

# 2023-06-23

## Infrastructure

Dom:

- First version of the new CI system running (for oops). Will be expanded to more repositories after next week.
- R2D2 - expanding API. Added functionality to delete experiments (for admins); will add capability for users to remove their experiments.
- ioda: profiling ioda reader, especially for ensembles. EMC and PSL looked into that and found some inefficiencies. Planned development for ioda reader should address some of this.
- Bugfix for spack-stack: 1.4.1 (mostly for EMC and UFS, bufrlib update; for JEDI purposes you can continue using 1.4.0)
- Ingest of obs via ewok suite, undergoing testing.

Q&A:

Travis: soca uses TravisCI for CI, would like to move straight to the new system. Dom: will be after other repositories (ioda/ufo/etc)

## Algorithms

Anna:

- New hire (Computational Scientist working on SABER) starting August 7 2023!
- Updates affecting model interfaces are posted on <https://github.com/orgs/JCSDA-internal/discussions/categories/interfaces>. To subscribe to notifications, make sure to follow <https://github.com/JCSDA-internal>
- Upcoming update: merge of generalization of the B matrix applications (today) and updates to the vader/saber use (also today).
- Low-res Skylab experiments using re-trained covariances like in large Skylab (to be merged soon). Ongoing work on training higher resolution covariances (for C96 and C384 experiments), including the addition of cloud ice variable.
- Setting up Skylab experiments using the GSI saber block (thanks to Cory for providing the yamls and data EMC uses in their experiments). Plans to work on setting up Skylab with BUMP with parameters similar to the ones that GSI uses for comparisons.
- Plans (work started) to remove the call to the variable change between model and control variables (used only in 4DVar cost functions). The variable change after this change should be done inside the model interfaces in the Model::step method. This would simplify code and yamls.
- Work started on improvements to the 4DVar (including 4D covariance issues and allowing to have multiple time slots on the same MPI task)
- Bugfix for weak-constraint 4DVar cost function.
- Marek Wlasak (MetOffice) working on adding optional metadata in the Variables that can hold a number of vertical levels. Once that's merged, we'll start on transitioning to using this capability for specifying number of levels per model/state/increment variable instead of using Geometry::variableSizes

Q&A:

Ricardo: keep in mind for the comparison of different B matrices in Skylab that the saber GSI block still has some issues that are being worked on.

Maryam: for retraining of low-res B did you use fv3-jedi-tools, are the scripts updated there? Christian: no, we used newer scripts because there were changes in the yamls. I'll put branch into the fv3-jedi-tools. Yannick: long-term there will be an ewok workflow to do B matrix training.

## COMPO

Jerome:

- First implementation of generic interface finished: can run H(x) with different vertical coordinates, using vader for variable transforms. H(x) for lat-lon, regional projections. Next step: decide how we want to move this to JCSDA repos
- Maryam made a PR for stretch-grid test for fv3-jedi repo. Minimal changes were required.
- Cycling with GEOS-CF is nearly done. One more task: putting analysis fields to the restart files.
- Working on tracers in FV3LM.

## OBS

Ben R:

- International GNSS remote sensing colloquium in Boulder last week. Hui gave DA and JEDI overview. Hailing gave an AWS tutorial with Skylab C96 system.
- Sam got a PR in to cut the logs by half (removing not useful prints).
- Let us know if there is anything pressing on the PR side.
- Helping NRL transition to native ioda-converters.
- A lot of work at EMC on converting bufr dumps.

Hui:

- Working with CRTM to get CRTMv3 tested for the release. CRTM has done a lot of work to fix issues like the previously observed AOD segmentation fault. Testing additional fixes. Still some issues on the UFO side.
- Using CRTMv3 in extensive Skylab testing.

## CRTM

Ben J:

- Updated sensor ids for NOAA21 and provided the updated files to NRL.
- NOAA21 atms coefficients that should solve the bias that was reported before
- CRTMv3: corrected all the remaining segfaults. At the top level functional capability it's building and tests pass on multiple platforms. If you're using 2.4.0-2.4.1, Ben can help you with transitioning to 3.0.

## EMC

Cory and Guillaume:



EMC\_update\_20230622.pdf

## GMAO

Ron:



GMAO\_JEDIupdate\_22June.pptx

## NRL

Sarah:

- Working on moving towards native ioda-converter
- Setting up HPCs
- Raob mixing ratio assimilation, running into issue with units in ioda v3
- Space weather colleagues are starting to pick up jedi efforts

## ROMS

Hernan:

- Catching up with PRs, starting to work in VADER, but not using transforms yet

Q&A: Travis: Doruk at NASA is going to be putting in that variable change in vader soon. Need to discuss GSW as part of spack-stack. Hoping to get rid of conversion in ufo, and do it instead in vader.

## MetOffice

Olly:

- Marek working on adding metadata to the variables
- Mayeul working on bugfixes/improvements to CS-gauss interpolation
- Tsz Yan working on control pert in oops