

# Participating in the NetCDF Community

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# Why Participate?

- To help extend netCDF to meet an important need.
- To fix a bug that affects you or your users.
- To help the science community.
- Participate in a successful software product.

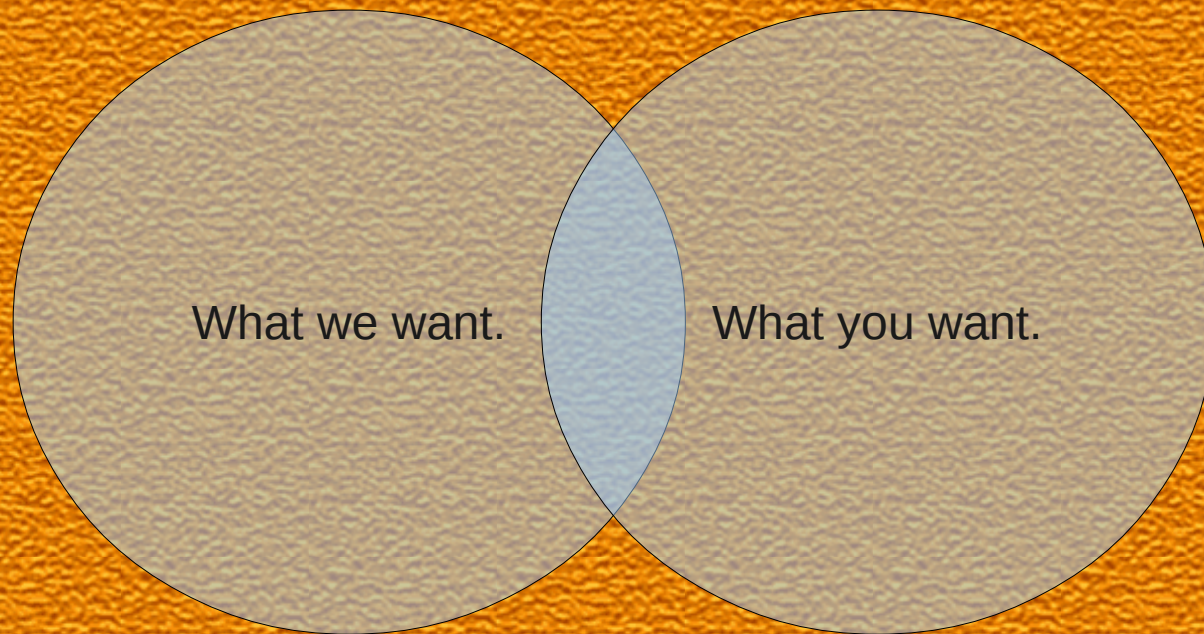
# What Can We Collaborate On?

- Bug fixes, performance improvements to the netCDF libraries and tools.
- New features for the libraries when they fit netCDF development plans and mission.
- Other software/standards efforts if they fit within the Unidata mission.
- We have more work than we know what to do with. See Jira site for some ideas.

# What We Can't (or Won't) Do

- We won't stray from the Unidata mission.
- We can't accept code that is not free.
- We won't betray the trust of existing users.
- We are not programmers for hire.
- There are many (quite proper) restrictions on how and for what we can receive funding, and how we can collaborate on proposals.

# Collaboration Opportunities



# With Whom?

- University Meteorology/Earth Science researchers and students.
- Large science agencies like NASA, NOAA, NCEP.
- Scientific software developers around the world.

# Where Do We Collaborate?

- NetCDF World HQ is in sunny Boulder, Colorado, at the Unidata Program Center.
- Unidata is always present in some form at the AGU, AMS, and EGU meetings. NetCDF team members are not always present.
- We also seem to attend various Washington D.C. Meetings about once a year.
- For large users we sometimes do on-site workshops (NASA, NCEP).
- Anywhere, via the internet!

# How Can We Collaborate?

- You can build beta releases and send the results to [support-netcdf@unidata.ucar.edu](mailto:support-netcdf@unidata.ucar.edu)
- You can send us code/documentation fixes.
- You can actively contribute to the netCDF mailing list, answering questions.
- You can develop an API for your favorite language, or a tool.
- You can contribute tests.



# How to Beta Test NetCDF

- Beta releases (and release candidates) are announced on the netCDF mailing list.
- Build and test, sending results to [support-netcdf@unidata.ucar.edu](mailto:support-netcdf@unidata.ucar.edu).
- Put the version you are testing in the email subject line.
- Send an email if it worked, telling us.
- If it didn't work, also send configure/make output, and config.log file.

# Notes on Providing Code

- Start from a svn checkout/update, or today's daily snapshot. Code changes quickly sometimes!
- Diffs are fine.
- Send everything to [support-netcdf@unidata.ucar.edu](mailto:support-netcdf@unidata.ucar.edu) to ensure it gets tracked and not forgotten.

# Notes on Providing Code

- No platform-specific optimizations without proper autotools integration.
- Code is closely reviewed may not be used.
- Follow examples of tests.

# Providing Tests

- Best way to demonstrate a bug is to send in a simple test that isolates the bug.
- Look at the `tst_SOMETHING.c` files in `nc_test`, `nc_test4` for examples.
- Test code should not accept command line parameters, and should not depend on human reading of output.
- Return 0 for success, anything else for failure.

# How Can We Collaborate Even More?

- For larger-scale projects, meet with netCDF team (see Russ) to see if project closely matches Unidata/netCDF goals and mission.
- It is hard to find time to do anything. Funding is sometimes needed. Funding less than an FTE for 2 years presents challenges.
- We welcome discussion of collaboration on proposals directly relating to the Unidata mission.

# Example: NASA

- In response to proposal by Russ, funded FTE for 2 years to develop netCDF-4.
- Active users and contributors to netCDF-4, including bug fixes and performance enhancements.
- Two workshops at GSFC.

# NASA: Results

- User community got netCDF-4, with associated HDF5 features.
- NetCDF team gets bugfixes and performance enhancements.
- NASA models can now increase resolution, do parallel I/O, and output HDF5 files, without any recoding of the models.
- NASA gets specialized tests, better performance.

# Example: NOAA - NCDC

- To set up climate data server, needed TDS/CDM to handle very large time scales, very large number of files.
- Provided less than one FTE per year funding, to free up resources at Unidata to work on their needs.
- John has spent much time and a trip to North Carolina working on this project.



# NOAA – NCDC: Results

- Research community gets access to climate data.
- TDS is improved for climate data needs of community.
- For NOAA an improved TDS is a fraction of the cost of a new software system.
- Using community tools ensures compatibility, and lowers operating costs.

# Example NOAA - GIP

- NOAA Global Interoperability Program.
- Fractional FTE support for work on LibCF/GRIDSPEC.
- GRIDSPEC is being used for AR-5, and is also getting effort from Tech X under funding by the DOE.

# NOAA – GIP: Results

- Unidata community gets efforts of DOE contractors in interoperability effort.
- Unidata gets some support for GRIDSPEC standards work.
- Early GRIDSPEC users get Unidata library “home” for their code and standard.
- Collaboration with Unidata helps channel standards efforts.

# Example: Python Library

- Jeff Whitaker's python library is proving very popular with scientists around the world.
- Jeff does extensive extra testing of netCDF via his own testing; he sends bug reports that are detailed and useful. He even sends tests!

# Results: Python API

- Unidata community gets Python API.
- NetCDF team gets extra testing, bugfixes.
- NOAA gets Python API that is up-to-date with changing netCDF library, including access to netCDF-4 features.
- Jeff gets a nice lunch.

# Ways and Means

- NetCDF planning now takes place on jira site:  
<http://www.unidata.ucar.edu/jira>
- Code is available from subversion repository:  
<http://svn.unidata.ucar.edu/netcdf/trunk>
- Check-ins are restricted to Unidata.
- Send code diffs to:  
[support-netcdf@unidata.ucar.edu](mailto:support-netcdf@unidata.ucar.edu)