

2022-04-14

JEDI 1

"Update C++ standard from 14 to 17?" - held back until after spack-stack release

- Updates to the table in <https://github.com/JCSDA-internal/jedi-discussions/discussions/30>
- Almost all systems support C++-17 today, may need to find solutions for a small number

Need a better policy for JEDI: what is an error, what is not - may depend on the use case (operations, research, ...)

- triggered by zero-obs in files / zero-size file length etc

Spack-stack:

- Intel spack-stack on Discover being tested, working well; need to add GNU stack
- Steve H. testing spack-stack on his macOS, trying to fix a problem that occurs on his and Maryam's laptops only
- New version of nceplibs-bufr will come out soon - needed by EMC on hera and orion
- eckit-1.19.0 is now included in spack-stack

IODA:

- Need IODA Fortran interface in next 6 months: Dom to adjust timeline in AOP22 to make this work
- IODA writer improvement PR 1 is ready (greatly reduced number of files)
- PR <https://github.com/JCSDA-internal/ioda/pull/658> needs review
- Still writing sequentially one file per obs space
- Follow-up PR will parallelize this, then move to reader

CI:

- Github actions for MPAS workflow repository
- Triggers tests, in the future can run cycles
- Uses labels in PRs - jobs run on Cheyenne (this is OK security wise, you need at least read permission)
- Can use in the future for CI
- Will share the talk from the SEA conference once available

JEDI 2 and 3

- GetValues refactoring, merged the first step from Yannick and about to merge the 2nd step (move computation of interpolation weights in the constructor so they're computed only once, + improvements in MPI comms so that'll be way faster with better communication). 3 more total to come that improve different parts, everything is ready so the timeline will depend on code reviews.
- Steve Sandbach also adds an option to do the time linear interpolation (oops + other one).
- Several PRs in saber – component functions in NICAS – couple of PRs on additional spectral B – PR to use GSI stats in bump
- Few small PRs in oops – comparing absolute and relative tolerance for floats – bugfix for ensemble template – PR to set output precision for floats in test but if you don't change it it'll behave like before.
- Issue in UFO – cycling mpas with varBC, we're not outputting the error variances correctly or not computing them correctly. There will be better testing thanks to the covariance testing coming, and reviewing code that computes preconditioner and error variances will be useful, need somebody who knows it to help with that.

JEDI 4

Testing / solving some performance issues. Writing more doc is the next step

OBS team:

AOP21 wrap-up thanks for your contributions and look for emails regarding clarifications issues

Please watch for requests from OBS leads (Hui, Francois and Ryan) regarding material for the quarterly review next week

OBS1

- Wrapping up AOP21 tasks: monthly meeting for UFO development with in-kinds
- Converter efforts: the naming convention sprint for ioda-converters largely done (Greg). Have introduced new converters for SSEC satwinds (Greg, BenR, Lindsey), and provisional tropics, etc (Ben, Fabio)
- Cosmic-2 project cycling experiments: Completed 7-day cycling trial (Hui, Hailing). Now working on adding more observations into cycling and altering the obs errors for RO (Hui, Lindsey). Selecting TC cases for further studies using the cycling experiments (Hailing)
- Will make a detailed task list for UFO clean up and improvement and release plans, focusing on Q1 first
- Meeting with UCSD and other internal teams on the ROPP2D and aircraft RO operators

OBS2

- Cleanup is happening
- demo.jcsda.org we are now on commercial data for the obs monitoring

OBS3 (Ryan)

- First, I would like to welcome Patrick Nichols to the OBS team. Patrick is a C++ and numerical modeling expert who has previously worked at Los Alamos National Laboratory, NCAR, DigitalGlobe, and the Pacific Northwest National Lab.
- Thanks to everyone who has provided input for the quarterly review. If you haven't already, please email bullet points or slides today so that we can accurately record your contributions.
- We met yesterday to prepare for the review by going through the ZenHub boards. Most remaining issues are related to the ioda-converter code sprint. Thanks again to everyone who helped finish the work. We have a review and merge backlog that I am addressing today and tomorrow.
- Good news from EMC. Ron's NCEPLIB-bufr PR was accepted and merged on Friday, and a new tagged release should be available soon. Once released, we will update the HPC software stacks and the containers. This will allow us to merge Ron's longstanding BUFR converter branch to develop.
- Finally, at the ET retreat last week, there was a bullet or two on the UKMO timeline listing a GeoVaLs refactor to C++ this upcoming quarter. This crosses over with a bit of OBS and Infrastructure work, so can someone related to the work please get in touch with me. I'm also emailing David, but figured I'd ask here just in case.

CRTM

- Ben is on PTO this week and the update is given by Patrick.
- The team is working on finalizing the AOP21 tasks and Ben has been closing issues on the Zenhub board since last week.
- Cheng has been working on finalizing the netCDF I/O of the CRTM by adding the functionality for the surface coefficients.
- Patrick updated the legacy SpcCoeff coefficients to fix UFO issue #1929 <https://github.com/JCSDA-internal/ufo/issues/1929> and added the capability to run LBLRTM with custom heavy molecule profiles to the coefficient generation.

SOCA

- Disappointed with the getValues PR since they had to re-add lots of code.
- Need to put the masking capability in soca, they are diverging too far right now
- Get in touch with Travis to discuss this

CHEM

- Working on geos cf, hofx is working and 3dvar is almost working. Better B matrix soon! Will be able to deliver with a base configuration that is working
- Problem with ioda fortran api, worries about changes happening in ufo / ioda that will break this work. Move these changes earlier in the AOP? Q2? Could hack temporarily if needed.
- Cleanup issues and PRs
- Meeting with GMAO to think about what we need for innovation, TL AD
- Good idea would be to focus on transmittance coefficients

LAND

- On the FV3 side, thanks for the help in sorting out Jiarui's PR in FV3-JEDI to hardwire an error value for the background snow to enable the use of the buddy check filter with the LETKF <https://github.com/JCSDA-internal/fv3-jedi/pull/445>
- Youlong reports that he's updated 7 converters in the recent code sprint, and the two using GRIB have been removed
- On the WRF-Hydro side we're busy working on the workflow and setting up the model over a new domain
- Lots of planning going on associated with closing out last years AOP and developing the new one