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Summer 2019 Newsletter

1 message

NOAA MAPP <oar.cpo.mapp@noaa.gov> Thu, Jul 25, 2019 at 11:32 AM
Reply-To: oar.cpo.mapp@noaa.gov
To: dbaker@essic.umd.edu

NOAA Climate Program Office | Modeling, Analysis, Predictions, and Projections

See what's happening this quarter in the MAPP community!

This Issue:

Program Updates
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Learn more about the MAPP Program here

FY20 NOFO Released

CPO's annual call for proposals (Notice of Funding Opportunity - NOFO) was published on July 24. This year, the MAPP Program is seeking applications for 3 competitions:

- Constraining Models' Climate Sensitivity
- Characterizing and Anticipating U.S. Droughts' Complex Interactions (MAPP & NIDIS)
- Modeling Climate Impacts on the Predictability of Fisheries and Other Living Marine Resources (ESSM/MAPP)

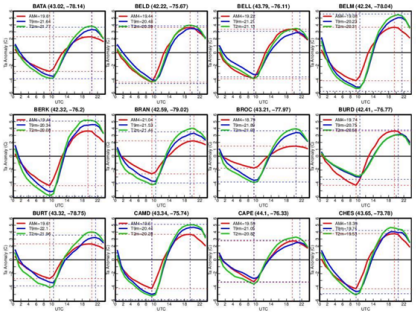
MAPP is also collaborating with four other CPO programs, seeking applications to the following competition:

- Explaining Climate Extreme Events: Developing a Rapid Assessment Capability and Understanding the Causes and Mechanisms of Extreme Events (MAPP, CVP, NIDIS, Assessments & COM)

Letters of Intent (LOIs) are due by 5pm ET on August 23. Full applications must be received by 5pm ET on October 28.

Research Highlights

Measuring Progress on the Path to Improving NOAA Prediction Models



NOAA's MAPP Model Diagnostics Task Force (MDTF) has developed a new approach to accelerate the development of increasingly realistic models. Their approach centered on greater incorporation of process-oriented diagnostics (PODs) that can be applied during the model development process and repeatedly applied with several model versions as a benchmark for model improvement. PODs are effective means to characterize environmental processes and behaviors related to the ability of a model to simulate an observed phenomenon underpinning predictions and projections.

Read more here.

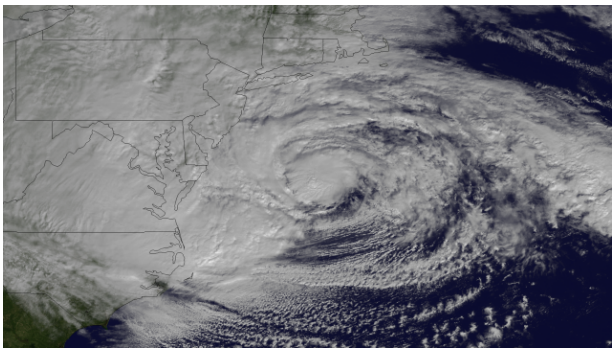
Little evidence of reduced global tropical cyclone activity following recent volcanic eruptions

A new npj *Climate and Atmospheric Science* paper, by MAPP supported PI Dr. Suzana Camargo, examined the impact of volcanic aerosols on recent global tropical cyclone activity using observations, reanalysis, and models (including the CMIP5 multi-model).

The paper documents observations of reduced tropical cyclone activity—only in the North Atlantic—following the last three strong volcanic eruptions. However, this signal could not be clearly attributed to volcanoes as all three eruptions were simultaneous with El Niño events. Reanalysis studies did not support a robust impact of volcanic eruptions on potential intensity of tropical cyclones or proxies of storm initiation (genesis indices). In models, historical simulations showed a reduced potential intensity for tropical cyclones following volcanic eruptions. However, this effect did not hold up after accounting for differences between the model environment and observations. Taken together, the study's results show that in recent eruptions volcanic aerosols did not reduce global tropical cyclone activity.

Find out more

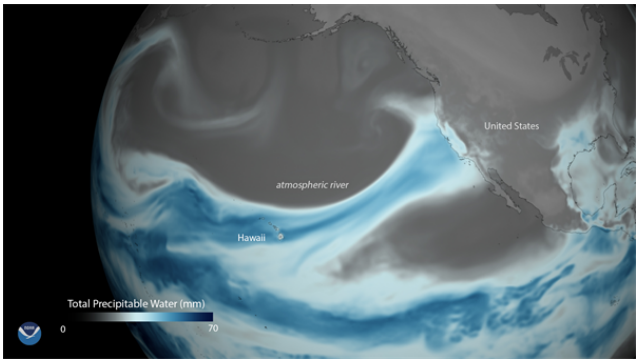
Climate Change is Destroying a Barrier That Protects the U.S. East Coast from Hurricanes



How human activity may influence hurricane intensity in the future is an extremely urgent question along the U.S. East Coast. Researchers funded in part by the Modeling, Analysis, Predictions and Projections (MAPP) Program are working to shed light on this critical area of study. A new paper addressing this question, Past and Future Hurricane Intensity Change along the U.S. East Coast, has been accepted by *Nature Scientific Reports*. Study authors from Lamont-Doherty Earth Observatory and NOAA National Centers for Environmental Information describe an alternating pattern in vertical wind shear and sea surface temperature that exerts a strong control on Atlantic hurricanes. One mode of the pattern inhibits hurricane intensification along the U.S. East Coast, especially during decades-long periods when hurricanes are particularly active and strong in the region of the tropical Atlantic where most storms develop. Research shows the protective pattern is driven mostly by natural decadal variability, but greenhouse gas forcing will erode the protective pattern in the future. Climate model projections show that greenhouse gas forcing substantially reduces the conditions that generate the protective barrier during periods of enhanced Atlantic hurricane activity. Thus, hurricanes approaching the U.S. coast during these periods could intensify more rapidly than when the natural barrier is in place in the future. The paper suggests that continued emissions of greenhouse gases consistent with Representative Concentration Pathway 8.5 could lead to substantial erosion of the natural barrier that suppresses storm intensification.

Read more here

Warming of Landfalling West Coast Atmospheric Rivers



Carrying condensed tropical moisture, atmospheric rivers are responsible for transporting moisture thousands of miles and providing up to 50% of West Coast precipitation in certain locations. The temperatures of storm systems supplied with water by ARs play a vital role in determining the impacts of an AR event, such as the ratio of rain to snow. Additionally, changes in west coast storm temperatures have implications in water storage and flood risk. In a new Journal of Geophysical Research: Atmospheres, authors Katerina R. Gonzales, Daniel L. Swain, Kyle M. Nardi, Noah S. Diffenbaugh, and MAPP-funded PI Elizabeth A. Barnes, found substantial warming in AR-fed events in both seasonal and monthly scales, as well as seasonal and regional variations in the amount of warming along the US West Coast. To better understand the warming of AR-fed storms at landfall regions, monthly temperature trends were compared with trends in temperature along the AR tracks, background temperature over the landfall region, and temperature over the coastal ocean adjacent to the landfall region. It was found that the most robust warming occurs in November and March. This warming, in turn, has been shown to increase regional flood risk and decrease water storage. This study motivates further investigation in other AR-prone regions around the globe.

Read more here

FIND MORE MAPP NEWS HERE

Want to see your research highlighted here?

MAPP PIs,

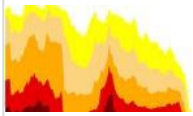
If you'd like to see your research highlighted in our newsletter use **this form** to let us know about papers supported through your MAPP award. A 2+ week notice in advance of publication is most useful.

Remember to include the following statement in your MAPP supported paper: "This study was supported by NOAA's Climate Program Office's Modeling, Analysis, Predictions, and Projections program through grant # (if applicable).

Task Force Updates

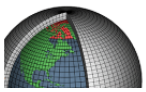
Marine Prediction (2017-2020)

The Marine Prediction Task Force has completed two group papers. The first paper, which is being revised for Frontiers in Marine Science, examines the observational needs for marine ecosystem modeling and prediction along the U.S. coastal areas in the context of the OceanObs'19 efforts. The second paper, entitled "Seasonal-to-interannual prediction of U.S. coastal marine ecosystems: Forecast methods, mechanisms of predictability, and priority developments" has recently been submitted to Progress in Oceanography. The paper explores the physical mechanisms leading to predictability of marine ecosystems and their physical drivers in different U.S. regions.



Drought (2017-2020)

The Drought Task Force 3 (DTF3) has recently focused on precipitation datasets and soil moisture datasets used for drought monitoring. An AMS special collection will be accepting article submissions this fall from research from DTF3 participants, including an overview synthesis paper that will include an examination of drought indices.



Model Diagnostics (2015-2018)

The Model Diagnostics Task Force recently published a group paper in BAMS titled "Process-Oriented Evaluation of Climate and Weather Forecasting Models," which describes the MDTF's efforts to develop process-oriented diagnostics through community effort, work with GFDL and NCAR to integrate these diagnostics with their overarching diagnostic activities, and promote this approach. This paper serves as the header for a special collection in the AMS journals, which is still open for submissions: https://journals.ametsoc.org/topic/process_oriented_model_diagnostics

Subseasonal to Seasonal (2016-2019)

Task Force investigators have been busy submitting their research results to the AGU special collection "Bridging Weather and Climate: Subseasonal-to-Seasonal (S2S) Prediction", organized by the Task Force but open to the entire community. 25 papers that have officially been published thus far in the AGU JGR and GRL journals. This special collection represents an important milestone for S2S research. Bi-monthly telecons will also continue throughout the fourth yera of the Task Force.

Events

FY20 FFO Webinar - July 31, 2019

The MAPP Program will host a webinar on Wednesday, July 31, from 10:30 to 11:30 a.m. ET on our program and new funding opportunities. This webinar will describe the MAPP Program, including our research focus areas and partnerships inside and outside of NOAA, our new competitions, and the process for applying to our competitions. We will close with a Q&A session in which we will answer questions of general interest in real time via the chat function in WebEx.

You can find the webinar here

CMIP6 Hackathon - October 16-18, 2019

The CMIP6 Hackathon is taking place October 16-18, 2019 concurrently at the NCAR Mesa Lab in Boulder, CO and and the Lamont Doherty Earth Observatory in Palisades, NY. The goal of the Hackathon is to explore new standards for community-driven analysis by providing 1) tutorials on cutting-edge analysis tools, 2) peer-learning opportunities, and 3) open-ended project work in a highly collaborative environment.

More information here

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MAPP
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Amara Huddleston, NOAA CPO Modeling, Analysis, Predictions, and Projections