**Scientific and Technical Working Group Meeting**

**June 27, 2025**

**1:00 - 2:30 pm**

**By ZOOM**

**Meeting Summary, Notes, and Resources**

Attendees:

# STWG Members: Fernando Miralles-Wilhelm, David Nemazie, Amir Sapkota, Russel R Dickerson, Jared Williams, Robyn Gilden, Belay Demoz, Donald Boesch, Jonah Erlebacher, Adel Shirmohammadi

Others: Jennifer Laszlo Mizrahi, Jeff Silva, James Hyde, Katie May Laumann, Kim Pezza, Scott Waitlevertch, Shil DasSarma, Silvia Regina, Victoria Coles, Alexis, Foxworth, Katie Hauck

UMCES Staff: Rahat Sharif

**Meeting Summary:**

The STWG received two presentations at this meeting, Resilience Report Cards form Dr. Katie May Laumann and Mesonet from James Hyde. Dr. Laumann discussed her work on Resilience Report Cards, where the project assessed resilience and vulnerability indicators and Charles County and the State of Maryland. These indicators are used to assess the respective area’s ability to withstand climate change events and determine where investment is needed. James Hyde presented his work on Mesonet, a statewide network of weather stations across Maryland. Each weather station is placed in an open space and meets World Meteorological Association standards. These weather stations provide data to local communities, and have garnered interest from state agencies.

**Welcome and Introductions:**

Dr. Fernando Miralles – Wilhelm went over the items in the agenda and started self-introductions.

**Resilience Report Cards:**

Dr. Katie May Laumann discussed her work on Resilience Report Cards, where she collaborated with the Maryland Climate Change Commission, the Adaptation and Resiliency Working Group, and the Resilience Authority of Charles County. The goal of the report cards is to assess the target area’s ability to withstand climate change events, to determine in what areas it is doing well, where investment is needed, and to guide prioritization.

The resilience indicators were developed using community feedback, identifying climate threats based on lived experience. 15 indicators of resilience were identified through this process. Many indicators were assessed for Charles County, including but not limited to critical facility locations, flood mapping, repetitive flood loss properties, flood loss insurance coverage, business disruption, pervious surface, protected habitat and waters, water quality, heat tolerance, and park equity. In addition, Dr. Laumann developed vulnerability indicators for Charles County that were relevant to the previous resilience indicators. These included: heat tolerance (extreme temperatures, heat – related illness), groundwater management (drought), and living shorelines (shoreline erosion)

**Question & Answer:**

* Each county must have a flood plan, but not all of them do, and those that don’t have extensions.
* Charles County’s aquifer levels are adequate, if it is low, the aquifer is capped until it recharges
* Funding: There is funding for Charles County only, Dr. Laumann has applied for funding through NSF, though that program has disappeared, will possibly apply for funding through Chesapeake Bay Trust.
* Assessments in Cambridge and Annapolis: Both Cambridge and Annapolis are concerned with heat and natural habitat. Pine street corridor in Cambridge, which is historically African American, needs more cooling centers. The recommendation is to have a cooling center within ¼ mile of from a household, with free A/C and water.
* Regarding health, there is a relationship between ozone and the occurrence of asthma. Dr. Laumann also wanted to include mental health data, but the data itself is sensitive.
* Indicators seem to look at resilience in the present climate: The indicators are developed for predicted future scenarios, though there are spatial limitations, for example a 100% score for living shorelines if 100% of your shorelines are living, but that is if that is the most you can get out of your shore, not necessarily what would work for the future. She is looking to work on Long Island Sound for future modeling.
* How is economic impact measured for preserved farmland? Target is to preserve a certain amount of farmland; benefit is specific to farmers.
* How does this relate to federal and other rules? Air quality is based on ozone in the county. Very few air monitors there, there is funding to put in more.

**Mesonet:**

James Hyde presented his work on Mesonet, a network of weather stations built across the state of Maryland. This project is a partnership between University of Maryland – College Park and Maryland Department of Emergency Management (MDEM). This project was developed in 2018 after the successful deployment in other states. In 2020 the concept was advanced, led by Dr. Nigam and MDEM. In 2022 Hogan designated $4 million for the project.

Each station has National Weather Service instrumentation. The station collects wind data at 10 meters and is placed in an open space to remove influence from other sources. The stations aim to meet World Metrological Association standards. Mesonet stations provide data to the local community, with dedicated, long-term support. The data provided is research grade. Each station collects temperature, dewpoint/humidity, wind direction and speed, soil temperature and moisture, rainfall, and snow depth. Maps are updated every 5 minutes but receives data every 1 minute.

**Question & Answer:**

* The mesonet team is working closely with the hydronet team, mesonet is a statewide network, hydronet would like to do weather in the future and have a couple sites co-located.
* Relevance for long term health: Weather data is sent to the National Weather Service, and the data is adjusted to weather models for health concerns, such as heat index.
* There are people at UMD interested in linking these observations with down-scaled climate models, though staff at mesonet are more operationalists.
* Weather stations are strategically placed to cover topographical and geological areas, which is done on the county level.
  + The CATT lab is interested in integrating the data. The CATT lab provides MDOT with information, and can provide information on traffic jams, where there appears to be flooding, stoplights that are out of commission, etc. They are a resource for air quality, which is good for morbidity and mortality.
  + There is talk with agencies and departments, they want to put other sensors on these stations
* Data is free but a cost model may be introduced at some point. Hourly and daily data is free of charge. The larger mesonet steering committee and board will decide on a paywall.
  + Rules for pay to play is not yet written, but if you are an in-state researcher you most likely won’t have to pay.
* Comparing NOAA data and mesonet data: number of cooperative sites have declined since 1975. Sites left are FAA sites, which are impacted by impervious surface. There is a debate with Belay and James on the quality of these airport sites.

**Other Items:**

* Belay has access to a DOE site in Baltimore, Mount Airy, and HMI that he will share with the group in the future
* Don Boesch mentioned that Victoria Coles presented a downscaled version IPCC report meant for Maryland 18 years ago. Now that that there is more information, the STWG can now create something relevant to Maryland. Victoria mentioned that this could be a Chesapeake Global Collaboratory Project. Will discuss this in July.

**Public Comment:**

Jeff Silva appreciated James Hyde’s presentation but brought up there is a lot of jargon on NOAA and the mesonet website that aren’t understandable to the public. He also noticed there was more focus in Charles County on agriculture, not necessarily on tourism which can be impacted by flooding/erosion/wildfires.

**Resources:**

* **Mesonet:** <https://mesonet.umd.edu/RR/hourly/data_download.php>
* **CATT Laboratory:** <https://www.cattlab.umd.edu>
* Chesapeake Global Collaboratory: <https://www.umces.edu/chesapeake-global-collaboratory>