

Secretary's Weekly Report – National Oceanic and Atmospheric Administration (NOAA) NESDIS – STAR

Division/Program: CICS

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- **CICS-MD Student Intern Highlighted by ENSpire**

Jason Winik, who has been working with CICS-MD Scientists Michael Gerst and Melissa Kenney, has been chosen as an Outstanding Environmental Science and Policy (ENSP) Student and is profiled on the UMD website as part of a new program by the student association, ENSpires.

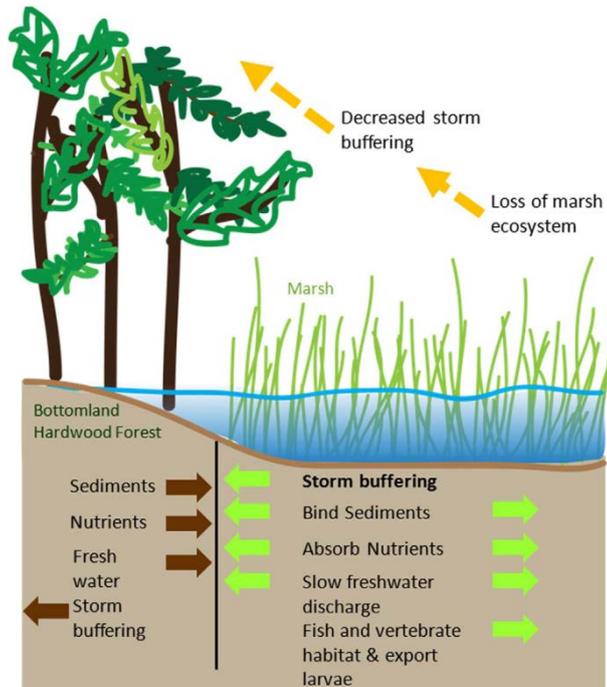


Jason has worked for the last year in the Environmental Decision Support Science Laboratory, supporting two CICS tasks: “Research, Development and Implementation of Climate Change Indicators for the United States” and “Identifying Users, Diagnosing Understandability Challenges, and Developing Prototype Solutions for CPC Products.” He will continue his internship this summer. See the full profile at <http://ensp.umd.edu/news/oustanding-ensp-student-jason-winik> .

Importance: Mentoring students helps to develop college graduates with remote sensing experience ready to staff future NOAA/NESDIS activities as support contractors and civil servants. *POC:* M. Gerst

- **Coastal Restoration Work Group:**

CICS-MD Scientist Ariana Sutton-Grier (NOS) is the co-author of a new article in *Marine Policy* that models how to include the storm protection benefits of coastal habitats into the Habitat Equivalency Analysis (HEA), which is part of the Natural Resources Damage Assessment process. Storm protection benefits (SPB) are the “ability of ecosystems, including wetlands, reefs, and beaches/dunes, to attenuate waves and storm surge.” The study in the article looks at a hypothetical case study of an oil spill that impacts a marsh with resulting impacts on SPB to the adjacent upland forest. The HEA does not explicitly provide for impact from one habitat (marshland) to an adjacent one (forest). The figure below shows the “cross-ecosystem service flow” between these two types of habitats.

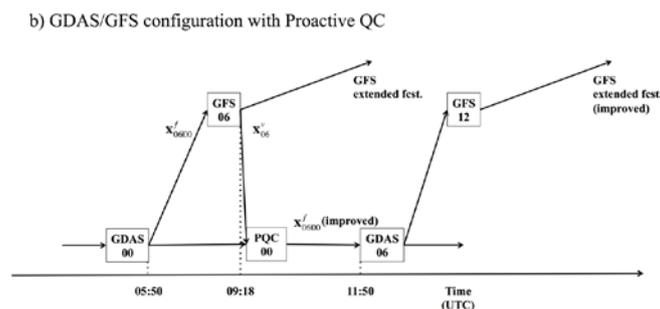


To address the cross-over effects, the authors developed a “Nested HEA,” which could be used for Storm Protection Benefits or other service losses in adjacent environments. The lead author of the article is a former CICS-MD intern who now works for NOAA. Wellman, Emory, Ariana Sutton-Grier, Meg Imholt and Adam Domanski, *Catching a wave? A case study on incorporating storm protection benefits into Habitat Equivalency Analysis*, *Mar. Policy*, **83**, 118–125, <http://dx.doi.org/10.1016/j.marpol.2017.05.029>

Importance: NOAA’s mission includes conservation and management of coastal and marine ecosystems and resources and working toward healthy ecosystems and resilient communities. POC: A. Sutton-Grier

- **Proactive Quality Control Publication Accepted:**

CICS-MD Scientist, Eugenia Kalnay, her current graduate student, Tse-Chun Chen, and her former graduate student and now PhD, Diasuke Hotta, have an article accepted by the *Monthly Weather Review* describing three years of work on their CICS-MD Task. Kalnay and her team have been working on a JPSS PGRR task entitled “Advances and Operational Implementation of Proactive QC (Quality Control) in the Atmosphere and the Ocean.” Their project focuses on addressing abrupt drops in the forecast skill of Numerical Weather Prediction system, usually due to errors in the initial conditions. In the article, “a new QC method is proposed, termed Proactive QC (PQC), which detects detrimental innovations 6 hours after the analysis using Ensemble Forecast Sensitivity to Observations (EFSO) and then repeats the analysis and forecast without using them.” The new flow chart using this process is below;



Their results show that the 24-hour forecasts were improved in 18 out of 20 “forecast skill drop” cases using the variable “moist total energy,” with local forecast improvements reaching over 30 % in as many as seven cases. The positive effects of PQC continued up to five days. Hotta, Daisuke, Tse-Chun Chen, Eugenia Kalnay, Yoichiro Ota and Takemasa Miyoshi, 2017: Proactive QC: a fully flow-dependent quality control scheme based on EFSO, *Mon. Wea. Rev.*, <http://dx.doi.org/10.1175/MWR-D-16-0290.1>, in press.

Importance: Improvements in NWP are difficult to obtain without large disruptions of current operational time and capacity but PQC offers more benefits for less disruption. POC: E. Kalnay.