MAGIC

2015-04-09 update

A newsletter for non-scientists (and scientists) interested in MAGIC and science

MAGIC was a field program funded and operated by the Atmospheric Radiation Measurement (ARM) Climate Research Facility of the U.S. Department of Energy. The ARM MAGIC webpage is http://www.arm.gov/sites/amf/mag. Information on MAGIC and all previous updates can be found at http://www.bnl.gov/envsci/ARM/MAGIC/.

There was a session on MAGIC at a conference last month that had several exciting presentations. There have also been three or four scientific papers published or accepted based primarily on MAGIC data, and another three or four submitted. It's nice to see good science coming from MAGIC, and I'm sure more papers will follow.

I'm currently working on a proposal for MAGIC-2, which is due May 1. MAGIC-2 will consist of another year of similar measurements to those on the original MAGIC, with a few additions. For instance, I'll request a scanning radar and some additional instruments to be on a stable table, which remains horizontal even when the ship moves. In case I don't get a chance to do another update before the proposal is due, wish me luck!

As I've always said, one of the joys of MAGIC is my great fortune to work with wonderful people in all aspects of the project, but especially students. This semester Alexandra Ramos is working on MAGIC data with Mike Jensen, a co-worker and one of the co-investigators on MAGIC. Mike is also a cloud guy and has been one of my go-to people when I encounter something I don't know (which happens fairly often). Alexandra worked on an oceanography project as an undergraduate, and is applying to graduate school in oceanography in the fall. Good luck! I asked her if she would something for this update describing what she's been working on, and here's what she sent:

> Having graduated this past December from the University of Puerto Rico at Mayaguez, I decided to apply for the SULI internship at BNL during the “spring” semester, and here I am now! I decided to trade in warm tropical weather for what has been an extremely cold and snowy winter in Long Island...and although it has taken me a long time to adjust, so far so good.
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> I am currently working as part of the cloud processes group under the guidance of Mike Jensen. In general, our project aims to determine relationships between parameters derived from

cloud properties such as temperature, height and thickness, and the structure of a certain type of low level clouds, known as marine boundary layer clouds. Our project serves as a response to issues that computer models of climate are having as a consequence of not being able to accurately represent marine boundary layer clouds. The majority of my work so far has been dedicated to developing computer programs in IDL and Matlab, which has been a great advantage because I had the opportunity of learning a new programming language, IDL, at the same time that I practiced and polished my Matlab skills. These programs allow me to retrieve satellite-based cloud properties, as well as properties from atmospheric vertical profiles of temperature, pressure and humidity obtained from weather balloons during the MAGIC field campaign. From these data sets we have been able to determine and calculate properties that allow us to gather information on the amount of clouds present and on how they are organized or clustered within a determined region. We are currently in the process of studying the relations that we have seen from these parameters so far, as well as calculating additional ones that will potentially help us have a clearer understanding of any links between them.

In terms of my internship experience, I have been given the opportunity to meet great professionals from physicists, chemists to other atmospheric scientists, of course. I have also been able to attend seminars from our department and professional development workshops sponsored by BNL. Overall, being part of the lab has been a great learning experience and one that I am very grateful for. Now, with less than 4 weeks to complete my internship, I look back and realize that we have done a lot of work and progress, but at the same time there is still so much that we can do and that I would like to accomplish before leaving, so hopefully I will.

Thanks Alexandra!

Ernie Lewis
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Please address any questions or comments to elewis@bnl.gov.