Extension of ASGS Operational Awareness Dashboard (OAD) for APS Health Monitoring (APS-HM)

DHS CRC Year 6 Project

Brian Blanton, Lisa Stillwell, Jim McManus
Jeff Tilson, Phil Owen
RENCI, Earth Data Sciences

Project Overview (Years 4-6)

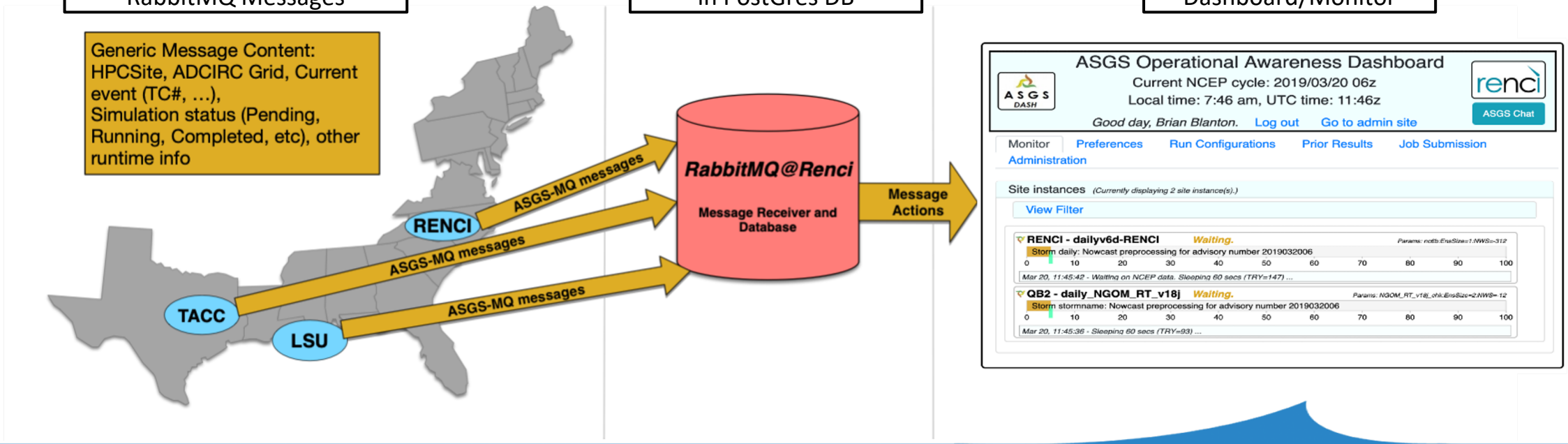
Develop a web-based dashboard for ASGS operators that

- shows real-time status of ASGS systems
- instrument ASGS with AMQP messages, send to database
- web-page display of messages for ASGS operators

Instrument ASGS with RabbitMQ Messages

Collect message content in PostGres DB

Build Web page for Dashboard/Monitor

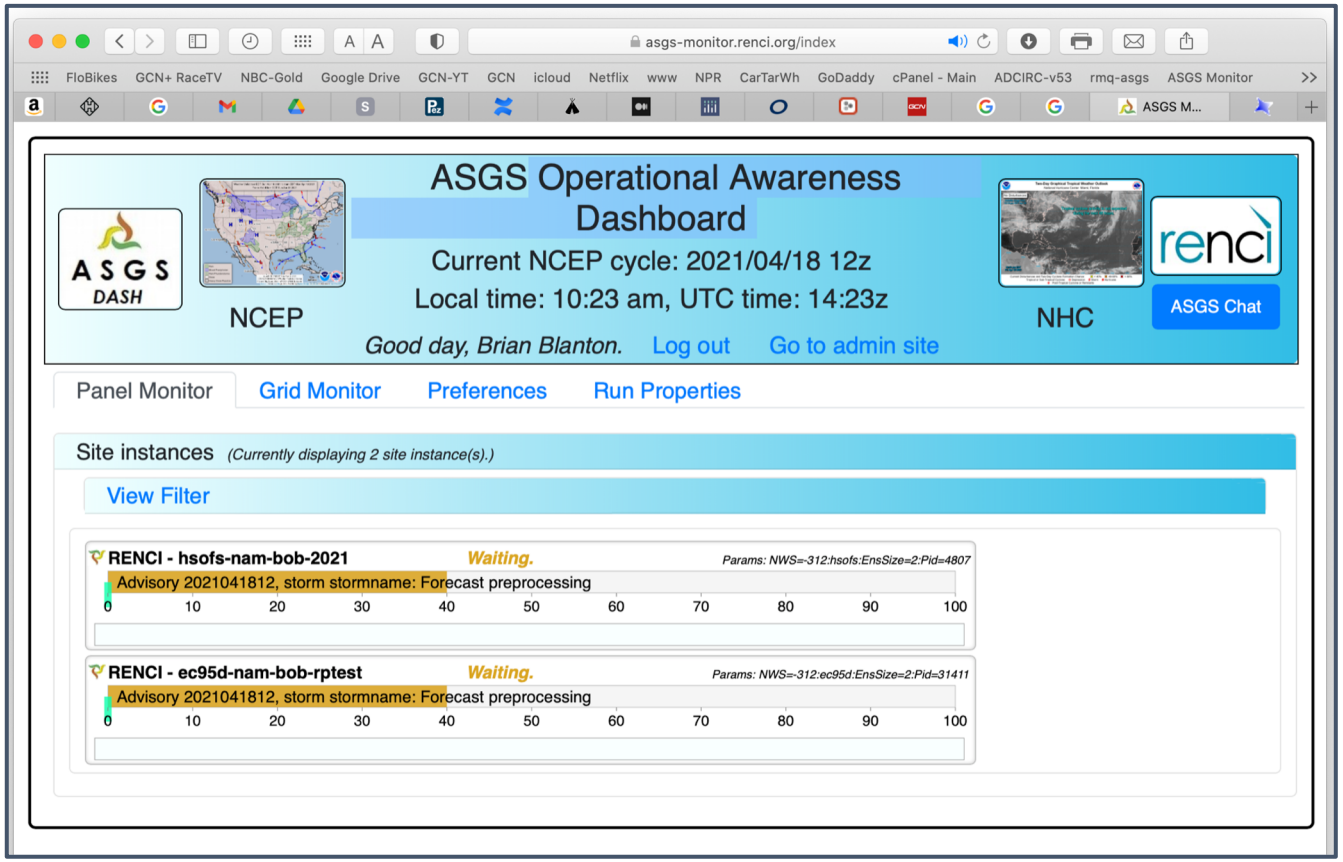


Year 6 Objectives

- APS-Health Monitor
- new messages for “run properties”
- extend database
- new tabs in dashboard

Transition Activities

Host a virtual meeting with ASGS operators and communicators to train them on new features and functionality of the new ASGS-HM website.
Successful use of the ASGS-HM during the 2020 Atlantic Hurricane season
Maintenance and updating of the ASGS-HM system.

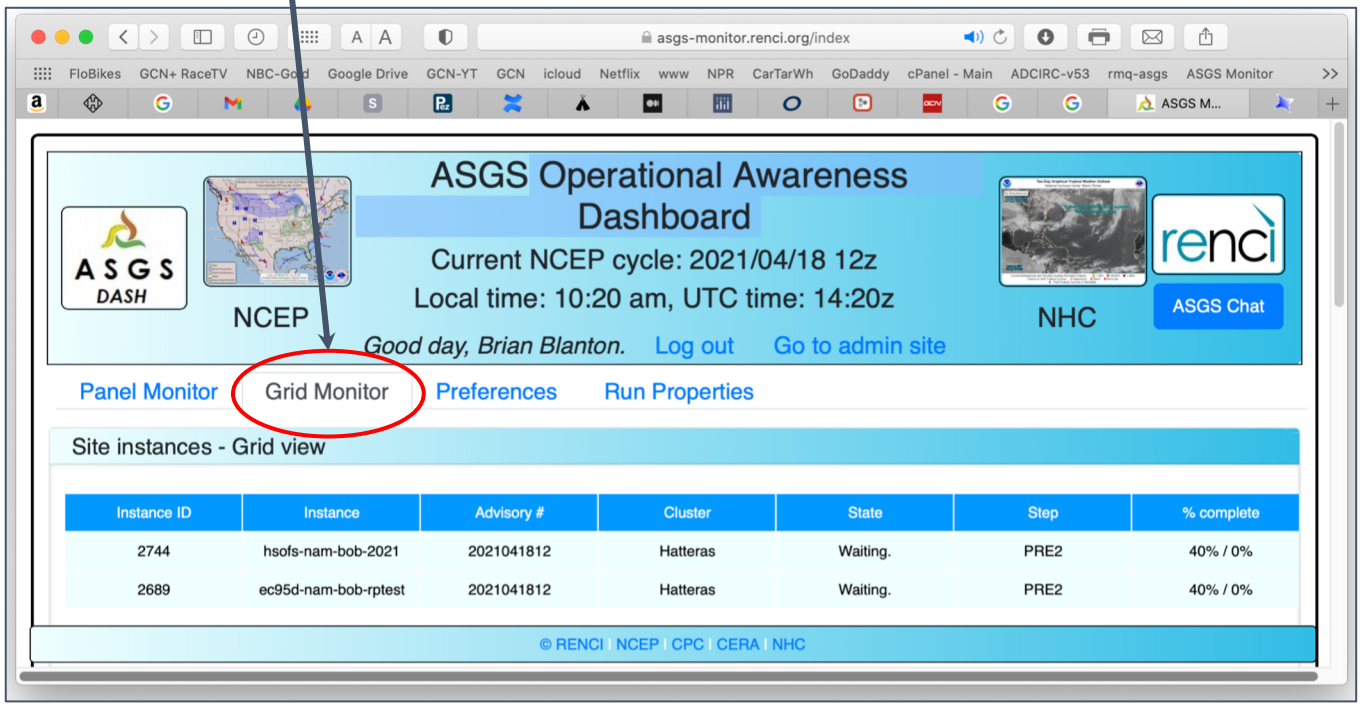


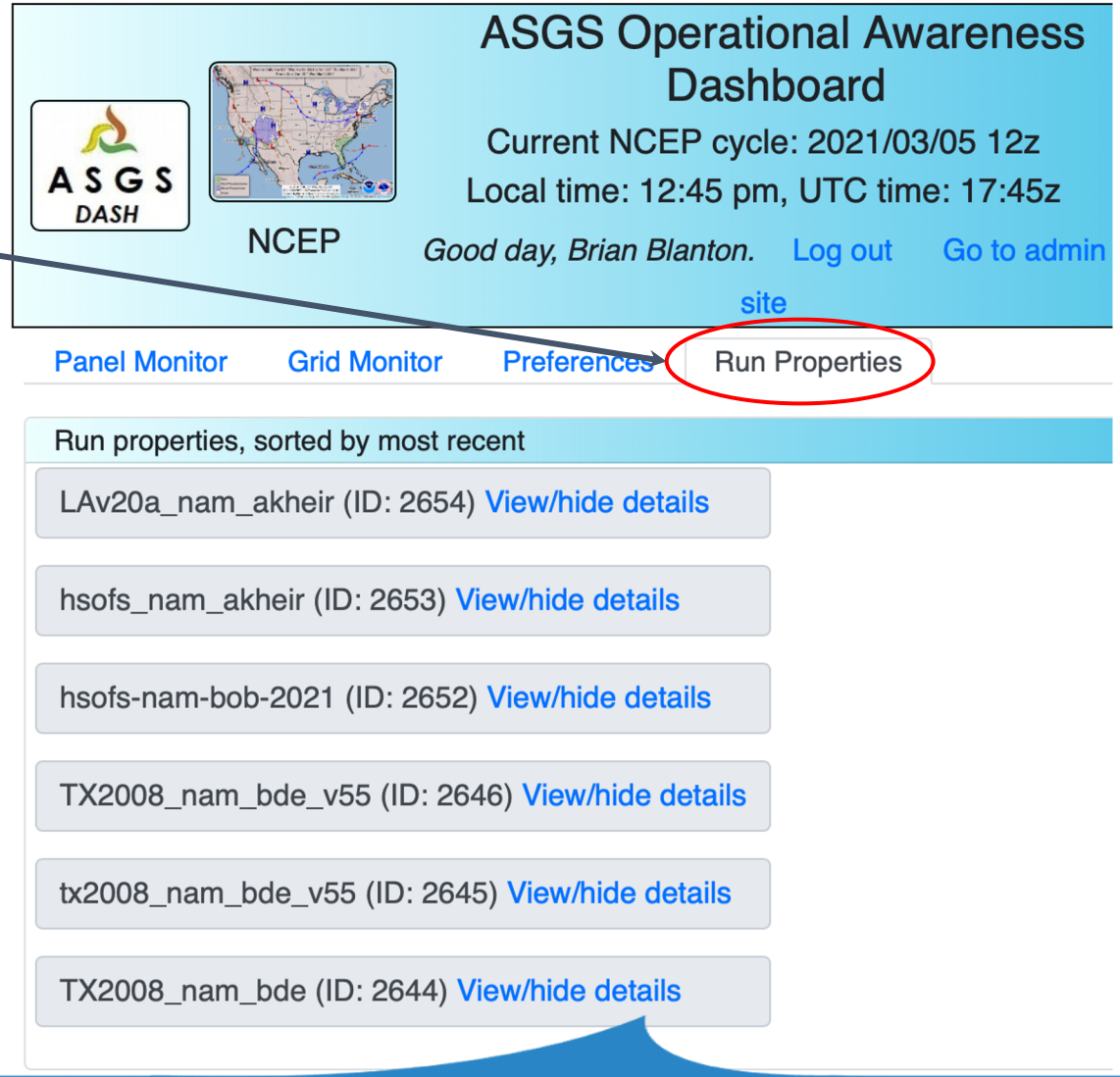
Year 6 Objectives

New tabs in dashboard

tabular instance view

“run properties” metadata





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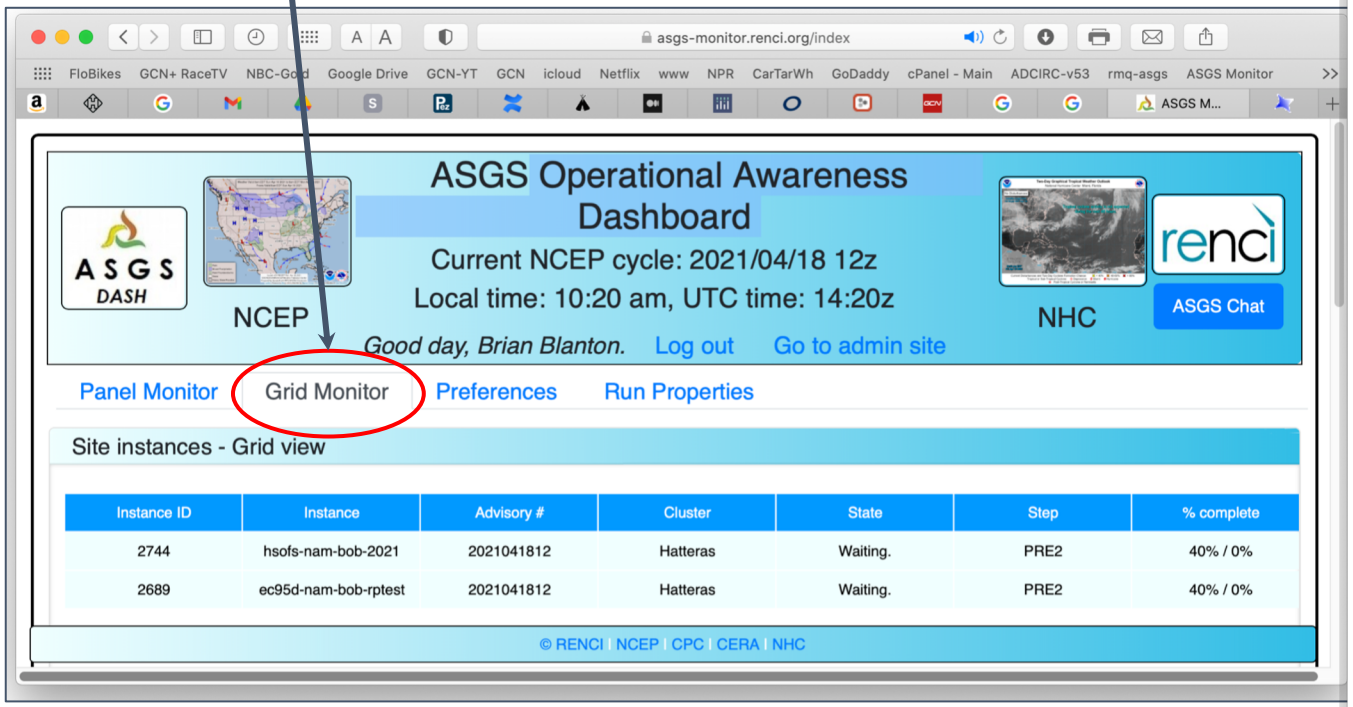

Leverage Containerization/Docker for Cloud-based Messaging and Visualization

Goal: Deploy messaging/visualization system "in the cloud".

Benefit: Stable/extensible resource management

Approach: Modern, "containerized" system and workflow management (Kubernetes)

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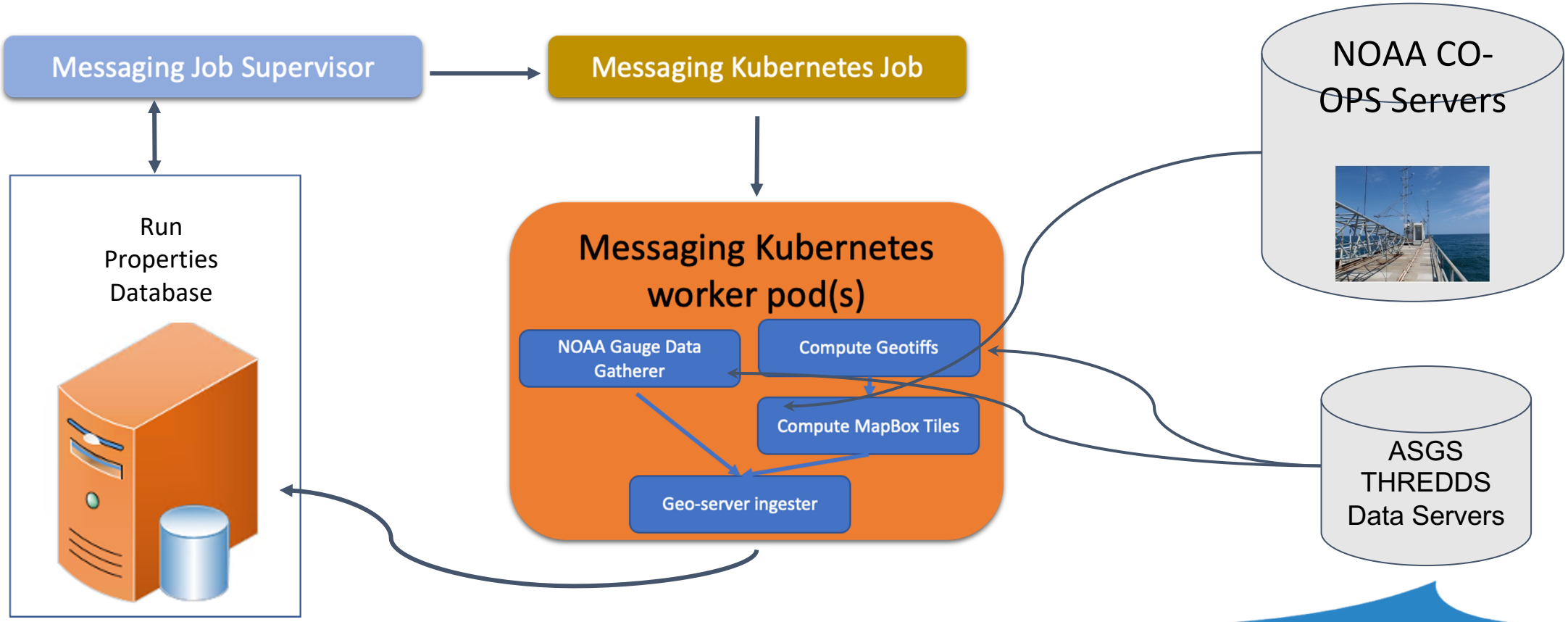
kubernetes



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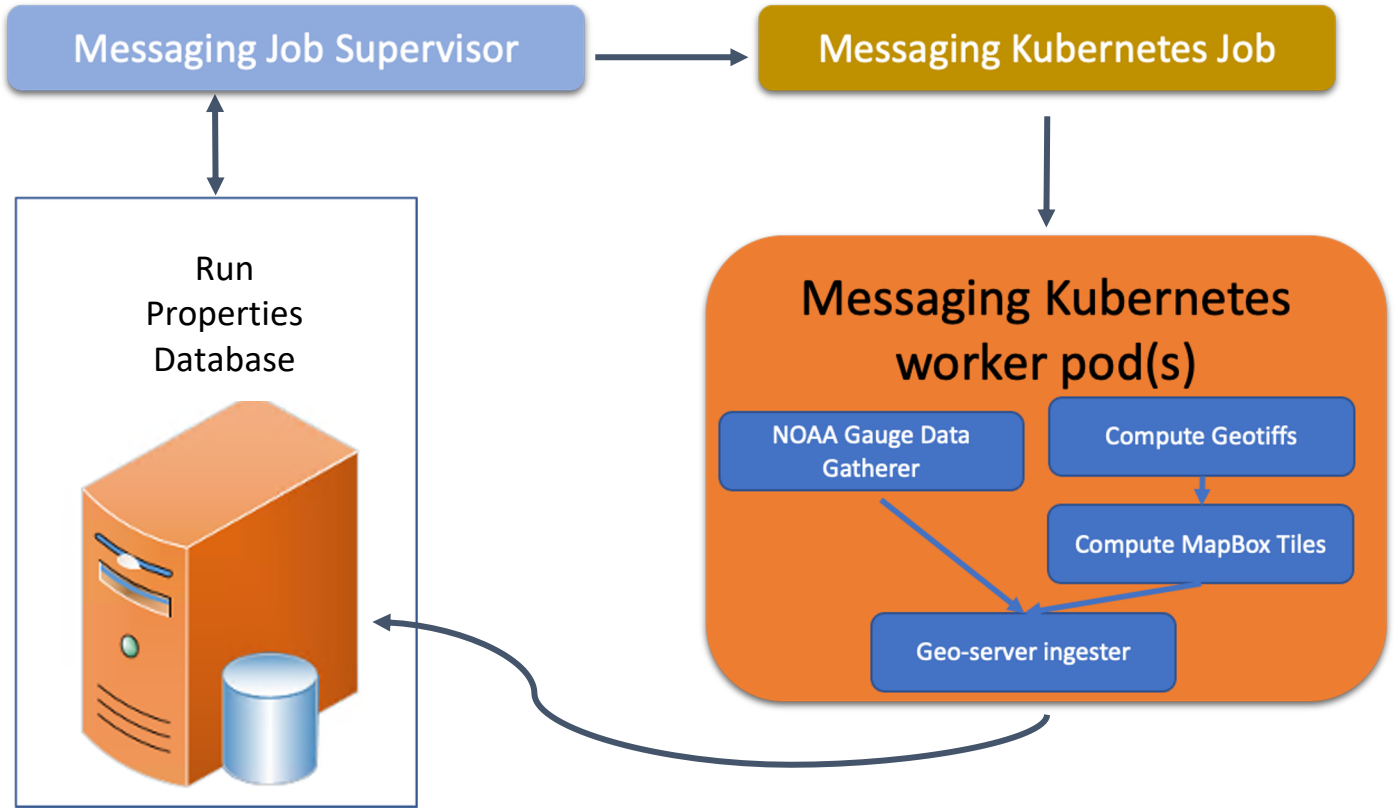
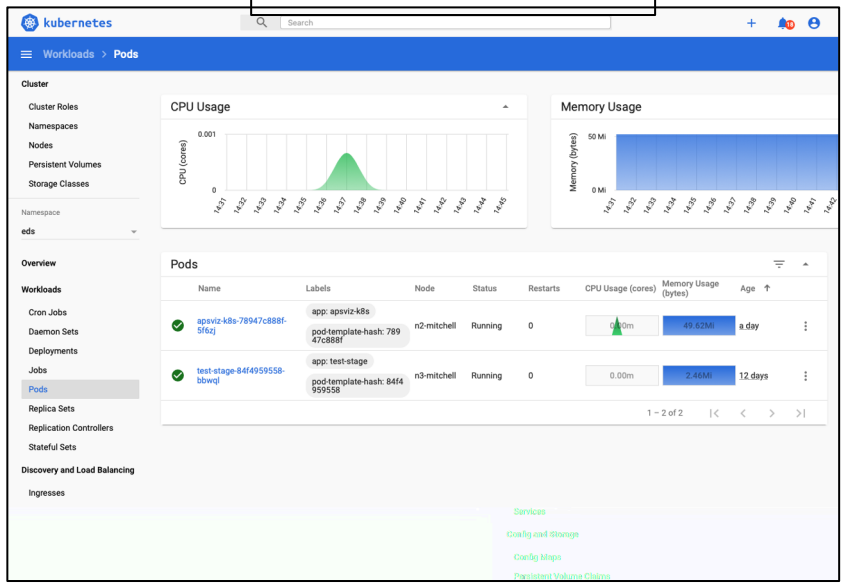


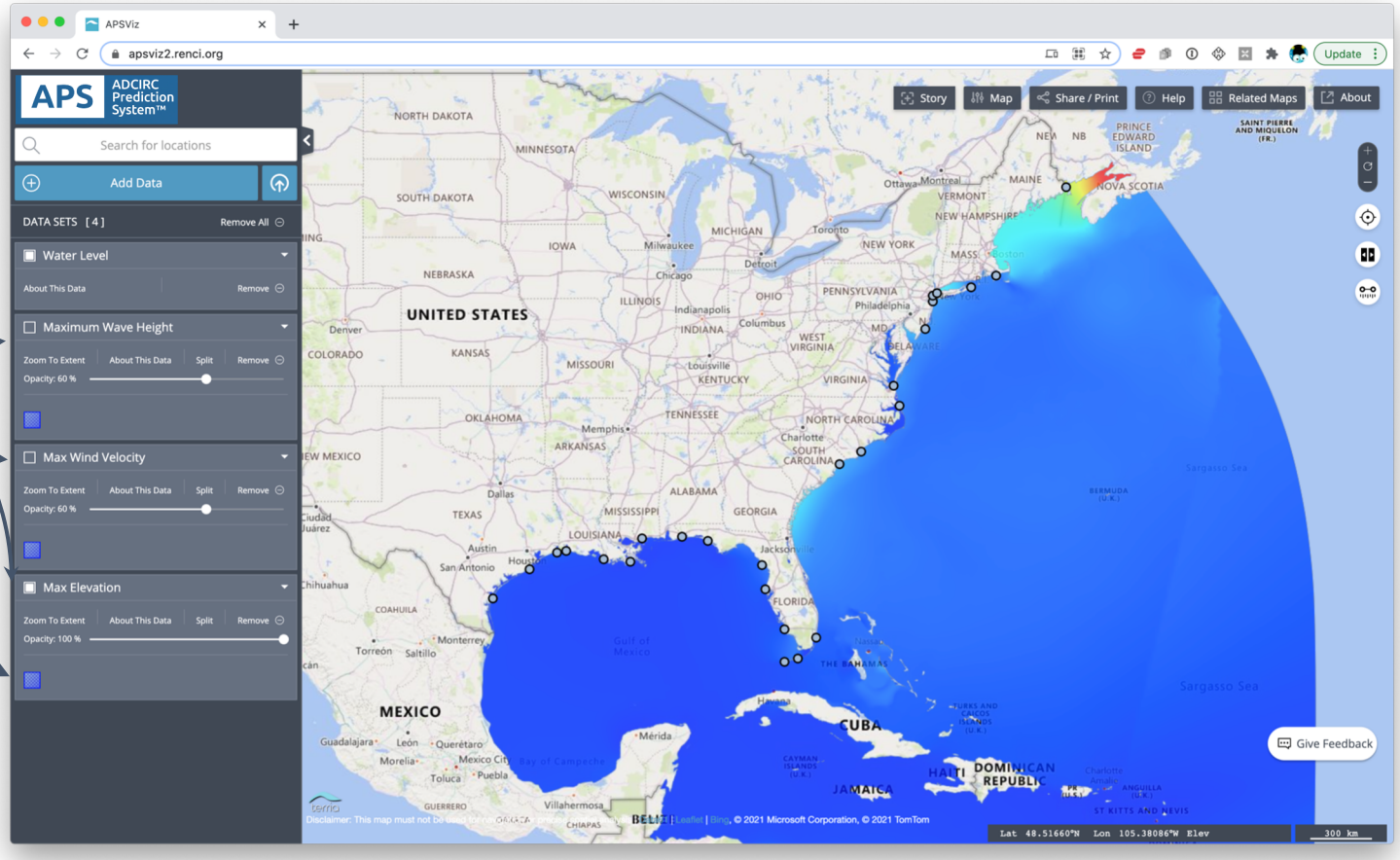
Kubernetes Workflow Monitor/Manager



Leverage Containerization/Docker for Cloud-based Messaging and Visualization

Menu items/options extracted from run.properties database

User-selected colormaps

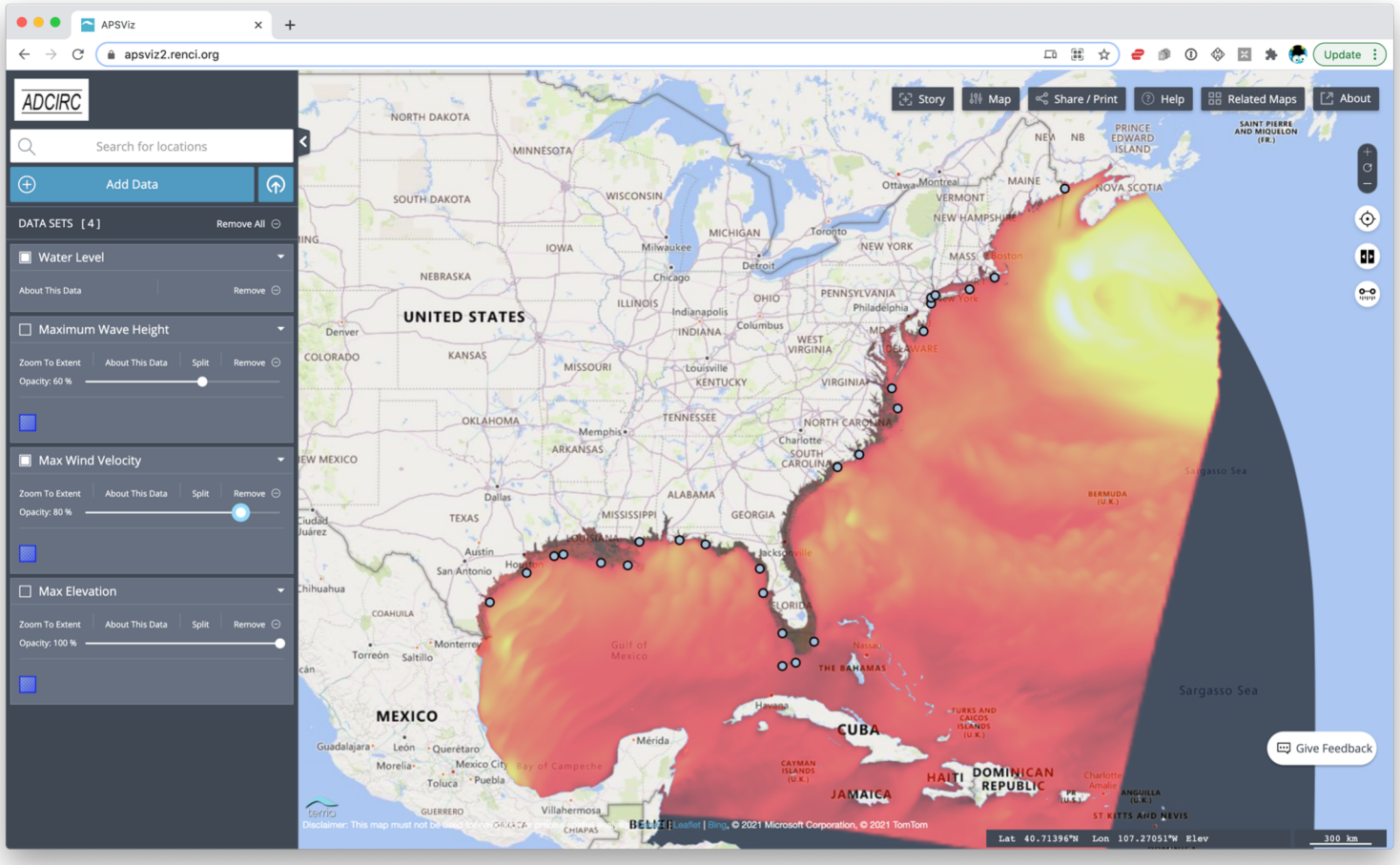


Leverage Containerization/Docker for Cloud-based Messaging and Visualization

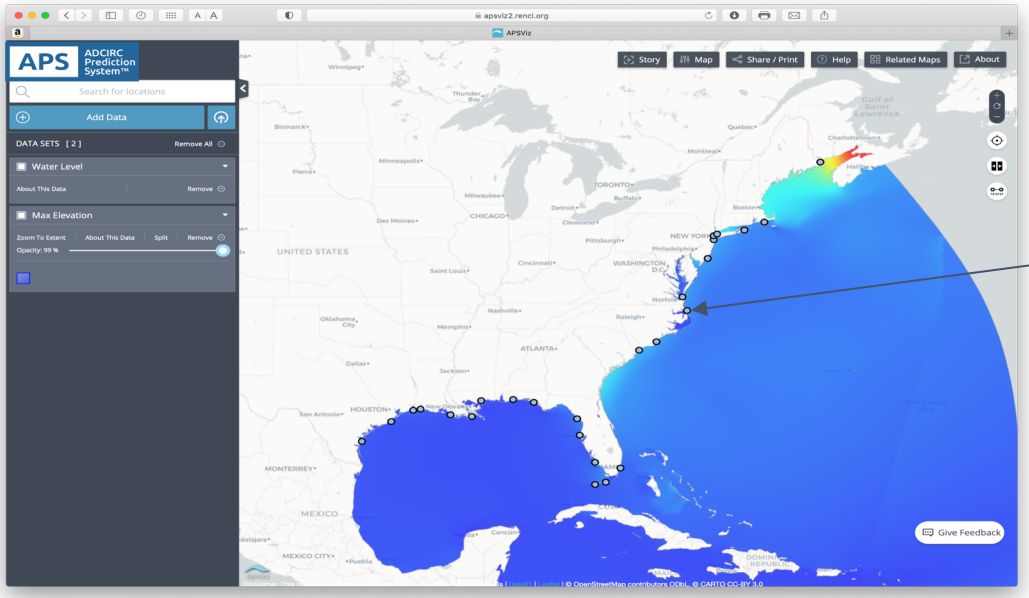
Available Layers extracted directly from THREDDS Data Server based on run.properties database

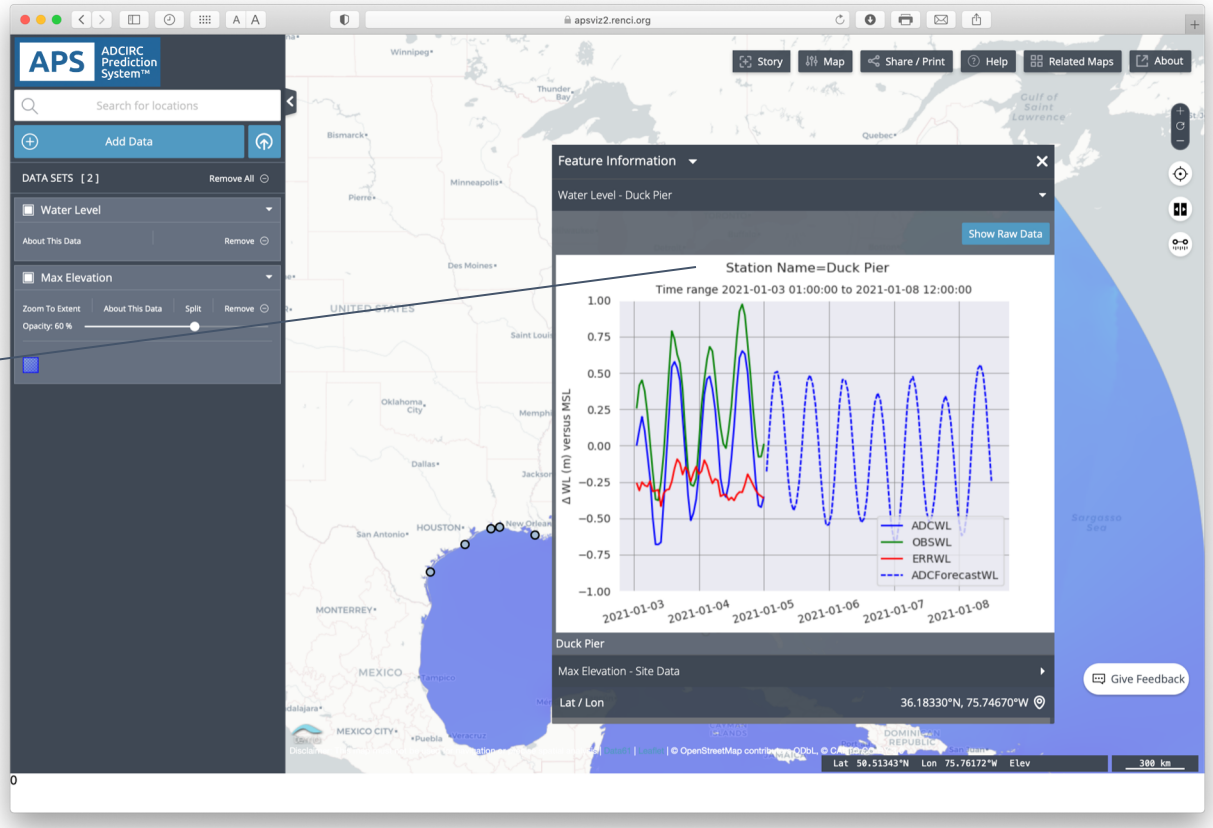
No pre-configuration of ADCIRC grid details needed.

Any ASGS results posted to the run.properties DB can be visible

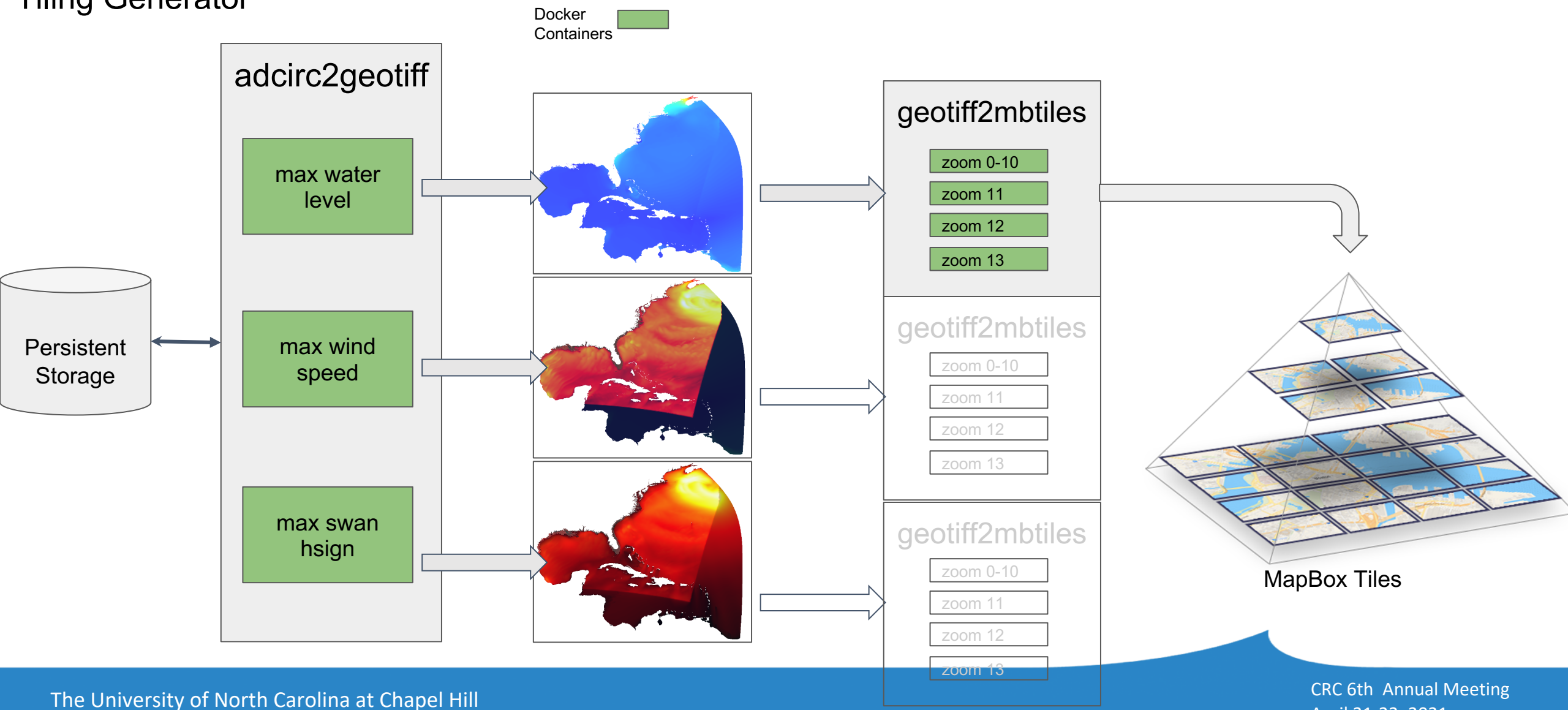


Leverage Containerization/Docker for Cloud-based Messaging and Visualization





Tiling Generator



Deployment to Amazon Web Services EKS

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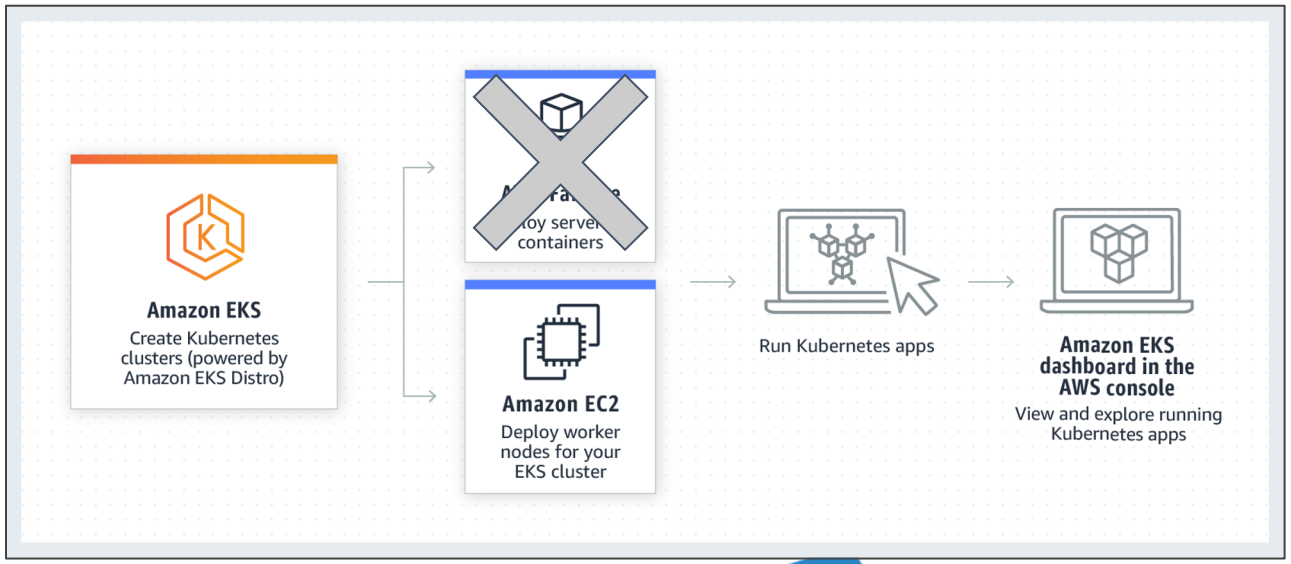
kubernetes

AWS has a Kubernetes service called Elastic Kubernetes Service (EKS).

Preliminary test: we have pushed the system to EKS

- Initial creation of AWS EKS installation scripts: ~2-4 hours.
- Elapsed execution time of scripts: ~5 minutes.
- Extra EKS clusters easily provisioned “on demand”.
  - scales with compute needs

~½ day deployment time



APS Health Monitor

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Successful use of the ASGS-HM during the 2020 Atlantic Hurricane season	31 Oct 2020
Maintenance and updating of the ASGS-HM system.	30 Jun 2021