Status of static B development in fv3-jedi

- Built cubed-sphere Poisson solver using multigrid finite element unstructured mesh approach. Parallelized by level. Inputs are D-Grid staggered winds.

- Generated GEOS ensemble with psi, chi, T, ps variables. C180 (50km), 32 members, 16 synoptic times picked randomly.

- Teppei Kinami (EMC) implemented NMC balance coefficient variable change in fv3-jedi, cube to Gaussian transform.

- Generated vertical balance coefficients using BUMP for the GEOS ensemble.

- Testing and tuning the balance coefficients. Using Dirac functions comparing BUMP and NMC approaches.

- Tune covariance model with unbalanced states.

- Assimilation testing with combinations of Poisson solvers and vertical balance transforms, tuning.

- Testing with lagged pairs (for GMAO)

- Domain decomposition and use of Atlas for Poisson solver.

- Adjoint of Poisson solver.

- Implement nonlinear balance variable change.