MAGIC Breakout Session

2014 Atmospheric System Research (ASR)
Science Team Meeting

Potomac, VA
Monday, March 10, 2014
7:30-9:00 pm
Agenda

MAGIC: Current Status and Future Plans  
Ernie Lewis (Brookhaven National Laboratory)

Retrievals from Sunphotometer Cloud Mode Observations and Synergy with HSRL-KAZR during MAGIC  
Christine Chiu (University of Reading)

Evaluation of Using Dual-IRTs to Measure Sea Surface Skin Temperature  
Laura Riihimaki (Pacific Northwest National Laboratory)

Preliminary Analysis of Transitions from Sc to Sc-Cu Cloud Conditions during MAGIC  
Xiaoli Zhou (McGill University)

Microphysical Properties of Drizzles underneath the MBL Clouds during MAGIC  
Xiquan Dong (University of North Dakota)

Drizzle Measurements with the HSRL and the KAZR: Sensitivity to Assumptions  
Ed Eloranta (University of Wisconsin)

Exploring Droplet Variability at the Cloud Edge and through the Cloud Transition Zone  
Patrick McBride (NASA-GSFC)

MAGIC Data Gone Ashore  
Mary Jane Bartholomew (Brookhaven National Laboratory)
Current Status and Future Plans

Ernie R. Lewis
elewis@bnl.gov
Brookhaven National Laboratory
## MAGIC Timetable

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
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<tbody>
<tr>
<td>October, 2013</td>
<td>AMF2 removed from <em>Spirit</em></td>
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<tr>
<td>November, 2013</td>
<td>MAGIC session at ASR Fall Working Group Meeting</td>
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<tr>
<td>December, 2013</td>
<td>MAGIC poster session at AGU Fall Meeting</td>
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<td>MAGIC meeting at AGU</td>
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<tr>
<td>February, 2014</td>
<td>MAGIC presentation at Ocean Sciences Meeting</td>
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<tr>
<td>March, 2014</td>
<td>MAGIC session at ASR Fall Working Group Meeting</td>
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<tr>
<td>May 5-7, 2014</td>
<td>First MAGIC Science Workshop at Brookhaven Ntl Lab</td>
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**MAGIC-2?**

**MAGIC-Lite?**
MAGIC Presentations at Meeting

Cloud transitions between high-coverage stratocumulus and low-coverage cumulus over the Eastern Pacific Ocean during MAGIC
    Xiaoli Zhou, McGill University
    11:30-11:45 Wednesday

Characterizing albedo and precipitation susceptibility of marine boundary layer clouds using MAGIC data
    Trevor Ferguson, University of Utah
    11:45-12:00 Wednesday

MAGIC posters: Tuesday and Wednesday, 2-4 and 4-6
MAGIC News

Some MAGIC publications already near submission!!

First MAGIC Science Workshop May 5-7, 2014 at BNL (webpage soon)

Data/metadata:
- MAGIC Data Introduction Files
- MAGIC Leg Date and Time Summaries (dates/times of start and end of legs)
- MAGIC Instrument Status Tables
  (see me if you’re not on the MAGIC Science Distribution List)
- Sonde tables to come soon

MAGIC Navigation Best Estimate magnavbe VAP (at 10 Hz and 1 min time resolutions)
includes leg numbers, “on route” flag, lat/lon, etc. (Tami Toto)

Mike Reynolds: met, radiation, fluxes, optical depths (see his webpage)

ECMWF along-track data (Maike Ahlgrimm).
ECMWF along-track forecast data now available

Upper air fields: T, q, u, v, w, CC, CLWC, CIWC, rain, snow

Surface fields: T 2m, D 2m, u10, v10, surface radiation and fluxes, BLH, cloud base height, surface precip etc.

Operational forecast, initialized at 12 UTC, forecast steps 12-33 (verification time 00-23UTC). Nearest model grid point at full resolution (~16km) picked hourly

Sondes were not assimilated

Quick look: Track 5
Nov 3-16 2012

For questions or problems: Maike.ahlgrimm@ecmwf.int

ECMWF
Comparison for a few recent MAGIC samples

Slide courtesy Paul deMott
Conclusions

Much leg-to-leg variability

Typical concentrations for \( D_p > 10 \text{ nm} \) are 100-300 cm\(^{-3}\)

Typical concentrations for \( D_{opt} > 60 \text{ nm} \) are 50-150 cm\(^{-3}\)

Ratios of these quantities show much variability (20-80%)

Two quantities show good correlation

No obvious longitudinal trends

Presence of spikes (ship tracks?)
UHSAS Size Distributions

Leg06B

Hawaii

LA

Particle diameter/nm

dN/dlogD cm⁻³

10^4

10^3

10^2

10^1

10^0

10^{-1}

10^{-2}