

# 2023-01-19

## Infrastructure (update by Dom Heinzeller):

- R2D2 mysql development - getting close to full testing, will be done on AWS pcluster, hoping to flip the switch mid February.
- IODA reader/writer improvements: a few bug fixes/workarounds are in place, still need to get rid of colons everywhere, first step to reader/writer improvements entails removing the obsframe mechanism, this should also fix the memory issues that have been reported.
- spack-stack: figured out issues on Narwhal (mix of Intel LLVM and classic compilers), but still many tests failing (mostly w/ reference value mismatches); working on gaea-c5 config (early access, with sysadmins); build caches, synchronizing spack fork with upstream repo.
- ufs-bundle: need a few spack updates (e.g. fms@2022.04), just updated ufs-weather-model to head of develop, many PRs need to be merged (in ufs-weather-model and submodules, most tricky is gfdl\_atmos\_cubed\_sphere, and in JEDI repos); have updated fv3-bundle (with PR) to use same version of FV3 dycore (=gfdl\_atmos\_cubed\_sphere), need reference value updates.
- cloud: resume work on aws pcluster (also for r2d2 work), add ldap, test other instance types; need to take first steps on noaa parallelworks.
- hiring was successful - two candidates on one job opening, both accepted, Ashley will start Feb 06, Evan Feb 27.

## Algorithms (update by Anna Shlyayeva):

- Upcoming events:
  - code sprint on generalizing B matrix training mid-March, meetings to determine scope will start soon
  - discussion on status of VarBC on Feb 13th at the JEDI-Algorithms meeting (MPAS, OBS, NRL will present). See <https://github.com/JCSDA-internal/ufo/issues/1945>, <https://github.com/JCSDA-internal/oops/issues/2006>, <https://github.com/JCSDA-internal/ufo/issues/2606>.
- Recent merges:
  - Improvements in saber test framework and saber covariances (spectral, bump)
  - More recipes and tests in vader. A way to print out vader cookbook as yaml (useful for specifying a custom cookbook)
  - Skylab diagnostics including cost function plots, and plots of background, analysis, increment on lat-lon grid (generic diagnostic in oops)
- In progress/review:
  - Allowing different location types, including different location types for different variables (tested with FOV)
  - Adding different types of parallel communication to 4DVar localization
  - Saber interpolation block
  - BUMP using groups of variables
  - Generically-coupled 3D H(x)

## Compo (update by Jerome Barre)

- We have an EDA of 3DVar working for AOD assimilation.
- Working towards cycling with UFS atmosphere + aerosols.
- Work on 3DVar with reactive species (NO2, CO in CV so far) with a primary focus on GEOS-CF.
- Work on adding more instrument to the golden month (TROPOMI CO).
- Finishing IODA conventions and 2D ancillary fields with the fortran API.

## Observations (update by Hui Shao)

- IODA naming convention code sprints were completed. All repo have been updated with the new naming convention. This work was performed with two code sprints hosted by OBS and JEDI team in the past two months. Over 1000 files have been updated. Please notify the OBS team if there are any immediate concerns.
- OBS team will bring an Airborne radio occultation operator. This is a new obs type, which UFO will incorporate.
- OBS team is working on VarBC bugs reported by previous studies. Relevant issues can be found here.
- We also demonstrated new sensors in Skylab v3: i.e., GOES ABI, TOPICS, COWVR.
- Will work with CRTM team on v3 update.
- Friendly reminder to OBS in-kinds that we are collecting our quarterly review reports.