

MAGIC
Breakout Session

Ernie Lewis

2016 ARM/ASR Joint Users Meeting

Wednesday, May 4, 2016, 1:30-3:30

Potomac Room

Tyson's Corner, VA



Plenary Presentations

Tuesday

Ernie Lewis: MAGICal Results on Marine Clouds

Wednesday

Christine Chiu: Evaluating Drizzle Formation Parameterization Using Ensemble Cloud Retrievals from the MAGIC Campaign

Posters

Tuesday

Chris Bretherton: Comparison of ship-following large-eddy simulations with cloud and boundary layer structure observed in MAGIC

Christine Chiu: Evaluating drizzle formation parameterization using ensemble cloud retrievals from the MAGIC campaign

Ernie Lewis: Aerosol radiative properties over the Eastern North Pacific based on measurements from the MAGIC field campaign

David Painemal: Ship-based and satellite remote sensing cloud retrievals consistency and the quantification of aerosol-cloud-interactions

Wednesday

Ed Luke: Relationship between turbulence and drizzle onset and growth in low-level continental and marine stratiform clouds using ARM observations

Alexander Marshak: Observations of cloud properties in cloudy-to-clear transition zones during the MAGIC field campaign

Publications Relating to MAGIC

2014

Kalmus, P., M. Lebsock, and J. Teixeira (2014), Observational boundary layer energy and water budgets of the stratocumulus-to-cumulus transition, *J. Climate*, 27(24), 9155-9170. DOI:10.1175/JCLI-D-14-00242.1

Lewis, E. (2014), MAGIC studies clouds, aerosols, radiation, and fluxes in the Eastern North Pacific, *SOLAS Newsletter*, Summer, 2014, pp. 24-25.

2015

Kalmus, P., S. Wong, and J. Teixeira (2015), The Pacific subtropical cloud transition: A MAGIC assessment of AIRS and ECMWF thermodynamic structure, *IEEE Geosci. Remote Sens. Lett.*, 12(7), 1586-1590. DOI:10.1109/LGRS.2015.2413771

DeMott, P. J. et al. (2015), Sea spray aerosol as a unique source of ice nucleating particles, *Proc. Nat. Acad. Sci.*, Early Edition. DOI:10.1073/pnas.1514034112.

Zhou, X., P. Kollias, and E. R. Lewis (2015), Clouds, precipitation, and marine boundary layer Structure during the MAGIC field campaign, *J. Climate*, 28, 2420-2441. DOI:10.1175/JCLI-D-14-00320.1

Painemal, D., P. Minnis, and M. Nordeen (2015), Aerosol variability, synoptic-scale processes, and their link to the cloud microphysics over the Northeast Pacific during MAGIC, *J. Geophys. Res. – Atmos.*, 120, 5122-5139. DOI:10.1002/2015JD023175

Publications Relating to MAGIC (cont.)

Lewis, E., and J. Teixeira (2015), Dispelling clouds of uncertainty, *EOS*, 96(12), 16-19.; Online at <https://eos.org/project-updates/dispelling-clouds-of-uncertainty>.

Y. Zheng, and D. Rosenfeld (2015), Linear relation between convective cloud base height and updrafts and application to satellite retrievals, *Geophys. Res. Lett.*, 42, 6485-6491. DOI:10.1002/2015GL064809

Fielding, M. D., J. C. Chui, R. J. Hogan, G. Feingold, E. Eloranta, E. J. O'Connor, and M. P. Cadeddu (2015), Joint retrievals of cloud and drizzle in marine boundary layer clouds using ground-based radar, lidar and zenith radiances, *Atmos. Meas. Tech.*, 8, 2663-2683. DOI:10.5194/amt-8-2663-2015; Online at <http://www.atmos-meas-tech.net/8/2663/2015/amt-8-2663-2015.pdf>.

2016

Millán, L., M. Lebsock, E. Fishbein, P. Kalmus, & J. Teixeira (2016), Quantifying marine boundary layer water vapor beneath low clouds with near-infrared and microwave imagery, *J. Appl. Meteor. Climatol.*, 55, 213-224. DOI: 10.1175/JAMC-D-15-0143.1

Rosenfeld, D., et al. (2016), Satellite retrieval of cloud condensation nuclei concentrations by using clouds as CCN chambers, *Proc. Natl. Acad. Sci.*, Early Edition. DOI:10.1073/PNAS.15140441113.

Topics to Keep in Mind

Please notify me of publications and presentations related to MAGIC.

Please identify time periods by leg number in addition to date.

Think about:

What information can I contribute to others?

Can sharing calculations you made save someone else time and effort?

What information do I need from others?

What collaborations can be formed?

What are questions/concerns you have?

Please report any data issues.

What are new topics that can be investigated?

What other measurements/instruments would be helpful for future campaigns?

MAGIC Breakout Session Schedule

Ernie Lewis: MAGIC breakout session introduction

Ed Luke: MBL cloud rain rate retrievals during MAGIC

Greg McFarquhar: An overview of MARCUS

David Painemal: Aerosol proxies and their co-variability with cloud microphysics during MAGIC

Rob Wood (and Johannes Mohrmann): Using MAGIC data to constrain the marine boundary layer CCN budget in the Sc-Cu transition region

Weidong Yang: Spectrally-invariant properties of clouds in transition zones during MAGIC

Chris Bretherton (and Jeremy McGibbon): Comparison of ship-following large-eddy simulations with cloud and boundary layer structure observed in MAGIC

Maike Ahlgrimm: Ship-following single-column model preliminary results – a proof of concept