The modeled data in these archives are in the NetCDF format (<https://www.unidata.ucar.edu/software/netcdf/>). NetCDF (Network Common Data Form) is a set of software libraries and machine-independent data formats that support the creation, access, and sharing of array-oriented scientific data. It is also a community standard for sharing scientific data. The Unidata Program Center supports and maintains netCDF programming interfaces for [C](https://www.unidata.ucar.edu/software/netcdf/docs/), [C++](https://www.unidata.ucar.edu/software/netcdf/docs/), [Java](https://www.unidata.ucar.edu/software/thredds/current/netcdf-java/), and [Fortran](https://www.unidata.ucar.edu/software/netcdf/docs-fortran/). Programming interfaces are also available for Python, IDL, MATLAB, R, Ruby, and Perl.

Data in netCDF format is:

* **Self-Describing.** A netCDF file includes information about the data it contains.
* **Portable.** A netCDF file can be accessed by computers with different ways of storing integers, characters, and floating-point numbers.
* **Scalable.** Small subsets of large datasets in various formats may be accessed efficiently through netCDF interfaces, even from remote servers.
* **Appendable.** Data may be appended to a properly structured netCDF file without copying the dataset or redefining its structure.
* **Sharable.** One writer and multiple readers may simultaneously access the same netCDF file.
* **Archivable.** Access to all earlier forms of netCDF data will be supported by current and future versions of the software.

MADIS observational data used in figures 10-13 are free, after registration, and publicly available at <https://madis.ncep.noaa.gov/data_application.shtml>

MPAS v6.0 is publicly available at <https://github.com/MPAS-Dev/MPAS-Model>

The modified MPAS code used for this publication is freely available at [https://zenodo.org/record/3734982#.X0Uz5ehKiCg](https://gcc01.safelinks.protection.outlook.com/?url=https%3A%2F%2Fzenodo.org%2Frecord%2F3734982%23.X0Uz5ehKiCg&data=02%7C01%7CBash.Jesse%40epa.gov%7Ca6fff557c5554def5c5908d8490f1369%7C88b378b367484867acf976aacbeca6a7%7C0%7C0%7C637339676813043844&sdata=rDMnpnizmyajcEi3CMsUzeG1eWuZ98WgMUuhQvCZ7K0%3D&reserved=0)

Figure 1 – Illustrative only. No data

Figure 2-13 – The data used to generate these images are very large, more than 10 TB, and can be made available upon request. These data have been archived at /asm/MOD3APP/pcc/MPAS/Campbell\_et\_al\_JGR