



Chinese-American Oceanic and Atmospheric Association

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About the COAA

COAA is a member-led, all-inclusive, non-profit, professional association supporting its members and promoting excellence in oceanic and atmospheric sciences and related activities. Members have many opportunities to share information, news, studies and concerns related to the fields of oceanic and atmospheric sciences through board work, submitting correspondence or articles to the COAA Newsletter, leading workshops and making presentations at the Annual Meetings, making contributions to the COAA website, and networking with people in a wide variety of careers (from well-known senior professionals to young environmental enthusiasts).

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Table of Contents

COAA 2018 Spring Workshop.....	2
Announcement of the new COAA-SCC Executive Committee.....	3
COAA Colorado Chapter Activity Report	4
COAA Participated March for Science 2018	4
COAA hosted the 3 rd Ping-Pong Tournament	5

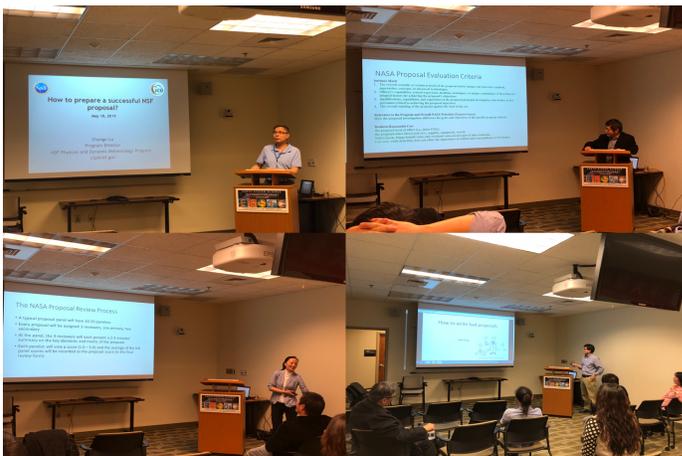
Announcement of the 1 st COAA Young Scientist Workshop.....	6
Call for nomination/volunteer of COAA Spotlight	6
COAA Spotlight: Dr. Hui Su	7
COAA Spotlight: Dr. Y. Tony Song	10
Call for Abstract Submission for 2018 AGU Fall Meeting	14
Call for Abstract Submission for 2019 AMS Annual Meeting	18

COAA 2018 Spring Workshop

May 5th, 2018 Saturday – COAA held its 2018 Spring workshop at the Earth System Science Interdisciplinary Center (ESSIC), University of Maryland, College Park, Maryland. More than 30 scientists and students from NOAA, NASA, and local universities attended this event. The workshop was kicked off by speeches from **Dr. Mian Chin**, president of COAA, and **Dr. Fei Liu**, the event organizer. They gave the workshop speakers and guests a warm welcome and an introduction of this workshop. A highlight of this workshop was a presentation given by **Dr. Jun Wang**, professor of the University of Iowa. **Dr. Wang** first summarized his current research topic of extracting “invisible” atmospheric composition from satellite observations. In the second part of his presentation, **Dr. Wang** gave an insightful talk on “making the invisible visible in research” and shared valuable career advice with students and early-career scientists. The second presentation in the morning session was given by **Dr. Yan Xue**, physical scientist at National Centers for Environmental Prediction (NCEP/NOAA). **Dr. Xue** briefly reviewed recently progresses in NCEP operational ocean reanalyses.



Dr. Jun Wang (left) and Dr. Xue Yan (right) are giving presentations



Drs. Chungu Lu (top left), Hongbing Yu (top right), Qing Liang (bottom left) and Zhibo Zhang (bottom right) are sharing their experiences on proposal writing

A panel discussion on proposal writing and reviewing processes took place in the afternoon. **Dr. Chungu Lu**, Program Director of NSF Physical and Dynamic Meteorology Program, **Drs. Hongbin Yu** and **Liang Qing**, Research Physical Scientists at GSFC/NASA, and **Prof. Zhibo Zhang**, Associate Professor at the Physics Department of UMBC shared their experience on acquiring funding. The discussion covered several topics, including funding opportunities, proposal preparing, evaluation criteria, reviewing process, and tips on proposal writing.

This year's COAA Spring Workshop was a big success. COAA members with various research expertise and interests communicated and exchanged ideas and experiences via this event. It also provided an opportunity for senior scientists to help students and early career scientists to advance their careers.

(Report and photos provided by Chenxi Wang)

Announcement of the new COAA-SCC Executive Committee

Dear COAA SCC members,

The new COAA SCC Executive Committee has been elected. Thank you very much for your participation in this democratic process. The new EC will officially take office on July 15th, 2018. Below is a list of the new EC members:

- **President:** **Baijun Tian** (JPL) - Overall Responsibility
- **Vice President:** **Tangdong Qu** (UCLA) - Public Relations
- **Secretary:** **Wenshan Wang** (UCI) - Internal Communications
- **Treasurer:** **Yue Huang** (UCLA) - Financial Affairs
- **Webmaster/Newsletter Editor:** **Hongchen Qin** (UCI) - COAA-SCC publications
- **Membership Manager:** **Ru Chen** (UCLA) - Membership and Registration

Regional Directors <email>:

- **Huilin Huang** - UCLA <hhlbao@ucla.edu>
- **Jinbo Wang** - JPL <Jinbo.Wang@jpl.nasa.gov>
- **Feng Zhu** - USC <fengzhu@usc.edu>
- **Liyin He** - Caltech <lhe@caltech.edu>
- **Wenshan Wang** - UCI <wenshanw@uci.edu>
- **Rui Sun** - UCSD <ruso43@ucsd.edu>
- **Xiquan Dong** - U of Arizona <xdong@email.arizona.edu>

We thank **Gang Chen** (UCLA), **Qing Yue** (JPL), **Yuan Wang** (JPL), **Yuanlong Huang** (RD-Caltech) and **Shantong Sun** (RD-UCSD) for their dedicated and passionate service for the community in the past years! Special thanks go to the outgoing president **Dr. Gang Chen** for his extraordinary leadership and generous support.

We thank all the COAA SCC members who have cast your vote and supported our COAA SCC.

The COAA SCC Executive Committee

July 12, 2018

COAA Colorado Chapter Activity Report

May 11th, 2018 Friday – **Dr. Antonia Johnson** of ClearTalk Mastery (<http://www.cleartalkmastery.com/>, @ClearTalkM), a certified Speech-Language Pathologist and a member of the American Speech-Language and Hearing Association, gave a seminar on tips for better presentations. She highlighted certain aspects that often hinder effective oral communication for the non-native English speakers, and remedies one can adopt and utilize to remove these obstacles. Some of COAA-CC members have been working with **Dr. Johnson** to improve their ability to make speeches in English.



Dr. Antonia Johnson



Dr. Qi Li

June 1st, 2018 Friday – **Dr. Qi Li**, Professor at Cornell University, School of Civil and Environmental Engineering, gave a talk titled “Modeling the Transport of Momentum and Scalars over the Built Environment: Challenges and Implications”. She discussed her work on using numerical tools to describe the turbulent atmospheric boundary layer in urban areas where more than 50% of the world population resides and where the turbulent properties of the atmosphere have ramifications on the chemical and physical processes of trace gases, which in turn, affect the urban air quality.

(Report and photos provided by Wei Wang)

COAA Participated March for Science 2018

April 14th, 2018 Saturday – People across the country gathered again in support of science. The March for Science this year brought hundreds of people to the National Mall in Washington, D. C. A total of 10 COAA members joined the flagship rally on the National Mall with self-designed signs. The COAA members broadcasted a short but strong message “COAA Stand Up for Science”. After the rally, the COAA members joined the march from the National Mall to the U.S. Capitol with hundreds of science supporters.



COAA members in March for Science 2018

(Photo provided by Jifu Yin)

COAA hosted the 3rd Ping-Pong Tournament

May 12th, 2018 Saturday – The 3rd COAA Ping-Pong Tournament successfully ended at Ping-Pong Clubhouse Howard County Table Tennis Center on Saturday. This year, this activity was sponsored by eResearch Technology, Inc. (ERT). This tournament proved to be highly competitive this year. Five teams and sixteen players including both COAA members and non-COAA members participated this competition. Each team fought tough opponents this year. After the 5-hrs of intense games, **team CLUB** swept this tournament and **Northern Virginia (NOVA)** got the second place.

At the closing ceremony, the COAA president **Dr. Mian Chin** and the organizer **Ms. You Wu** signed certificates, and the COAA president advisor, **Dr. Jianhe Qu** presented certificates and awards to the winners.

(Report and photos provided by Hui Xu)



All Players, referees and winners of the ping-pong tournament and COAA members with COAA president **Dr. Mian Chin** and organizer **Ms. You Wu**

Announcement of the 1st COAA Young Scientist Workshop

To foster the communication among young scientists working in atmospheric and oceanic areas, the Chinese-American Oceanic and Atmospheric Association (**COAA**) is pleased to announce the 1st Young Scientist Workshop to be held on **August 25, 2018**. The workshop aims to provide an opportunity for students and young scholars to enhance their presentation/communication skills and to forge professional relationships through their interactions with senior scientists and all participants. **Current graduate students and those who obtained their Ph.D. within the last 10 years are eligible to present, but all COAA members are invited to attend.**

To participate, please submit an abstract to the workshop coordinators, **Dr. Fei Liu** (liuf1010@gmail.com) or **Dr. Hui Xu** (xhradi@gmail.com) before **August 10, 2018**. Please indicate your current status (e.g., graduate student, postdoctoral fellow, research scientist, etc.) and the year you received or anticipate to receive a graduate degree. The workshop agenda will be announced on August 15, 2018.

DATE: Saturday, August 25, 2018

TIME: 10:00 a.m. - 4:00 p.m. (U.S. EDT).

LOCATION: ESSIC Conference room, Suite 4102, 5825 University Court, College Park, MD 20740.

Lunch will be provided to the current COAA members. If you have not joined COAA or have not renewed your membership for 2018, you can do it either now (<http://www.coaaweb.org/membersonly.php>) or on-site during the workshop.

For questions or more information, please feel free to contact the coordinators Fei Liu and Hui Xu. We hope to see you at the workshop!

Call for nomination/volunteer of COAA Spotlight

“COAA Spotlight” is a column featuring highly successful Chinese scholars and their groups working in the atmospheric, oceanographic or land sciences. This column is designed to share successful senior scientists’ insights and experiences with the COAA members and friends (especially for early-career scientists or students). We now call for the nomination/volunteer for the COAA newsletter to be released in June 2018. You are more than welcome to inform us if you want to be interviewed, or nominate your candidate. Although scientists working aboard with international recognitions will be considered with higher priority, scientists from mainland China, Taiwan, Hongkong, and Macau are also highly encouraged to participate. Please send your recommendations to news@coaaweb.org.

COAA Spotlight: Dr. Hui Su



Dr. Hui Su (苏慧) is a Principal scientist at the Jet Propulsion Laboratory (JPL), California Institute of Technology and Assistant Director of the UCLA Joint Institute for Regional Earth System Science and Engineering (JIFRESSE). She is also an adjunct professor of the Dept. of Atmospheric and Oceanic Sciences, UCLA. She is a PI for NASA Aura and NEWS science teams, and Co-I for a number of NASA funded projects. She is currently the strategic lead for JPL's Extreme Weather Initiative. Her research interests are primarily in climate dynamics

and convective processes. Dr. Su has published more than 90 articles in peer-reviewed journals. She is an Editor for *Geophysical Research Letters*.

Dr. Su received her B.S. degree in Atmospheric Dynamics in 1991 from Peking University, and a Ph.D. in Atmospheric Sciences in 1998 from the University of Washington. Prior to working at JPL in 2005, she worked as an Assistant Researcher at the University of California, Los Angeles. **Dr. Su** received the JPL Lew Allen Award for Excellence in 2008 and NASA Exceptional Scientific Achievement Medal in 2010 for “major advances in the understanding of water vapor and cloud feedbacks on climate change through quantitative analysis of observations from multiple NASA satellites.” She is a recipient of 5 NASA Group Achievement Awards and AGU Editor’s Citation for Excellence in Refereeing in 2015.

Dr. Su has been actively involved in community volunteering. She has served on the Chinese-American Engineers and Scientists Association of Southern California (CESASC) Board since 2015 and is the CESASC President for 2018-19. She was the President of the Chinese-American Oceanic and Atmospheric Association - Southern California Chapter (COAA-SCC) from 2015 to 2017. She is nominated to run for AGU Atmospheric Sciences Section Secretary in 2018 AGU Elections.

Q: How did you decide to study atmospheric science?

Su: Both my parents worked in the Sichuan Meteorological Bureau and I grew up with operational weather forecasters. Meteorology was one of my choices when I applied for college because my parents thought this would be an easy route for me to return to Chengdu and have a comfortable life. Through my college and graduate school, I did fairly well in coursework in atmospheric science so that I never questioned myself whether this field was a good fit for me. After finishing the Ph.D. degree, there were times that I wanted to try something different but nothing appeared more attainable than atmospheric science. I would say my decision to study atmospheric science was initially influenced by my parents and later due to inertia.

Q: Which accomplishments are you most proud of in your professional life, including your group achievements?

Su: When I was hired as a science contractor at JPL in May 2005, I was asked to augment a simple 2-D model for water vapor entry into the stratosphere. While working along this assignment, I

came up with some ideas to utilize then-newly available upper tropospheric water vapor and cloud ice data from Aura Microwave Limb Sounder (MLS) for climate studies. I convinced my supervisors to devote my time on the climate studies and soon submitted a paper to a high-impact journal. This study **Su et al.** (2006) quantitatively described the deep convective influence on upper tropospheric water vapor and its super-greenhouse effect. It was ranked #1 Discovery of Aura satellite mission in its first anniversary and highlighted by AGU EOS and NASA press release. It earned me the prestigious JPL Lew Allen Award for young scientists and the NASA Exceptional Scientific Achievement Award. I am most proud of this work because it marked the start of my independent research and also encouraged me to pursue my own passion and curiosity, not just follow others' ideas. It opened up a new research area for Aura MLS, which was primarily designed to study stratospheric chemistry. After this study, my supervisors gave me the freedom to choose my own research topics, a privilege that I value most and deeply appreciate.

Q: Who influenced you the most in your professional life and why?

Su: There are many people in my professional life who influenced me greatly. First, **Prof. Yulin Zhang (张玉林)** in Peking University advised my B.S. thesis on numerical modeling. Her knowledge and grace motivated me to continue onto graduate study in PKU. My M.S. advisor **Prof. Shoujun Chen's (陈受钧)** open-mindedness encouraged me to pursue further study in U.S. At the University of Washington, I learned a great deal from many distinguished atmospheric scientists, especially from my advisors **Prof. Chris Bretherton** and **Prof. Dennis Hartmann**. **Chris's** exceptional analytical skills and profound deep thinking promoted me to tackle some fundamental problems in tropical meteorology, while **Dennis's** grand vision and broad knowledge taught me to comprehend the complex interactions in climate systems from first principles of the physical world. **Prof. Shuyi Chen** taught me to run MM5 and helped me to write the first peer-reviewed article. Later, I worked with **Prof. David Neelin** at UCLA as a postdoctoral scholar. His quasi-equilibrium view of the tropical convection has greatly influenced my understanding of moist dynamics. Even now, I frequently seek his insights into perplexing problems. At JPL, I have benefited tremendously from collaborations with **Dr. Jonathan H. Jiang**. His remote sensing expertise and superior proficiency with satellite data helped me to swiftly launch a new career in satellite data analysis.

Q: How are you interacting with Chinese-speaking scientists in Asia?

Su: Due to the constraints placed on NASA scientists, I cannot have collaborations with any Chinese-speaking scientists in Asia. My interactions with them are limited to multi-lateral international conferences and workshops. COAA also facilitates such interactions through its international symposiums.

Q: What are your perspectives for future direction in our field?

Su: My research has focused on tropical convection, cloud and water vapor feedbacks and aerosol-cloud interactions. In the past decades, there have been noteworthy progresses in observations and computing capabilities. As numerical models become increasingly finer in resolution, a break-through in theoretical framework to tackle the multi-scale interactions of convection with environments is sorely needed. In parallel to advancing physical understanding, I imagine machine learning with vast amounts of data may serve as another route for improved weather forecasts and climate predictions.

Q: What is your major advice to young scientists in our field?

Su: Atmospheric science is a rich field with ample topics. It is important to develop a unique area that distinguishes yourself. This process requires passion, capability, courage and perseverance. Always be proactive. It also helps a lot to nurture a supportive network that propels your growth.

Invitation to renew your COAA membership

Dear COAA members,

As you may already know from many COAA activities, COAA is a non-profit organization comprised of more than 600 Chinese-American scholars working in the United States on Earth sciences. COAA dedicates its activities to promote science through communications and mentoring young scholars. As part of your COAA membership, you will receive the following benefits:

- Networking with your peers and other professionals
- Receiving regular COAA newsletters and notifications of COAA events
- Participating COAA organized seminars, conferences, and social events
- Travel grant opportunities for COAA Conferences
- Enjoying special member price for attending COAA conferences, COAA reception banquets, and other activities

Your participation and dues make these and other valuable COAA services possible. To improve the COAA experience for its members, we invite you to renew membership for 2018 as:

- Regular: \$10/year
- Student: \$5/year
- Life: \$200
- Corporate: \$500/year

You can renew your membership online through the link below:

<http://www.coaaweb.org/membersonly.php> (although you may not get an automated confirmation email, your payment will go through. If you want to make sure you may contact the treasurer or membership coordination to confirm the payment. Their contact information can be found at: <http://www.coaaweb.org/team.php>). You may also pay your membership dues during any COAA activities throughout the year.

If you do not plan to renew, please send us a quick email and we'll take you off the list. In either case, we would appreciate any feedback you are willing to share regarding your decisions on renewing COAA membership.

Thank you for your support for COAA and we are looking forward to seeing you at upcoming events!

Best regards,
COAA Board 2018

COAA Spotlight: Dr. Y. Tony Song



Dr. Y. Tony Song is a research scientist in Oceanography at NASA's Jet Propulsion Laboratory in Pasadena, CA, where he specializes in ocean modeling, satellite remote sensing, and tsunami early detection system using GPS technology.

Dr. Song received his doctorate degree from Simon Fraser University of British Columbia in Canada in 1990, and had been a post-doctoral fellow and an assistant research professor at the Rutgers University of New Jersey, and a research associate of Bedford Institute of Oceanography in Canada before joining JPL in 1998. He has been a lead investigator on many NASA and U.S. Navy projects and has authored more than 60 peer-reviewed publications. His recent study on the 2004 Indian Ocean tsunami won the 2008 JPL *Ed Stone Award*. His invention of using GPS to detect tsunami scales was ranked by *Discover Magazine* as one of the top 100 amazing discoveries of the year 2010. He is the recipient of the 2011 *NASA Exceptional Scientific Achievement Medal* for his pioneering work in tsunami research. He has been a science team member on three of NASA's Earth satellite missions: The Ocean Surface Topography Mission (OSTM), the Gravity Recovery and Climate Experiment (GRACE), and the Aquarius Ocean Surface Salinity.

Q: How did you decide to study Oceanography?

Song: It was a fallback plan. I was studying Mathematics in China, and started publishing mathematical papers later in college. All of my professors from college to graduate school advised me to become a mathematician. To their surprise, I took a position to model China's economy for the National System Reform Committee after my master's degree in 1984. I thought I would be more useful searching for a better way to improve China's poor economy then. After two years of intensive training in economics, I developed the first macroeconomic optimal planning model by dividing China's economy into 19 industry sectors as the equations of state based on control theory, which I published in a journal of system engineering. Soon, I was busy running the model on the only supercomputer in China at the time for China's 7th Five-Year-Plan and for the Three-Gorges-Dam project plan. My work was published in a journal of econometrics in 1987. Unfortunately, my job position was eliminated for some reason so I decided to study Oceanography and pursued my Ph.D. degree in Canada.

Q: Which accomplishments are you most proud of in your professional life, including your group achievements?

Song: I don't believe I have any accomplishments, but I can share something I have done that is unconventional or not by design.

Everyone knows the Cartesian coordinate system in our daily life. Most meteorologists should know the sigma-coordinates, formulated by **Dr. Norman A. Phillips** in 1957 for numerical weather forecast. Similarly, to build an ocean general circulation model (OGCM), a proper coordinate system is needed to represent both the fluid dynamic equations and bathymetry. In early 90s, most ocean models were formulated by mathematicians who know physics. That time, I knew

more econometrics than physics. So, I formulated the “s-coordinate system” from the “s-curve” cycle of econometrics to represent the ocean in the most economical way. The ideal case is zero curvature, which becomes linear or the sigma-coordinates. Based on the new coordinate system, I developed the S-Coordinate Rutgers University Model (SCRUM), which laid the foundation for the widely used ROMS ocean model. After two decades, the s-coordinate system is still in use.

Q: Who influenced you the most in your professional life and why?

Song: I would say **Prof. Qian Xuesen** influenced me the most in my science career. Though he did not teach me directly, he was instrumental for our group to study China’s economy and support open-China reform, which I was hired for. He was retired then and interacted with us weekly for his “Systems Science Seminar”. He told us how to use our science knowledge for the benefit of society. Actually, it was him who convinced the then government officials to allow more students, including me, to go abroad for a higher degree. Interestingly, I am actually now working at JPL, the institution he co-founded and named first in his proposal, but was forced to leave.

Q: How are you interacting with Chinese-speaking scientists in Asia?

Song: Bilingualism is wonderful, particularly in Chinese and English, because China and the U.S are the two most influential countries in the world. For example, in collaborating with **Prof. Zheng Quanan**, the former president of COAA, we organized and edited the first AGU JGR-Oceans especial issue for the South China Sea in 2006. In those days, the vast work and observations done by Chinese-speaking scientists, particularly from China, was not well known and difficult to publish abroad because of language barriers. Things have been changing fast. Now, one can easily find publications by Chinese-speaking scientists, written in perfect English.

Q: What are your perspectives for future direction in our field?

Song: My personal perspectives for the future direction in the ocean and atmosphere fields have to be in their applications. Look, mankind needs the three elements to survive: air in the Atmosphere, water in the Ocean, and shelter on Land. Unfortunately, each of them has big known hazards: storms (hurricane/typhoon), tsunamis, and earthquakes. We only can enjoy them if there is no hazard. As long as mankind exists, these hazards have to be mitigated. We can predict storms now, much better than before; we should be able to predict tsunamis soon; and we will be able to predict earthquakes in the future, at least to some extent.

COAA certainly care about the ocean and the atmosphere. To my point, just understanding them is not good enough. Application is the destination of Earth science. If we cannot predict or mitigate those natural hazards, what is the point of understanding? Actually, my job at JPL is for better understanding of the ocean using satellite observations. I have been particularly interested in the satellite-observed ocean bottom pressure, which tells many things about ocean circulations. To my surprise, the observation does not explain the tsunami energy that killed tens of thousands of people. For decades, conventional tsunami theory presumes the energy mainly from seafloor uplift. But I found that the horizontal motions of faulting slope transferred kinetic energy to the ocean and powered the tsunami. The new theory guided me to the technology of using NASA’s global positioning system (GPS) to track earthquakes and estimate the resulting tsunami’s scale for early warnings to save lives. We know Simpson-scales for hurricane (in category), Richter-scales for earthquake (in magnitude), but no scales for tsunami. The latter may be changing. We are testing our system to detection tsunami scales and transferring the technology to NOAA for

operation. Now, everyone's phone has the GPS capability. Wouldn't it be great if your smart App could alert you when you are at risk of tsunami? Well, if you're interested in something like that, look out for our release or some features from previous News:

2008: <http://www.nasa.gov/topics/earth/features/tsunami-20080117.html>

2010: http://www.jpl.nasa.gov/news/news.cfm?release=2010-198&cid=release_2010-198

2011: http://www.jpl.nasa.gov/news/news.cfm?release=2011-374&cid=release_2011-374

2016: <http://www.nasa.gov/feature/jpl/dueling-climate-cycles-may-increase-sea-level-swings>

Q: What is your major advice to young scientists in our field?

Song: It is difficult to give useful advice to young scientists because my experience is totally different from theirs. So, I shared some instances of my experience for their considerations.

If there are opportunities, I would pick up something suitable to my skills. Something useful would be better. Reality has no linear route, but a lot of "s-curves": first work hard without too much progress, then look for taking off if doing right, and eventually reach a plateau. Any economy has a cycle and our life is the same. Maybe that is why the s-curve also works in ocean models.

Be proud of what we are doing, and keep our eyes open to other fields or other opportunities. It is important for students and young scientists from different fields to work together to form interdisciplinary research teams.

A new way to donate to COAA at no cost: AmazonSmile

Dear COAA members,

COAA is a non-profit organization striving to serve the Chinese-American oceanic and atmospheric professional community, and COAA heavily relies on donations and supports from its members, friends and sponsors.

Now if you are an Amazon Shopper, there is a new way to show your support to COAA at no cost to yourself:

1. Go to **smile.amazon.com**
2. Select your charity by searching "Chinese American Oceanic and Atmospheric Association"
3. Shop at Amazon starting at smile.amazon.com
4. Amazon will donate 0.5% of the price of your eligible AmazonSmile purchases to COAA

Please spread the words to our dear COAA colleagues and friends. Together we will grow COAA with better and better service to our own community!

Thank you!

COAA Board

Three Chinese-American scientists are nominated for the upcoming AGU leadership elections

The AGU Leadership Development committee and section leaders have announced the candidates for the 2018 AGU Election (<https://elections.agu.org/>). Please ensure that your **AGU membership** and **section affiliations** are up to date by **1st August 2018** so that you will be eligible to vote when the polls open in **late August**.

1. Go to <https://membership.agu.org> and login with your AGU account
2. Under **Membership Selections**, select “**Section & Focus Groups**”
3. Add “**Atmospheric Sciences**”, “**Global Environmental Change**”, and “**Natural Hazards**” if you want to support the three Chinese-American Scientists
4. The polls will be open in **late August**

Here, we would like to encourage COAA members to vote for three Chinese-American candidates: **Dr. Hui Su**, **Dr. Wenhong Li** and **Dr. Yuhe Tony Song**. Please find below their short Bios:

Dr. Hui Su, Secretary Candidate of Atmospheric Sciences, is a Principal scientist at the Jet Propulsion Laboratory (JPL), California Institute of Technology and Assistant Director of the UCLA Joint Institute for Regional Earth System Science and Engineering (JIFRESSE). She is also an adjunct professor of the Dept. of Atmospheric and Oceanic Sciences, UCLA. She is a PI for NASA Aura and NEWS science teams, and Co-I for a number of NASA funded projects. She is currently the strategic lead for JPL’s Extreme Weather Initiative. Her research interests are primarily in climate dynamics and convective processes. Dr. Su has published about 90 articles in peer-reviewed journals. She was the President of COAA Southern California Chapter from July 2015 to June 2017. (<https://science.jpl.nasa.gov/people/Su/>)

Dr. Wenhong Li, Secretary Candidate of Global Environmental Change, is an Associate Professor of Climate in Duke University. Dr. Li's research interests focus primarily on climate dynamics, land-atmosphere interaction, hydroclimatology, and climate modeling. Her current research is to understand how the hydrological cycle changes in the current and future climate and their impacts on the ecosystems, subtropical high variability and change, unforced global temperature variability, and climate and health issues. (<https://nicholas.duke.edu/people/faculty/li>)

Dr. Yuhe Tony Song, President-elect Candidate of AGU Natural Hazards, is a Research Scientist at NASA’s Jet Propulsion Laboratory (JPL), California Institute of Technology and a Project Scientist of the UCLA Joint Institute for Regional Earth System Science and Engineering (JIFRESSE). His research interests include innovative remote sensing, tsunami source and early detection system and novel ocean modeling. Dr. Song won the NASA Exceptional Scientific Achievement Medal in 2011, NASA Exceptional Public Achievement Medal in 2018, JPL Voyager Award in 2017, and JPL Ed Stone Award in 2007. (<https://science.jpl.nasa.gov/people/Song/>)

Call for Abstract Submission for 2018 AGU Fall Meeting

The 2018 AGU Fall Meeting Abstract Submission Deadline is August 1st

Session Title (A064)

Land-atmosphere interactions of the Tibetan Plateau and their impacts on weather and climate

Description

Thermodynamic and mechanical influences of the elevated Tibetan Plateau play an important role in regional and global extreme weather and climate events. Integrated observations and modeling are two components critical for advancing our understanding of the role of land-atmosphere interactions over the Tibetan Plateau. This session provides a forum to discuss recent progress in establishing observation networks in Tibet and data applications, and in studying physical processes involved in land-atmosphere interactions. It focuses on process studies of land-surface and hydrology, boundary layer, cloud-precipitation, and troposphere-stratosphere exchange of mass and chemical composition. It encourages contributions making novel utilization of multi-scale interdisciplinary modeling and analysis to investigate effects of land-atmosphere interactions on weather and climate. Similar studies in other regions with complex terrains are encouraged. This session also welcomes papers on the assessment of changes in Tibetan surfaces characteristics (snow, glacier, soil moisture, ecosystem, etc.) in the context of climate variability.

Conveners

- Fei Chen (Primary), National Center for Atmospheric Research
- Ping Zhao, State Key Laboratory of Severe Weather
- Yimin Liu, Institute of Atmospheric Physics

Session Title (A010):

Air Pollution, Aerosol, and Climate Interactions in Asia

Description

With the densest population and fastest economic growth in the world, Asia is experiencing an unprecedented rate of changes due to both natural and anthropogenic factors. Of particular concern are changes in environment and climate and their connections. Air pollution poses serious health risk to the large population in Asia, unraveling any connections between air pollution and climate is utmost to making sound policies for sustainable development and the well-being of about half of the world's population. Abstracts are solicited in the following subjects:

- (1) Identifying/quantifying major emission sources;
- (2) New particle formation and growth;
- (3) Cloud condensation and ice nuclei (CCN/IN);
- (4) Surface reactions on aerosol particles;
- (5) Air pollution and boundary-layer interactions;
- (6) Impact of Asian monsoon on air pollution;
- (7) Impact of El Nino, ENSO, PDO, polar on air pollution;
- (8) Air pollution and health;
- (9) Major field campaigns in Asia;
- (10) Air quality modeling

Conveners

- Tong Zhu (Primary), Peking University

- Zhanqing Li, Univeristy of Maryland College Park
- Renyi Zhang, Texas A&M Univeristy

Session Title (A100)

The Dynamics of the Large Scale Atmospheric Circulation in Present and Future Climates: Jet Streams, Storm Tracks, Stationary Waves, and Monsoons

Description

Large-scale atmospheric circulation plays a key role in the global climate system. Understanding the fundamental dynamics of the large-scale circulation is essential for constraining regional climate projections under increasing greenhouse gas concentrations. Furthermore, the dynamics of the atmospheric general circulation intimately interact with the energy and hydrological cycle, exerting profound impacts on extreme weather and climate events. Such interactions in both the tropics and extra-tropics occur on a wide range of spatial and temporal scales, which calls for a combination of conceptual understanding, hierarchical modeling, and observations.

We welcome contributions covering theory, idealized and comprehensive modeling, and novel diagnostic frameworks for observations and CMIP model outputs to improve our understanding of the large-scale atmospheric circulation and how it may respond to future climate change. Contributions including, but not limited to, the ITCZ, monsoons, jet streams, storm tracks, extreme weather events, blocking, stationary waves, and atmospheric rivers are highly encouraged.

Conveners

- Lei Wang (Primary), Harvard University
- Simona Bordoni, California Institute of Technology
- Gang Chen, University of California Los Angeles
- Isla Simpson, National Center for Atmospheric Research

Session Title (H062)

Global Floods: Forecasting, Monitoring, Risk Assessment, and Socioeconomic Response

Description

The increase in the frequency of flood events due to acceleration of the global water cycle induces more risks to human settlements, especially those on floodplains, in an era of rapid population growth. Monitoring and forecasting of the occurrence, intensity, and evolution of flood events have been critical for many humanitarian and government agencies in their efforts to prepare, mitigate, and manage responses to disaster to save lives and limit damage. Risk assessments prior to events are also vital for developing short-term and long-term management plans.

We hope this session could also aim to contribute to the aims of the Global Flood Partnership (GFP), i.e. to foster global flood forecasting, monitoring and impact assessment to strengthen preparedness and response and to reduce global flood disaster losses. We solicit contributions from modeling and remote sensing, socioeconomic sciences, hazard response, and preparedness fields that study flood hazards and risks across spatial scales.

Conveners

- Huan Wu (Primary), Sun Yat-Sen University
- Donglian Sun, George Mason University Fairfax
- Philip Ward, IVM-VU University Amsterdam

- Dennis P. Lettenmaier, University of California, Los Angeles

Session Title (IN019)

Data and Information Services for Interdisciplinary Research and Applications in Earth Science

Description

Making heterogeneous Earth science data easy access in an integrated environment, such as online visualization and analysis services without downloading data and software, is essential to broaden user communities especially when conducting interdisciplinary research and applications. To date, accessing interdisciplinary datasets is still a challenge to researchers and application users. This session seeks presentations to describe your Earth science data and information service activities for interdisciplinary research and applications, including existing tools or data services, ongoing work/project/tool development, challenges and barriers, lessons learned, experiences and suggestions with existing tools or services, and ideas/concepts for future data and information services.

Conveners

- Zhong Liu (Primary), George Mason University Fairfax, NASA GSFC GES DISC
- Jennifer C. Wei, NASA GSFC GES DISC
- Vasco Mantas, University of Coimbra
- Menglin Jin, University of Maryland College Park

Session Title (H049)

Drought Process and Prediction: Vulnerability, Hazard, and Risk

Description

Drought can develop and intensify in a short amount of time and result in major agricultural losses if they are not predicted and detected in a timely manner. Understanding drought mechanisms, frequency and severity, and generating reliable prediction on subseasonal to seasonal (S2S) timescales are of critical importance for impact assessment, disaster mitigation, and loss prevention. Furthermore, quantifying socioeconomic vulnerability to drought and assessing drought termination and recovery are crucial for implementing proactive drought risk management strategies. This session invites contributions from all aspects of drought monitoring, diagnosis, and prediction, including (1) understanding the physical mechanism and manifestation of drought events on shorter timescales, (2) S2S predictability of dynamic models and statistical methods in drought detection, (3) probabilistic and deterministic drought recovery modeling and forecasting, (4) estimation of S2S drought frequency, spatial patterns, and variability, and (5) diagnosis and attribution of socioeconomic drought vulnerability and risk.

Conveners

- L. Gwen Chen (Primary), University of Maryland College Park
- Lifeng Luo, Michigan State University
- Hamid Moradkhani, The University of Alabama
- Ali Ahmadalipour, The University of Alabama

Session Title (A104)

Toward Reducing Systematic Errors in Weather and Climate Models: Evaluation, Understanding, and Improvement

Description

Despite continuous advances in both weather and climate models, large errors persist in their simulated weather and climate. Describing and understanding the nature and causes of these errors through deep analysis and evaluation using observations is a critical step to improving models. This session invites presentations in the following areas: (1) Global and regional evaluation of weather and climate models such as those used in numerical weather prediction (NWP) and climate modeling centers and from major model intercomparison projects (e.g., CMIP5); (2) Process studies that utilize single-column models, cloud-resolving models, and NWP techniques in climate models; (3) Diagnostics for model performance rooted in surface or satellite observations; and (4) Observational studies that have a direct bearing on understanding and improving model representations of convection, clouds, radiation, precipitation and their interactions. Understanding model errors in mean state or variability (diurnal, intraseasonal, etc.), in atmosphere and coupled models are all of interest.

Conveners

- Shaocheng Xie (Primary), Lawrence Livermore National Laboratory
- Xiaohong Liu, University of Wyoming
- Chung Hsiung Sui, National Taiwan University
- Donghai Wang, Sun Yat-Sen University

Session Title (A070)

Mesoscale and severe convective storms: understanding, and model development and evaluation

Description

Mesoscale convective systems (MCSs) are significant rain-producing weather systems over the globe. Severe convective storms (SCSs) produce large hail, damaging winds and/or tornadoes, and torrential rainfall, causing substantial damages. Quite often, SCSs are associated with MCSs particularly at the mid-latitudes. The physical understanding about factors impacting the initiation, intensity, and evolution for both MCSs and SCSs are still low. Model simulations of them are challenging particularly in global models. This session invites recent studies that use observations and/or model simulations at various scales to improve our understanding and model simulations of MCSs and SCSs. The efforts in parameterization development and model evaluation from cloud-resolving models to global models with various observational data are particularly encouraged.

Conveners

- Jiwen Fan (Primary), Pacific Northwest National Laboratory
- Robert Houze, University of Washington
- Andreas F. Prein, National Center for Atmospheric Research
- Michael P. Jensen, Brookhaven National Laboratory

Session Title (A096)

Stratosphere-Troposphere Coupling: Large-Scale Atmospheric Dynamics and Transport

Description

Numerous studies have shown that stratospheric variability impacts surface weather and climate on timescales ranging from days to decades. In addition, the stratosphere affects tropospheric composition not only through the stratosphere-to-troposphere transport of ozone but also by modulating tropospheric dynamics. This session will cover all aspects of stratospheric

dynamics and transport, as well as the two-way coupling between the stratosphere and the troposphere. Examples includes dynamical coupling during stratospheric sudden warming events and stratospheric modulation of the midlatitude jet streams and associated impacts on pollution transport. Studies focusing on tropical interactions are also welcome. Abstracts involving theoretical, modeling, and observational studies of the dynamics, transport, variability, and trends in the stratosphere are encouraged, as well as those investigating the stratosphere's role in setting surface climate and composition in the past, present, and future.

Conveners

- Clara Orbe (Primary), NASA Goddard Institute for Space Studies
- Gang Chen, University of California, Los Angeles
- Marianna Linz, University of California, Los Angeles
- Peter Hitchcock, Ecole Polytechnique

Session Title (A082)

Processes and factors that control the spatiotemporal variability of clouds and precipitation

Description

The spatiotemporal variability of cloud cells or types and associated cloud properties (e.g., water path) in cloud systems affects the variability of precipitation and associated torrential rain as a form of extreme weather. The variability is affected by various processes such as transitions among stratocumulus, cumulus and deep convective clouds, and the generation, invigoration, dissipation and agglomeration of cloud cells. Many studies have demonstrated that factors such as changing aerosol and surface properties, known to affect climate, contribute to the changing variability since industrialization by affecting those processes. A factor such as large-scale circulation, altered by climate change and including large-scale subsidence, can also affect those processes. Motivated by this, this session invites studies that examine those processes and factors. However, invited studies are not limited to processes and factors above, and studies that investigate other potential processes and factors are also welcome to this session.

Conveners

- Seoung Soo Lee (Primary), University of Maryland College Park
- Yuan Wang, NASA Jet Propulsion Laboratory
- Vaughan T. Philips, University of Leeds

Call for Abstract Submission for 2019 AMS Annual Meeting

The 99th AMS Annual Meeting Abstract Submission Deadline is August 1st

Session Title

Interactions between Atmospheric Convection and Composition

Description

Rapid vertical transport of air by convection plays an important role in the distributions and evolutions of atmospheric composition, including trace gases, aerosols, water vapor and clouds; yet the convective processes and their impacts are poorly represented in numerical models, leading to large uncertainties in simulations and predictions of weather, climate and air quality.

Atmospheric composition observations can be used to inform and constrain the modeling and parameterization of convection. This session solicits studies on the interactions between atmospheric convection and composition, including but not limited to, convective transport of atmospheric constituents, using composition measurements to diagnose convective processes (e.g., lightning NO production, wet scavenging of soluble species), optimizing and improving model representation of convection. Innovative techniques to infer convective properties from remote sensing data are especially welcome.

Conveners

- Hui Su, California Institute of Technology/JPL
- Kenneth Pickering, University of Maryland College Park
- Gretchen Mullendore, University of North Dakota

Session Title

Aerosol-Cloud Interactions in Mixed-Phase Clouds

Description

Mixed-phase clouds composed of a mixture of supercooled liquid droplets and ice crystals are found across the globe. They are the dominant cloud type during the colder three-quarters of the year in the Arctic while at lower latitudes, mixed-phase clouds occur are associated with deep convection, synoptic-scale midlatitude weather systems, and orographic clouds. Aerosols by serving both cloud condensation nuclei or ice nuclei can alter mixed-phase cloud properties, and consequently modulate the regional hydrological cycle. This session invites papers on any of the following or related subjects: (1) characterization of mixed-phase clouds using observations and modeling; (2) process-level understanding of CCN/IN impacts on mixed-phase clouds; (3) assessment of the climatic influence of aerosol-cloud interaction in mixed-phase clouds, especially over the Arctic; (4) evaluation and improvement of mixed-phase clouds in numerical models.

Conveners

- Yuan Wang, California Institute of Technology/JPL
- Chuanfeng Zhao, Beijing Normal University, China

Session Title

Air Pollution in Asia: Sources, Transports, and Impacts on Health and Climate

Description

As the most populous continent on earth, Asia is experiencing an unprecedented rate of change in the atmospheric environment, including the frequently reported severe haze events. This session aims to capture the current understanding of the Asian pollution formation, transformation, transport, as well as their impacts on human health and the Earth's climate system. Making scientific progress on these issues in Asia is critical for efficient mitigation strategies, sound policy making and the well-being of about more than half of the world's population.

This session invites papers on any of the following or related subjects: (1) characterization of the spatiotemporal variations of air pollutants in Asia, (2) emission estimates and source apportionment of air pollutants, (3) chemical mechanisms for the secondary formed pollutants, (4) atmospheric processes and long-range transports of Asian pollution, (5) impacts of Asian pollution on human health and ecosystems, and (6) interactions of Asian pollution, radiation, clouds, and regional climate.

Conveners

- Yuan Wang, California Institute of Technology/JPL
- Bin Zhao, University of California, Los Angeles
- Bryan Duncan, NASA/GSFC