

# 2018-10-25

Yannick opened the meeting announcing that the JEDI core team has been working intensively this week on the ioda interface and on the new 4DVar implementation led by Anna and Dan.

So, **expect frequent updates to the develop branches this week**

The overview of the new ioda implementation that was originally scheduled for this week has been deferred to next week.

There have already been several updates and we expect a few more by the end of the day Friday. Several require action on the users' part to maintain running tests and applications, as we will now describe.

**feature/fckit-mpi** has been merged into the develop branch of **oops**. This was mentioned last week and replaces the native mpi calls in bump with calls to fckit's mpi functionality. In order to get the latest version of oops::develop to run **you must use the JCSDA fork of fckit** (develop branch). If you are running inside the JCSDA singularity container, you will need to pull the new version of the container with

```
singularity pull shub://JCSDA/singularity
```

If you are working outside of the singularity container, you will either need to include the JCSDA fckit fork in your bundle or install it on your system.

Another change that is imminent has to do with the changes to the Locations class that have been made to accommodate 4DVar. Dan has posted instructions on the [jedi-models](#) GitHub Team discussion board entitled **Prep for 4D observations** describing what model changes are needed.

The JEDI team (Mark and Steve) then described some of the work that has been proceeding in the last few days on the ioda implementation. We now have the interfaces implemented in feature branches of ioda and ufo. This means that the way users will access the ioda database from ufo (through fortran interfaces) and from oops (through the obsvector) is now established and should not change. The JEDI core team is now working on the details of how the database is implemented at the back end of these interfaces but these subsequent changes should be transparent to the user.

Xin then reported that he is working on interfacing the new ioda implementation with fv3-jedi. He is also looking into the possibility of replacing the boost unit test framework in jedi with equivalent functionality offered by eckit.

Francois then reported that the GNSSRO feature branch of ufo has been merged into develop as well, complete with several new observation operators.

Then discussion moved from Boulder to EMC. Guillaume asked how far he should go with changing the format of the marine data files, given the changes occurring to oops. The JEDI core team agreed to work closely with him on how to move forward.

There was also a question about implementing QC for radiance observations but Yannick suggested we wait on this until the new ioda is ready.

Rahul then reported that he has cloned many repos into the JCSDA GitHub organization, including the development of a unified SOCA bundle that includes a build of MOM6.

Then discussion turned to the UK Met Office. Steve S reported that he's still working on implementing the aquaplanet for LFRic. He also mentioned that he was seeing some new test failures, many having to do with H(x) applications. Yannick and Dan suspected that this is likely due to the recent changes in the ObsVector implementation, which is now entirely in C++ (no remaining Fortran interfaces). There is also a new inverse test (part of the variable change functionality) implemented by Guillaume. This is intended to be optional, but it may require the user to explicitly turn it off with an appropriate flag in the config file. Yannick, Dan, Guillaume and Steve (S) agreed to work together to address these test failures.

Then Marek reported progress with 4D H(x) but asked about problems running inside the singularity container using multiple MPI tasks. Mark and Steve mentioned that this can be handled on a Mac by specifying 6 cores. For instructions on how to do this, see the [Vagrant page](#) in the JEDI Documentation. If you still have problems, contact Mark or Steve.

Marek also reported problems with the Localization test. And, he noted that the obs errors in the aircraft data files seemed artificially large. He opened an issue in the ioda repo - see there for further discussion.

Marek then asked if it is possible to add variables to the obsspace, in particular for radiosonde. Yannick urged him to wait until the changes to ioda are implemented - this should facilitate adding new variables. Yannick then asked if the LFRic unified model DA included a variable conversion in the radiosonde temperature. The LFRic team agreed to check on this.

Regarding Marek's work with the 4DVar branch of ufo, Yannick said that we will merge when we get the green light from him and the other model developers.

Then the discussion turned to NCAR. BJ asked about the radiance Jacobian and whether it can be assimilated into 3DVar. Dan replied that this doesn't work yet.

Steve V. is working on a general interface that will work for reading both netcdf and ODB files.

Ming reported progress with the WRF implementation in JEDI and said that they can now run forecasts. But there are still some outstanding issues that they are working on.