IO Tips and Tricks

Reading Files

- If you know how long the file is, write a do to read it in.
- Fortran

```
real,dimension(100,nlines)::myvars
do n=1,nlines
   read(myunit,*) myvars(:,n)
enddo
```

Reading Files

- You don’t have to read every line in the same loop.
- Fortran

```
read(myunit,*)
do n=1,nlines-1
   read(myunit,*) stuff
enddo
```

Files of Unknown Length

- Fortran
- First we have to count the number of lines

```
   nlines=0
   do
      read(myunit,*,end=10)
      nlines=nlines+1
   enddo
10 continue
```

Files (Continued)

- Now we rewind the file and read the variables

```
rewind(myunit)
do l=1,nlines
    read(myunit,*) myvars(l)
enddo
```

Namelist Input

- The input file containing the namelist must follow a specific format. Namelist was not part of the Fortran 77 standard (it was standardized in Fortran 90) so there is some variation. However, the namelist always starts with

  `&name`

The variable list follows, with each variable on a separate line and consisting of the `varname=value` pair.

In older code, the namelist frequently ends with another ampersand (&), or &end. Also, in Fortran 77 there may be rules about in which column the & can occur.

In Fortran 90, the namelist is terminated with a forward slash /

Namelist Example

- In the program

```
NAMELIST /params/ rho, eps, x0
OPEN(10,file='paramlist.txt.')
READ(10,params)
```

- The input file (Fortran 90 format)

```
&params
rho=1.3
eps=1.e-7
x0=0.0
/
```

Reading from the Command Line

- Fortran (2003, but in most compilers now)

```
nargs=command_argument_count()
 if ( nargs .ne. 1 ) then
    stop "No input specified"
 else
    call get_command_argument(1,nval)
    read(nval,'(i4)') n
 endif
```