# Cheyenne Noble Gas Workflow

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The general directory structure with relevant subdirectories listed for my `Cheyenne` workflow is presented in the following trees.

## Home Directory

The first is my `home` directory, where the code and data for all experiments is stored:

```
/glade/u/home/pdavidson
├── matlab
│   └── toolboxes
│       ├── gas-functions
│       ├── gas-toolbox-withNGisotopes
│       └── tmm
│           ├── tmm-general
│           └── tmm-inertgasgasex-l13-xatm
├── petsc-master
├── tmm
│   ├── data
│   │   ├── default
│   │   └── inertgasgasex-l13-xatm
│   ├── models
│   │   ├── default
│   │   └── inertgasgasex-l13-xatm
│   │       ├── lgmdefault
│   │       └── picdefault
│   └── tmm
│       └── models
│           └── current
│               ├── inertgasgasex-l13-xatm
│               ├── inertgasgasex-n16
│               └── inertgasgasex-s09
└── startup-*
```

Everything in this directory is called by the experiment scripts in the `work` directory, with the most important script really being the `make_input_files_for_inert_gas_with_gasex_model.m`. If you can run that, then the model will be all set to run. Of particular importance are:

- `matlab/toolboxes/tmm-inertgasgasex-l13-xatm` toolbox which has all of the relevant scripts to run the Liang 2013 (L13) bubble model and processing the output data. I would just copy this into my experiment directory and add it to my `MATLAB` path.

- `tmm/data/tmm-inertgasgasex-l13-xatm` data which includes all the relevant `OceanCarbon` data files for forcing the L13 model.
- `tmm/models/tmm-inertgasgasex-l13-xatm` subdirectory which includes all of the TMM matrices and related data for both the PIC and the LGM.
- `tmm/tmm` which is the TMM GitHub repository in which I have made three new subdirectories in `tmm/tmm/models/current` which include the three parameterizations that we care about, namely L13 as well as Nicholson 2016 and Stanley 2009.

Some general comments:

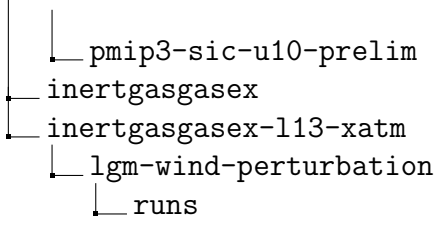
- There should be a file in almost every (sub)-directory of the form `ABOUT.txt` that explains everything, from where I got the data to when I got it to how I modified it and when. If not, just shoot me an email and I think I can pull up some more information locally that explains what I was thinking at the time...
- The `startup_*` files can be run with `source *` and those should load the appropriate modules that you need to run the model in `Cheyenne` and process the data in `Casper`.

You might note that with regard to your first point in your 24.11.2023 email, you cannot find the raw and simulated data from CMIP5 for the `u10` velocity and the sea ice fraction `sic` in this directory. This is because we were not able to pull from the WHOI CMIP5 server to `Cheyenne`. So, the data is stored at the following Google Drive link: link Be warned: this is a *massive* directory. Additionally, you can find the processing scripts in the following GitHub repository: . Within the code should be how I organized the data into `.nc` files. Let me know if I can help in understanding the code or how I organized the data. Everything should be mostly self-contained and commented appropriately, but you never know...

## Work Directory

The second is my `work` directory where all experiments are performed:

```
/glade/work/pdavidson
├── cmip5
├── noble-gas
├── noble-gas-new
├── tmm
│   └── experiments
│       └── all-models
│           ├── circulation-change
│           ├── lgm-wind-extent
│           ├── lgm-wind-factor
│           ├── lgm-xatm
│           └── pic-wind-freq
```


pmip3-sic-u10-prelim
inertgasgasex
inertgasgasex-l13-xatm
lgm-wind-perturbation
runs