Fall 2019 NEWSLETTER

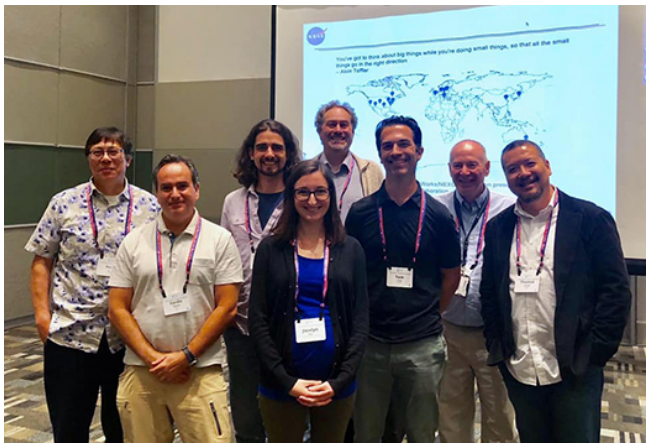
International Ocean Vector Winds Science Team Meeting Highlights Air-Sea Coupling Solutions

A number of current and former COAPSians attended this year's International Ocean Vector Winds Science Team (IOVWST) meeting, an annual forum for researchers to share progress in science related to ocean surface winds: oceanography, meteorology, air-sea interaction, and issues with instrumentation and data. This year's meeting also included highly focused sessions to promote progress in three areas: developing and communicating observational requirements for science and applications; issues and solutions related to air-sea coupling in observations and models; and calibration of extreme winds. It was decided that future meetings will include a broader applications of observations in the atmospheric and oceanic boundary-layers.

Recent Activities & Accomplishments

OceanWorks Team Members at ESIP Summer 2019 Meeting

The OceanWorks project completed its final review with many of the team members together in person (pictured at left) at the ESIP Summer Meeting! ESIP a community of innovative science, data and information technology practitioners who catalyze connections across traditional institutional and domain

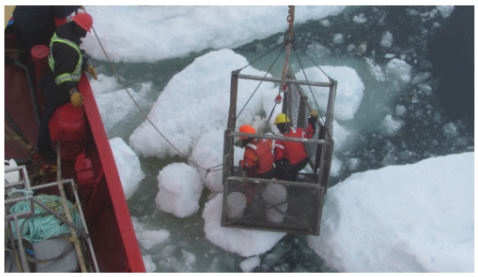


boundaries to solve critical Earth science data stewardship, information technology and interoperability issues.

OceanWorks is a collaboration between several NASA open-source, big data projects to create a science data analytics platform that supports data discovery, anomaly detection, quality-screened data subsetting, in situ-to-satellite data match-up services, and visualization and analysis tools on the fly with ocean data available from distributed data centers. The COAPS Marine Data Center supported the SAMOS shipboard dataset within the OceanWorks system and contributed to development of the Distributed Oceanographic Match-Up Service to match in situ and satellite data. Current COAPSians who worked on this project include **Shawn Smith, Jocelyn Elya, Mark Bourassa, Mike McDonald,** and **Homer McMillan**.

Biological Survey Cruise in the Labrador Sea

In June/July, **Dmitry Dukhovskoy** participated in a research cruise taking biological and hydrodynamic survey of the continental shelf break and deep basin in the northwestern Labrador Sea. Dukhovskoy was responsible for providing physical oceanographic interpretations of observations (water masses, location of oceanic fronts, etc.). He worked with the Moving Vessel Profiler (MVP) -- a new instrument that allows for very detailed temperature and salinity measurements in the upper 300-500 m ocean. Because this instrument can be used while a vessel is moving, it saves a great deal of time. It is also a good instrument for measuring oceanic fronts, which can be very narrow features making them very difficult to observe with other hydrographic measurements.



Honors and Awards

Mark Bourassa was elected to the grade of Senior Member in the Institute of Electrical and Electronics Engineers (IEEE) Geosciences & Remote Sensing Society. Bourassa has been an active member of the society for 16 years. He has served as a session organizer for the IEEE Geosciences and Remote Sensing Symposium (IGARSS), chaired many session, and reviewed many papers for IEEE publications, particularly for Transactions on Geoscience and Remote Sensing. He has also served as a leader in the remote sensing community for over a decade.

Public Education & Outreach

Summer Outreach Program Focuses on Ocean Science

This summer, COAPS and CSOMIO hosted an outreach initiative focused on bringing fun and informative ocean science activities to students in Tallahassee and Panama City. Outreach intern **Lucia Gil** , a senior studying biology at FSU, designed each of the lessons and accompanying hands-on demonstrations and interacted with more than 200 children ages 4-14 over the course of the summer. Gil's activities dealt with the nature of clouds, ocean currents, and hurricanes. She also developed creative activities to help students appreciate issues related to plastics in the ocean and plankton's role in the ocean. Each lesson included an interactive element where students could work through the ideas within small groups.






Student Achievements

Congratulations to **Daneisha Blair** (at right) on being awarded the Latin America-Caribbean (LAC) scholarship. Blair is a master's student studying meteorology.

Ethan Wright, master's student in meteorology, presented a poster on "A Comparison of Buoys and Scatterometers in High Wind Conditions" at the International Ocean Vector Winds Team annual meeting (at left).

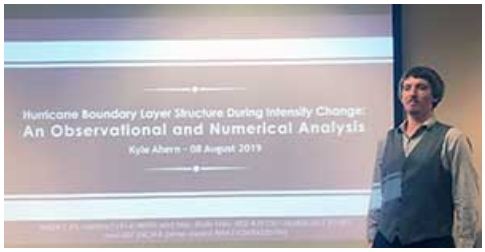
Look who moved their tassels this summer!

Marine Data Center undergraduate programmer **Randy Bruno-Piverger** (top left) was awarded a BS in Computer Science with honors in the major, and a BA in Philosophy with honors in the major . Bruno-Piverger has accepted a position at IBM at their headquarters in Durham, NC.

Programmer **Camill Folsom** (middle left) successfully defended his master's project in computer science, "Shipboard Automated

Meteorological and Oceanographic System: Merger Program Re-Write" and graduated over the summer.

John Ueling (bottom left) successfully defended his master's project in meteorology: " Describing the onset and demise of the Australian Monsoon ." Ueling will be pursuing a PhD in meteorology at FSU under the direction of **Vasu Misra** . He will be looking at the impacts of climate change on Florida's climate.



On August 8, **Kyle Ahern** defended his dissertation, "Hurricane Boundary Layer Structure During Intensity Change: An Observational and Numerical Analysis," to earn his doctoral degree in meteorology. Ahern was co-advised by **Mark Bourassa** and Bob Hart will. He will graduate in fall 2019.

Recent Publications

Ahern, K., M. Bourassa, R. Hart, J. Zhan, R. Rogers, 2019: Observed Kinematic and Thermodynamic Structure in the Hurricane Boundary Layer During Intensity Change. *Mon. Wea. Rev*. *147*(8), pp.2765-2785.

Bourassa, M. A., T. Meissner, I. Cerovecki, et al., 2019. Remotely Sensed Winds and Wind Stresses for Marine Forecasting and Ocean Modeling. *Frontiers in Marine Science*, **6**, p 443.

Carstens, J. (2019). Tropical Cyclogenesis from Self-aggregated Convection in Numerical Simulations of Rotating Radiative-convective Equilibrium. *Florida State University - FCLA; ProQuest Dissertations & Theses Global,* Tallahassee, FL

Cronin, M. F., Gentemann, C. L., Edson, J., Ueki, I., Bourassa, M., Brown, S., et al. (2019). Air-Sea Fluxes With a Focus on Heat and Momentum. *Front. Mar. Sci.*, *6*.

Deng, J., Wu, Z., Zhang, M., Huang, N. E., Wang, S., & Qiao, F. (2019). Data concerning statistical relation between obliquity and Dansgaard-Oeschger events. *Data Brief*, *23*.

Dukhovskoy, D. S., Yashayaev, I., Proshutinsky, A., Bamber, J. L., Bashmachnikov, I. L., Chassignet, E. P., et al. (2019). Role of Greenland Freshwater Anomaly in the Recent Freshening of the Subpolar North Atlantic. *J. Geophys. Res. Oceans*, *124*(5), 3333–3360.

Huang, T., Armstrong, E. M., Bourassa, M. A., Cram, T. A., Elya, J., Greguska, F., et al. (2019). An Integrated Data Analytics Platform. *Mar. Sci.*, *6*.

Kent, E. C., Rayner, N. A., Berry, D. I., Eastman, R., Grigorieva, V. G., Huang, B., et al. (2019). Observing Requirements for Long-Term Climate Records at the Ocean Surface. *Front. Mar. Sci.*, *6*, 441.

Liu, Y., Tan, Z. - M., & Wu, Z. (2019). Noninstantaneous Wave-CISK for the Interaction between Convective Heating and Low-Level Moisture Convergence in the Tropics. *J. Atmos. Sci.*, *76*(7), 2083–2101.

Rodríguez, E., Bourassa, M., Chelton, D., Farrar, J. T., Long, D., Perkovic-Martin, D., et al. (2019). The Winds and Currents Mission Concept. *Front. Mar. Sci.*, *6*.

Stukel, M. R., & Kelly, T. B. (2019). The carbon: (234) Thorium ratios of sinking particles in the California current ecosystem 2: Examination of a thorium sorption, desorption, and particle transport model. *Marine Chemistry*, *212*, 1–15.

Stukel, M. R., Ohman, M. D., Kelly, T. B., & Biard, T. (2019). The Roles of Suspension-Feeding and Flux-Feeding Zooplankton as Gatekeepers of Particle Flux Into the Mesopelagic Ocean in the Northeast Pacific. *Front. Mar. Sci.*, *6*.

Villas Bôas, A. B., Ardhuin, F., Ayet, A., Bourassa, M. A., Brandt, P., Chapron, B., et al. (2019). Integrated Observations of Global Surface Winds, Currents, and Waves: Requirements and Challenges for the Next Decade. *Front. Mar. Sci.*, *6*.

Zou, M., Xiong, X., Wu, Z., Li, S., Zhang, Y., & Chen, L. (2019). Increase of Atmospheric Methane Observed from Space-Borne and Ground-Based Measurements. *Remote Sensing*, *11*(8).

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