MIRA
Models, In situ, and Remote sensing of Aerosols

A community of collaboration, consistency, and openness

Quasi-quarterly Newsletter Number 6
Greg Schuster
September 30, 2023
Archives available *here*

NASA Shutdown

I write this on the eve of a probable US goverment 'shutdown.' Don't be alarmed – much of the government remains operational, but most NASA employees will not be allowed to work. This has happened 22 times in the past 50 years according to a national news source, and most of those shutdowns were brief (generally a few hours up to a few days). However, the longest shutdown lasted 32 days.

I bring this up because there are many links below asking you to contact us. We want your communications, but we will not be able to respond during a shutdown. So please be patient – we will respond upon our return. My apologies for the inconvenience. — Greg Schuster.

Welcome

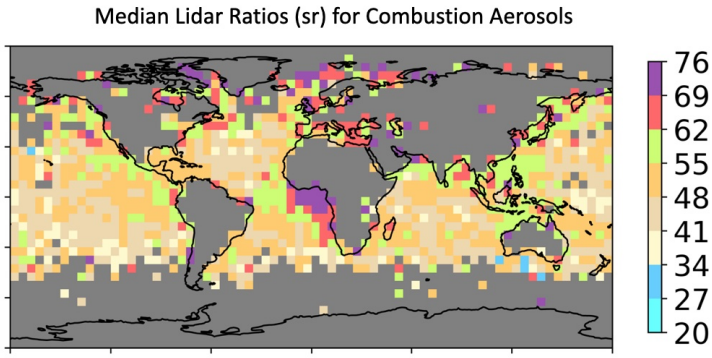
MIRA is an unfunded working group open to all interested aerosol scientists. The group seeks to advance knowledge of observations and model results through the encouragement of collaborations. Details can be found on the MIRA webpage at https://science.larc.nasa.gov/mira-wg/ and in this *powerpoint talk* presented by Chip Trepte at AGU in 2022. Links to the current MIRA topics can be found here:

- *Mapping Aerosol Lidar Ratios for CALIPSO (MAC)*
- *Satellite-Assisted Particulate Matter (SAPM)*
- *Tables of Aerosol Optics (TAO)*
- *Tables of Cloud Optics (TaCO)* *New!*
- *Harmonization of aerosol Assimilation Models and Retrievals (HAMR)*

Join our MAC discussions (Mapping Aerosol lidar ratios for CALIPSO)

The MAC project has been moving along steadily. We have completed constrained lidar ratio retrievals over water for the entire globe using both MODIS Dark Target (years 2006-2018) and ODCOD (*Ocean Derived Column Optical Depth*, years 2006-2021) aerosol optical depths. We are also processing constrained lidar ratio retrievals using MAIAC aerosol optical depths. We have preliminary annual climatological lidar ratio maps for marine, pollution/smoke, and dust aerosols.

We invite you to join our group discussions, which are held approximately bi-weekly on Wednesdays at 13 GMT (via Microsoft Teams). Send email to mira_crew@lists.nasa.gov if you would like to participate.



Preliminary climatological map of MODIS_DT-CALIPSO lidar ratios for combustion aerosols (i.e., polluted continental and/or smoke). $5 \times 5°$ grid.

Join the SAPM discussions (Satellite Assisted Particulate Matter)

The SAPM (Satellite Assisted Particulate Matter) topic group meets roughly bi-weekly on Mondays at 14 UTC. The group is particularly interested in PM2.5 measurements (and expert insight about the measurements) around the globe. Contact mira_crew@lists.nasa.gov to participate and look for the SAPM session at AGU convened by Travis Toth.

TAO (Table of Aerosol Optics)

TAO has made significant advances behind the scenes. There are now several groups who are working on single-scatter computations for distributions of different irregular shapes, including mineral dust and aggregate black carbon. We are also setting up a relational database for uploading and accessing the tables in different ways. Once these technical details are in place, we will unite the groups and invite additional discussion for expanding the database.

Meanwhile, we are maintaining a small set of tables on a NASA google drive. If you have published size distribution measurements recently or are interested in optics calculations of complex shapes at certain wavelengths, send an email to mira_crew@lists.nasa.gov. And look for the TAO poster in the MIRA session at AGU.

TaCO (Tables of Cloud Optics) *New!*

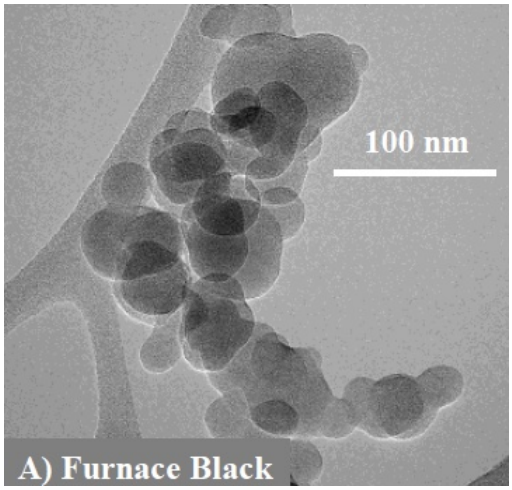
MIRA is proud to announce this important new topic, which focuses on the single-scattering properties of liquid and ice cloud particles. Led by Dr. Masanori Saito (formerly at Texas A&M University but now at University of Wyoming), who has extensive experience with computing the optical properties of irregularly-shaped particles. Look for this new topic to appear on the MIRA webpage in the coming months.

HAMR (Harmonization of aerosol Assimilation Models and Retrievals)

HAMR continues to progress, and Oleg Dubovik will provide an update with an oral talk in the MIRA session at AGU.

A General Note about NASA Teams Meetings

In principle, MIRA meetings are open to everyone. However, we use the NASA Teams platform to host these meetings, and therefore we have to work within the confines of the NASA approval system for visitors. This approval process can take a very long time in some cases. We are working to streamline this process so that MIRA can be as inclusive as possible.



Singh and Vander Wal, doi:10.3390/c5010002.

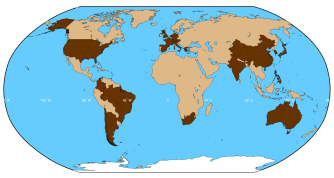
Morphing MIRA Webinar Series

Recent Webinars

Dr. Soojin Park (Seoul National University, S. Korea) presented *Boundary-layer aerosols observed in a polluted megacity (Seoul, Korea) from multiple lidar measurements: implications on particulate matter (PM) simulations* on July 10, 2023.

Dr. Nick Schutgens, Vrije Universiteit Amsterdam (The Netherlands), presented *How representative are observations? Spatio-temporal issues when using observations* on September 25, 2023.

Slides and recordings of both talks are available at https://science-data.larc.nasa.gov/MIRA-WG/Morphing-MIRA-Webinar-Series/.



MIRA Email List

We encourage subscribers to use the MIRA list server to post newsworthy items of interest to the community, such as aerosol conferences, sessions, webinars, relevant public databases and code that are not already listed on the MIRA website. The list is moderated in the background, so direct messaging to mira@espo.nasa.gov is encouraged (no need to request forwardings).

The MIRA email distribution list reaches 221 members in 22 countries, but we are working to expand even further. Please forward this newsletter to colleagues and encourage them to subscribe to MIRA at https://espo.nasa.gov/lists/listinfo/mira.

Meetings

Recent Meetings

European Aerosol Conference (EAC)

Betsy Andrews presented an update of TAO at the EAC.

Asia Oceania Geosciences Society (AOGS)

MIRA convened two oral sessions and a poster session at the *Asia Ocean Geosciences Society meeting* in Singapore (Jul 30 to Aug 4).

Upcoming Meetings

We have listed some meetings of relevance to MIRA in the table below. We are still sorting out our travel schedules for next year, but we collectively plan to attend most of these meetings.

MIRA Session at AGU 2023

MIRA is convening a session at AGU again this year – look for Session A096, convened by Greg Schuster, Paola Formenti, Jens Redemann, and Carlos Pérez García-Pando. We have two excellent invited speakers this year, both of whom will be presenting in-person – Jeff Reid (US Naval Research Laboratory) and Nicole Riemer (University of Illinois at Urbana Champaign). We received 30 abstracts, and AGU awarded us with one oral, one eLightning, and one in-person poster session. We encourage everyone to attend *all* of our sessions at AGU, as we had many great abstracts that we could not fit into a single oral session.

Outstanding Student Paper Awards (OSPA)

AGU needs judges for the Outstanding Student Paper Awards (OSPA). If you are going to AGU this year and you plan to attend some of the MIRA sessions, please consider volunteering as a OSPA judge for MIRA. Contact gregory.l.schuster@nasa.gov or visit agu.org.

Opinions in this newsletter are the personal views of the author and do not represent official NASA policy.

Anyone can subscribe to the MIRA email list server at	https://espo.nasa.gov/lists/listinfo/mira
The archive of all email messages is available at	https://espo.nasa.gov/pipermail/mira/
Post to news by sending email to	mira@espo.nasa.gov
MIRA Homepage:	https://science.larc.nasa.gov/mira-wg/
Archived newsletters:	https://science.larc.nasa.gov/mira-wg/info/
Contact the MIRA Steering Committee at	mira_crew@lists.nasa.gov

Conferences (hyperlinked)	**Location**	**Date**		**Submit Date**	**MIRA people**
AAAR	Portland, OR, US	Oct	2-6	–	
AeroCom/AeroSat 2023	Richland, WA, US	Oct	15-20		M. Chin
AGU 2023	San Francisco, CA, US	Dec	11-15	–	**MIRA Session**
2024 *(barring other conflicts; check with us at mira_crew@lists.nasa.gov as abstract deadlines approach)*					
EGU	Vienna, Austria	Apr	14-19	Jan 10	
IRS	Hangzhou, China	Jun	17-21	Mar 30	
AOGS	Pyeonchang, S. Korea	Jun	23-28	Jan 2	
IGARSS	Athens, Greece	Jul	7-12	Jan 5	
IGAC	Kuala Lumpur, Malaysia	Sep	-		
AeroCom/AeroSat		Oct	-		
AAAR	Albuquerque, NM	Oct	14-18		
AGU	Washington, DC	Dec	9-13		**MIRA Session**

MIRA Steering Committee

Dr. Greg Schuster (Chair)	NASA Langley Research Center, USA	gregory.l.schuster@nasa.gov
Dr. Chip Trepte	NASA Langley Research Center, USA	charles.r.trepte@nasa.gov
Dr. Maria 'Obie' Cambaliza	Ateneo de Manila University *and* Manila Observatory, Philippines	mcambaliza@observatory.ph
Dr. Mian Chin	NASA Goddard Space Flight Center, USA	mian.chin@nasa.gov
Dr. Oleg Dubovik	CNRS / University of Lille, France	oleg.dubovik@univ-lille.fr
Dr. Sang-Woo Kim	Seoul National University, S. Korea	sangwookim@snu.ac.kr