Installing MPI libraries for Linux

- These instructions are for linux
- You need to install MPI libraries and binaries
- The easiest way is using the appropriate package manager for your chosen distro, e.g.
  - Ubuntu/Debian :-
    `sudo apt install libopenmpi-dev`
  - Centos/Redhat :-
    `sudo yum  install openmpi-devel`

Installing MPI libraries for M1 Macs

- Apple Silicon M1 macs gradually getting better support.
- Using homebrew install the openmpi package with

  `brew install open-mpi`
- This installs openmpi version of the MPI libraries as well as compiler wrappers to use them.
- Environment variable OMPI_MPICXX sets which compiler wrappers use.
  - `mpicxx --version` will show which compiler is currently set
  - `export OMPI_MPICXX=g++-13` will switch to the gcc compiler

Building and running the code

- The easiest way to ensure that header files are in your search path and that the correct libraries are linked is to use the mpi compiler wrappers you've just installed.
- In brief:
  - Instead of cc/gcc/clang use mpicc
  - Instead of c++/g++/clang++ use mpic++
- It's safe to build most non-MPI libraries with the mpi wrappers, so you can usually just make a like for like switch.
- Like windows, use "mpiexec" to run the code over multiple cores
  - mpiexec –n *#cores <executable name>*