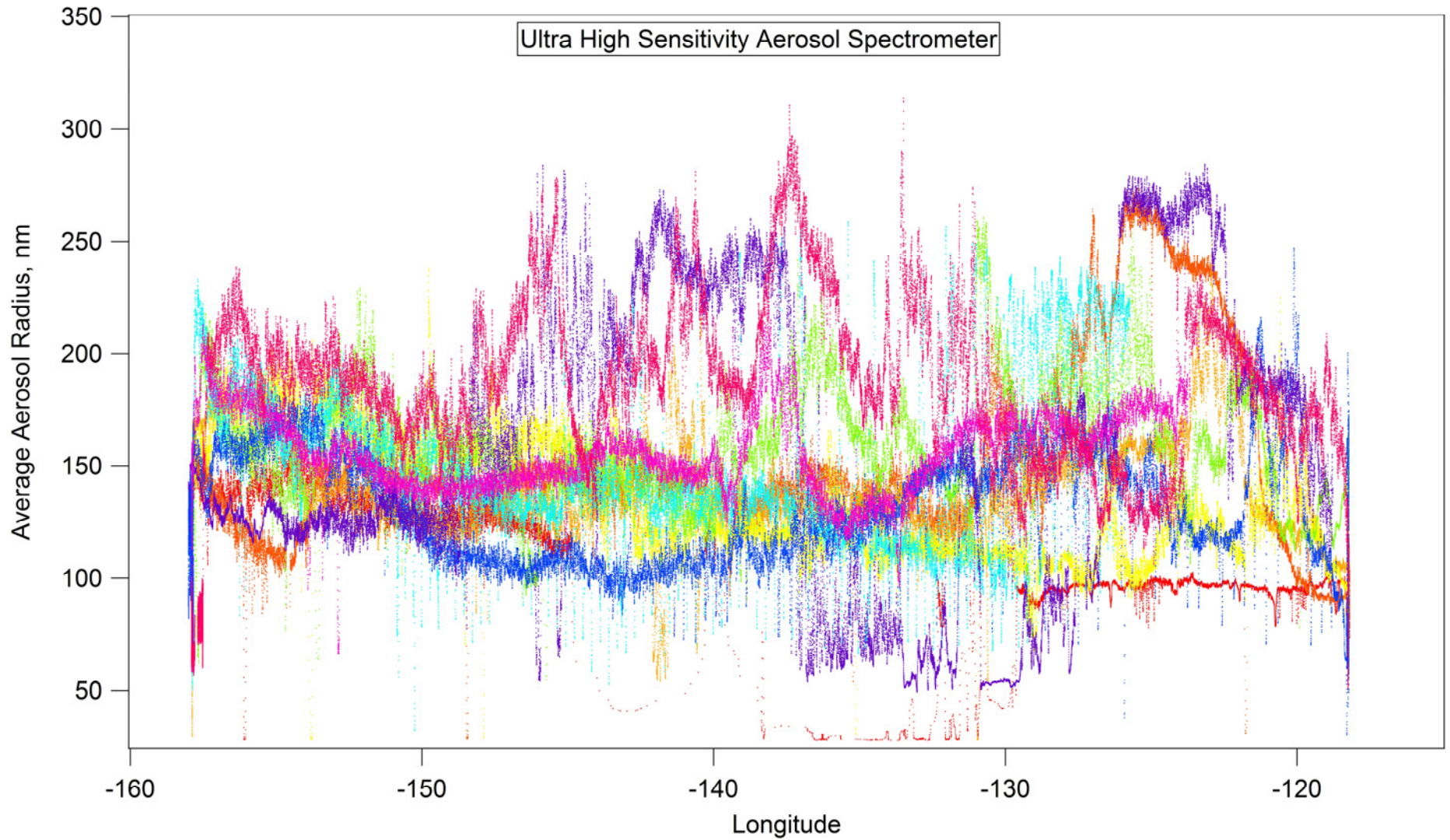
Instrument Status by Leg

| Instruments | 03A | 03B | 04A | 04B | 05A | 05B | 06A | 06B | 07A | 07B | 08A | 08B | 09A |
|-------------|-------------|-------|-------|-------|-------|--------|--------|-------|--------|-------------|--------|-------|-----|
| 1290rwp | Black | | | | | | | | Yellow | Light Green | Green | | |
| aosccn100 | Green | | | | | | CM | Green | CM | Red | Yellow | Green | |
| aospc3772 | Green | | | | | | Green | Green | CM | Green | Green | | |
| aoshtdma | CM | Comms | Green | | | Yellow | CM | Green | CM | Red | Yellow | Black | |
| aoshumidgr | CM | CM | Green | | | Yellow | Yellow | | Green | CM | Yellow | | |
| aosmet | Green | | | | | | | | | | | | |
| aosozone | Green | | | | | | CM | Green | Green | | | | |
| aospsap3w | CM | Green | | | Green | | | CM | CM | Green | | | |
| aosuhsas | CM | Comms | Green | | | Green | | | CM | Black | | | |
| assist | Light Green | | Green | | | Yellow | | | Green | | | | |
| csphot | Black | | | | | | | | | | | | |
| irt | Green | | | | | | | | | | | | |
| kazr | Green | | | | | | | | | | | | |
| kazrspec | Red | Green | | | | | Green | CM | CM | CM | Green | | |
| MWACR | Black | | | | Green | | | Green | CM | Green | | | |
| MWACR Spec | Black | | | | Green | | | CM | CM | Green | | | |
| met | Green | | | | | | | | | | | | |
| mplpols | Red | | | | Green | | | Green | | | | | |
| mwr | Green | | | | | | | | | | | | |
| mwr3c | Green | | Red | | | Green | | | CM | Green | | | |
| nav | Light Green | | No/Go | Green | | | Yellow | No/G | No/d | No/Go | Green | | |
| prp | Comi | | Comms | | | Green | | | | | | | |
| rph | Black | | | | Green | | | Green | | | | | |
| rpy | Black | | | | | | | | | | | | |
| sasze | Light Green | Green | | | | | | | | | | | |
| sonde | Green | | | | | | | | | | | | |
| tsi | Red | | Green | | | Green | | | CM | Green | | | |
| vceil25k | Green | | | | | | | | | | | | |
| Parsivals | Green | | | | | | | | | | | | |
| ISAR | Green | | | | | | | | CM | Green | | | |

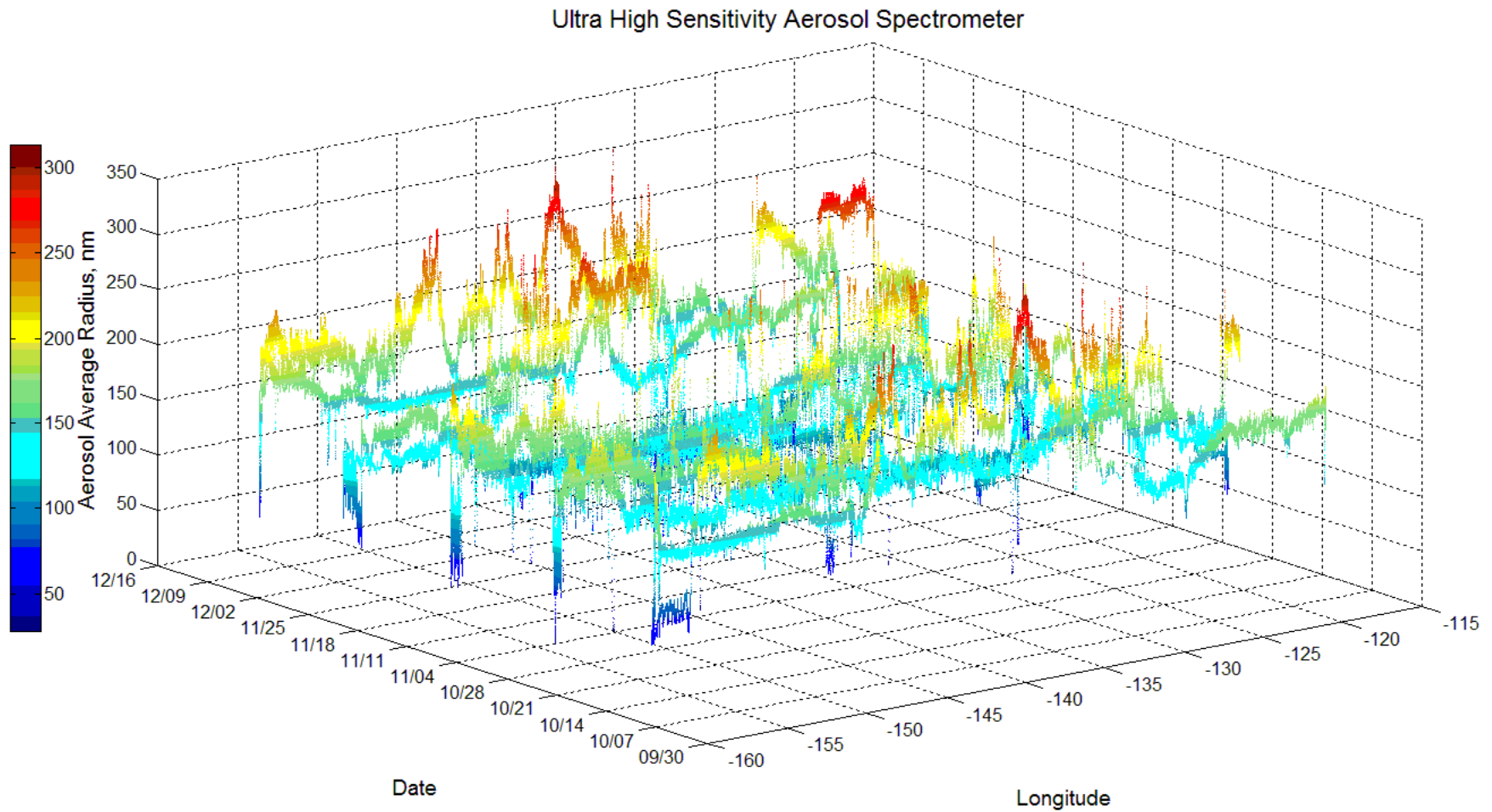


Average Particle Radius (UHSAS)

Gunnar Senum



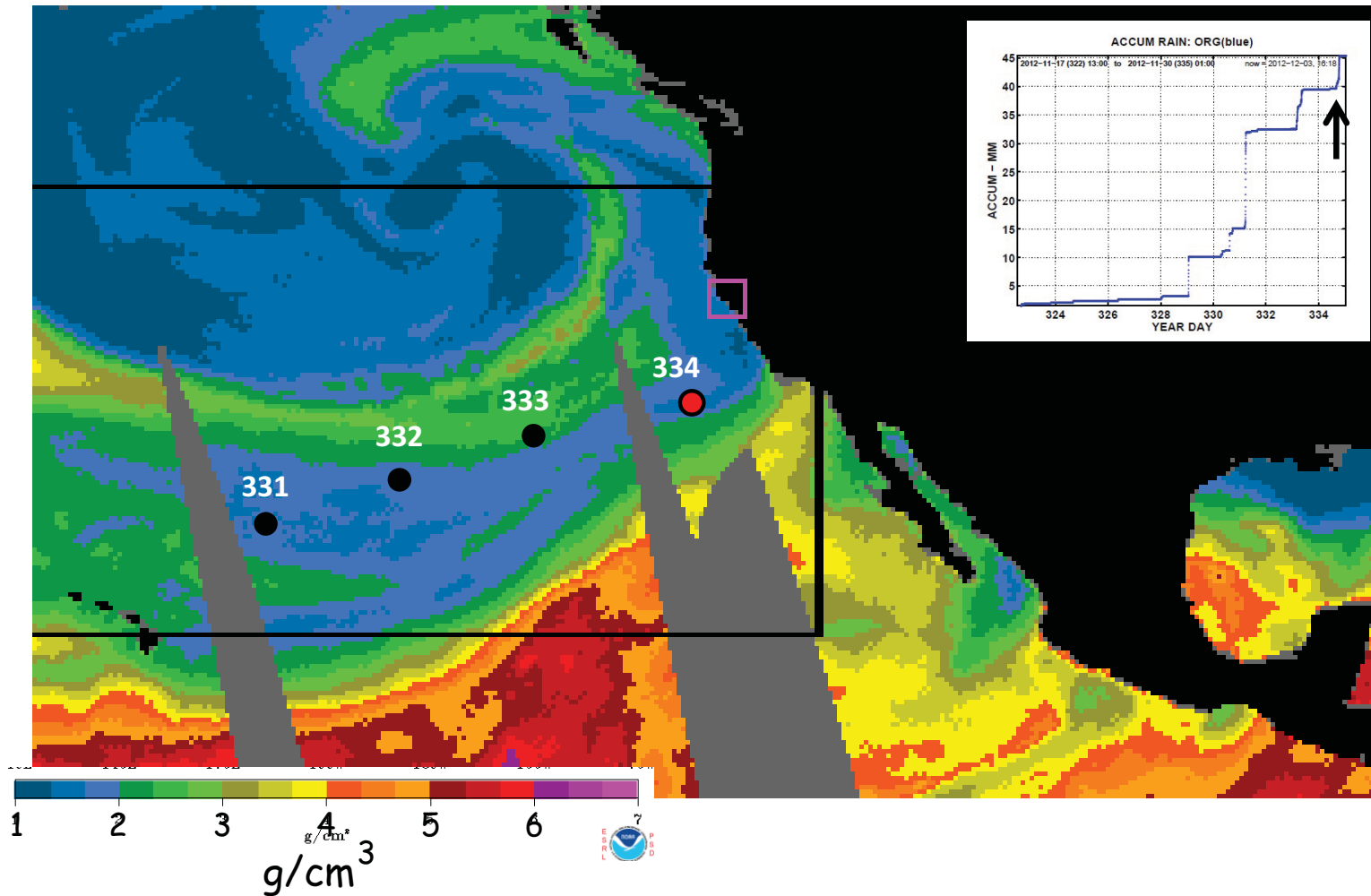
Average Radius from UHSAS



Atmospheric Rivers

Marty Ralph

Julian Day 334 (AM) – 29 Nov 2012

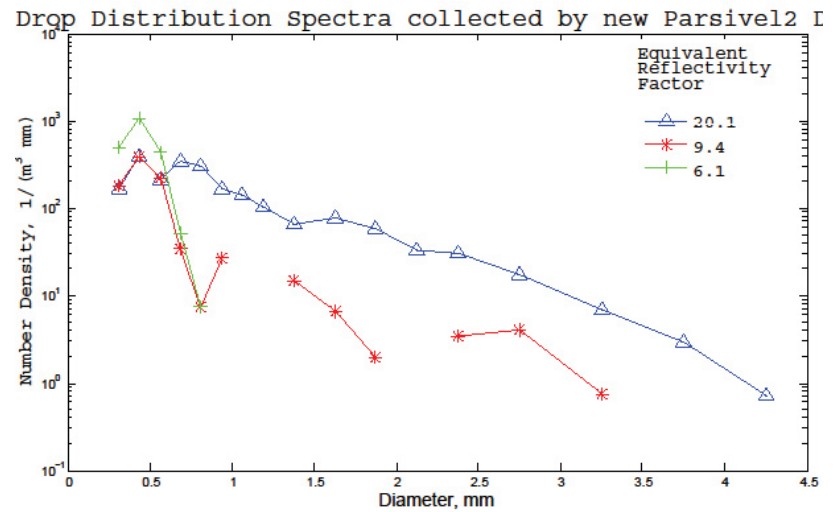


Disdrometer Results

Mary Jane Bartholomew



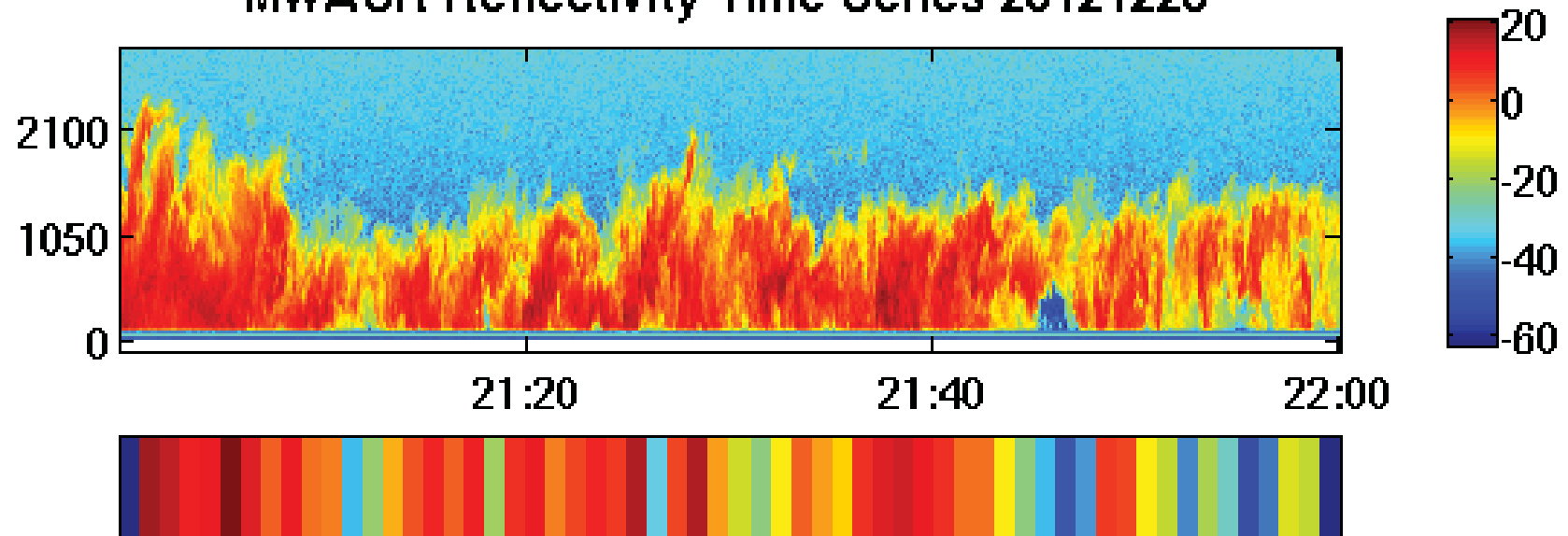
Parsivel 2
Particle, size, velocity



Disdrometer Comparison

Mary Jane Bartholomew

MWACR Reflectivity Time Series 20121220



**Parsivel2 Calculated
Equivalent Reflectivity Factor
Observation Period = 1 minute**

These results are based upon 1 minute drop counts
with a minimum of 60 drops observed.

MAGIC Data Products - Prioritization Needed

Jennifer Comstock

MAGIC-Specific (requires development):

Motion-corrected Doppler spectra (Karen Johnson)

IRT Sea Surface Temperature (L. Riihimaki)

Bulk Aerodynamic Fluxes

Motion-corrected MPL data

Geolocation Best Estimate

Standard VAPs

Cloud boundaries (ARSCL; MPLCMASK)

Doppler moments analysis (MICROARSCL)

MWR LWP & PWV

QC radiation data

CCN profiles

PBL height

SW flux best estimate

MAGIC Timetable

| | |
|-------------|------------------------------------|
| Sept, 2012 | start setup on <i>Spirit</i> |
| Oct, 2012 | MAGIC deployment officially begins |
| Jan, 2013 | uninstall |
| May, 2013 | re-install |
| July, 2013 | IOP |
| Sept., 2013 | MAGIC deployment finishes |

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| Oct., 2013 onward | MAGIC-Lite? (PRP, met, VCeil, MWR, ISAR) |

MAGIC-2?



Thank you.

Thanks to:

Horizon

DOE/Wanda and crew

Techs

Argonne AMF2 team

Mentors

Data people

Others

Additional Information

Ernie Lewis: elewis@bnl.gov
Updates (~bi-weekly)

Websites:

<http://www.bnl.gov/envsci/ARM/MAGIC>
<http://www.arm.gov/campaigns/amf2012magic>
<http://www.rmrco.com/cruise/magic/>

Posters:

#17 - Rich Coulter
#35 - Maureen Dunn
#60 - Mike Ritsche
#61 - David Troyan

#62 - Vic Morris
#63 - Mary Jane Bartholomew
#64 - Donna Holdridge
#168 - Pavlos Kollias

