Community Nextgen and Infrastructure Advancements

NextGen Team at CIROH

Arpita Patel, James Halgren, Zach Wills, Nels Frazier, Benjamin Lee, Sepehr Karimi, Trupesh Patel, Josh Cunningham, Shahab Alam, Jordan Laser, Mike Johnson, Steven Burian, Purushotham Bangalore, Jeff Carver

Lynker

THE UNIVERSITY OF ALABAMA | Alabama Water Institute

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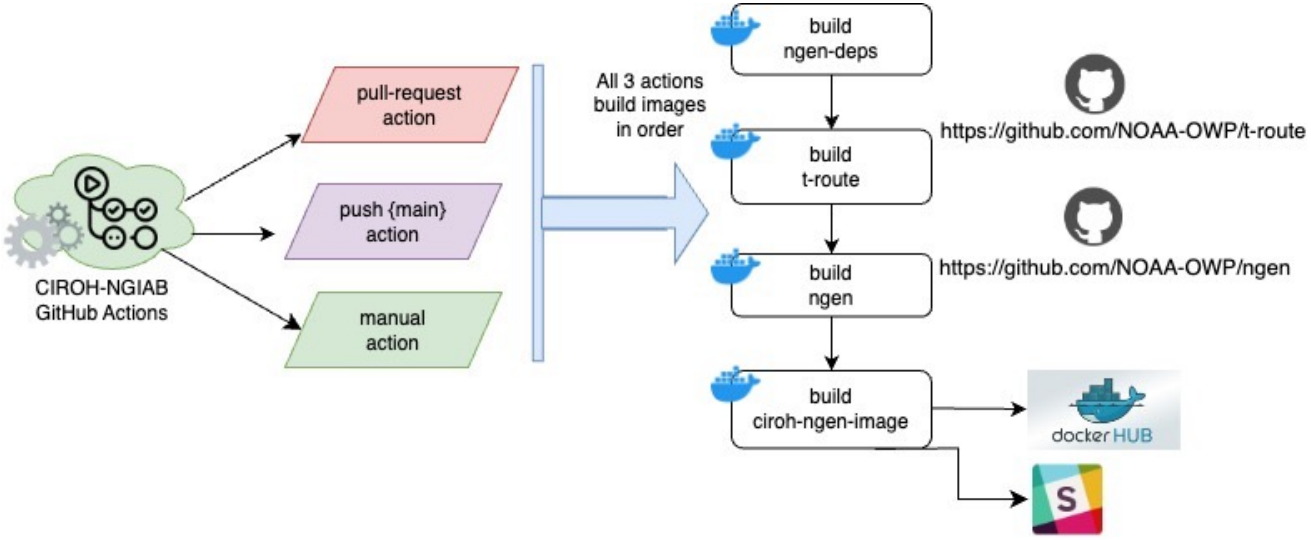
NextGen In A Box (NGIAB)

- **NextGen In A Box** Ready-to-run, containerized and cloud-friendly version of NextGen framework, packaged with scripts to help prepare data and get you modeling more quickly.
  - GitHub repo: GitHub: CIROH-UA/NGIAB-CloudInfra
  - Prior recorded training resources: docs.ciroh.org: NGIAB (from workshops on 'How to run NGIAB' during CIROHDevCon1 and Summer Institute 2023.)
- **NGIAB is soon to be built on the community version of the** NextGen National Water Resources Modeling Framework
  - GitHub Repo: GitHub: CIROH-UA/ngen
  - **Ngen supports CFE, PET, FORTRAN_BMI, SLoTH, topmodel, t-route**
  - NGIAB is compatible with DMOD – NOAA/OWP's framework for testing ngen updates and other similar HPC application tasks.
  - GitHub repo: GitHub: NOAA-OWP/DMOD
- Documentation, examples, and news at CIROH DocuHub: **docs.ciroh.org: NGIAB**

NextGen In A Box Key Progress

- Template input data package:
  - S3 bucket at: CIROH data : AWI-002/AWI_03W_113060_002.tar.gz
- NGIAB CI pipeline automatically building and deploying with updates.
- T-Route package integration, build and test
- Continuous data stream – in progress.
- Revisions and refinements to “guide script” that walks user through NGIAB simulation execution.



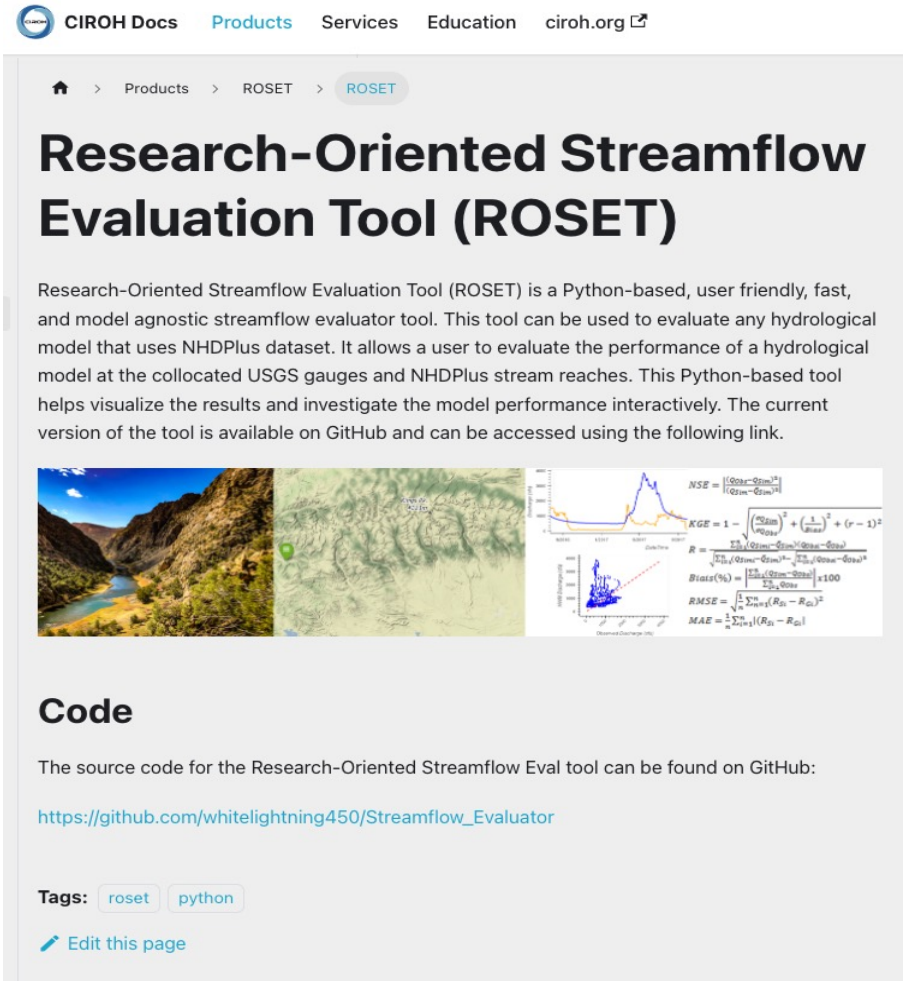
Data Access Improvements

- Kerchunk Zarr json headers
  - **JSON Headers:** Produced and uploaded for NWM output on an S3 bucket, optimizing data accessibility.
  - Access the Full Retrospective Zarr Dataset.
  - Explore the Full Operational Zarr Dataset.
  - Operational Zarr files are automatically generated and uploaded daily at 12:00 AM.
- Developed to generate customized NWM output file URLs, facilitating seamless access.
  - Customize date range, forecast cycle, lead time, variable input, run input, and dataset for a tailored list of URLs.
  - Find the codebase on GitHub: CIROH-UA/nwmurl.
  - Install library: **pip install nwmurl**
- **Forcing preprocessor** on GitHub: CIROH-UA/ngen-datastream
- **RTI-Teehr** library extensions - docs.ciroh.org: RTI-Teehr
- **CUAHSI** notebooks – GitHub: CUAHSI/notebooks
- Data Access Demo Notebook (showing how these all work together) – in progress

CIROH DocuHub

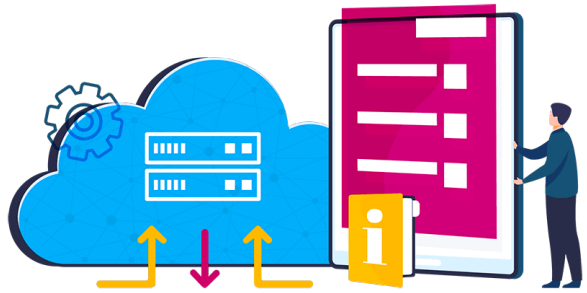
Community editable technical documentation hub - **Collaborate now!** at docs.ciroh.org

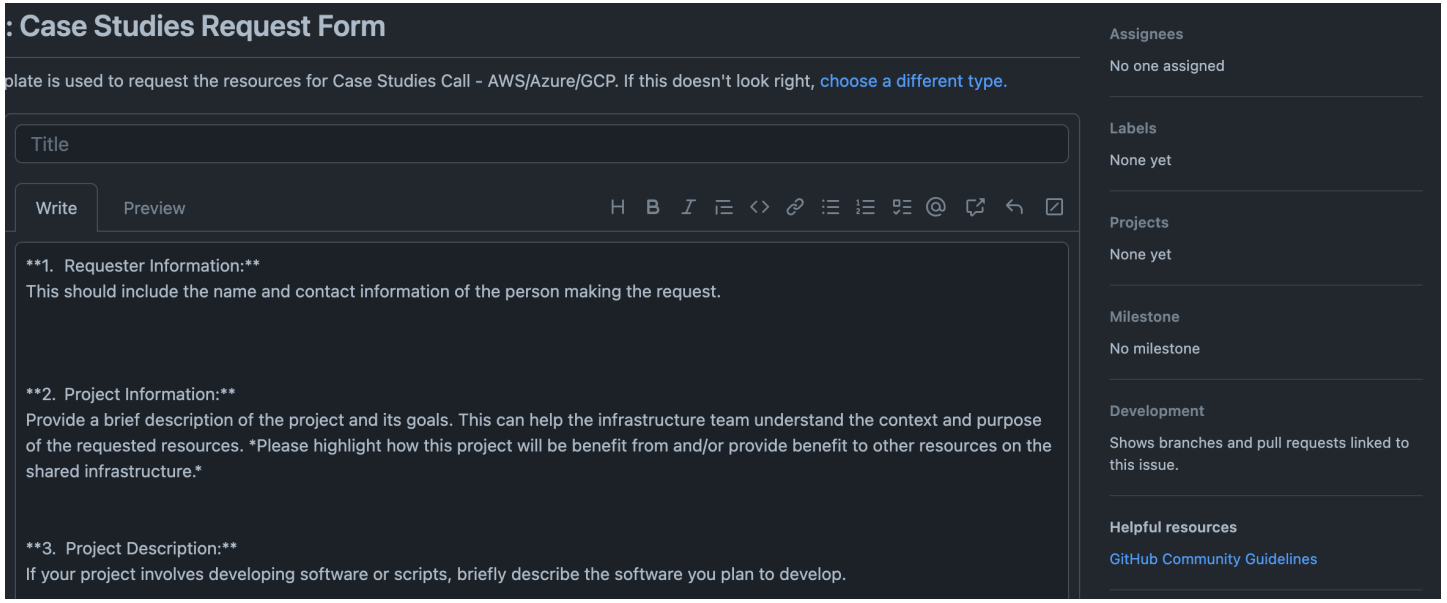
- NextGen Resources
  - Data Access: docs.ciroh.org: data-access
  - CIROH Products: docs.ciroh.org: products
  - CIROH Services: docs.ciroh.org: services
  - News and Updates: docs.ciroh.org: blog
- Other documented resources
  - BYU, USU, RTI, UA, OWP WaterNode
  - Integrating with portal.ciroh.org
  - Submit your PR now!



CIROH Cloud (2023 P29)

- CIROHCloud - 2i2c Jupyterhub (Google) and AWS services
- New! On-Premise VMs and ML HPC
- Submit Request
  - Infrastructure : [GitHub: CIROH-UA/NGIAB-CloudInfra/Infrastructure]
  - OnPremise : [GitHub: CIROH-UA/NGIAB-CloudInfra/OnPremise]





Contact Us

- Support Team
  - Join us on CIROH Slack
    - Channel - CIROH Slack: #nextgen_help_2023
  - Email : ciroh-it-admin

Thank You !