

NCAR Classic Libraries for Geophysics

Several mathematical libraries developed in the years 1970-1990 remain popular in the geophysics community. These libraries, listed below, are available for downloading here on GitHub: [NCAR Classic Libraries for Geophysics](#).

- **FFTPACK**: A library of fast Fourier transforms
- **FISHPACK**: Fortran subprograms for solving separable elliptic partial differential equations (PDEs)
- **FISHPACK 90**: FISHPACK subprograms with a Fortran 90 interface
- **MUDPACK**: Multigrid Fortran subprograms for solving separable and non-separable elliptic PDEs
- **SPHEREPACK**: A Fortran library for modeling geophysical processes

All of these library routines are written primarily in Fortran 77. Their internal implementation does not always conform to the Fortran Standard. FISHPACK90 provides a Fortran 90 interface to the FISHPACK routines. Only MUDPACK is written with parallelism in mind; it uses OpenMP directives for shared-memory parallelism. The other libraries were designed to run on a single processor.

These libraries represent many person-years of development, and though they are no longer under development, NCAR continues to make them available to the public at no cost under a software licensing agreement. The libraries are best suited to Linux and UNIX environments and require a directory structure, **tar**, and **gmake** commands.

