Getting onto Argo

- To log into Argo, we'll be using the terminal.
- If you're on a Mac or Linux, this will be easy. If you're using a Windows laptop, then you'll need to download something like Putty (`https://www.putty.org/`).
- If your machine isn't set up for this kind of thing, then best to look at your neighbour's computer for this bit, or use one of the computer room machines. You can always go through these instructions at a later date.
- The command to enter is `ssh -Y grp01@argo-login.ictp.it` , but replacing `grp01` with your group number (e.g. `grp02` , `grp03`).
- You'll need an x-window client for this to work too (XQuartz on a Mac, Linux will be fine. something like 'xming' Windows - `https://sourceforge.net/projects/xming/`).
- (I'll log in as `grp10` , as nobody else will be using that account)
- Once you're logged in, type `ls` then hit enter
- `Isca` folder contains all of the Isca code
- `ictp-isca-workshop-2018` contains all the information for each of the projects
- Do `cd Isca` and `ls` and you should find all the code you saw on GitHub
- Do `cd ../` then `ictp-isca-workshop-2018` and do `ls`
- `experiments` contains example experiments for each of the projects 'analysis``` contains example scripts for data analysis
- do `cd experiments` and `ls`
- `earth_projects` contains projects 1-7
- `planetary_projects` contains projects p1-p2
- But first, let's start by going into the `initial_examples` folder using `cd initial_examples`
- You should find the same files we were just looking at on Github

Running a job on Argo

ONLY ONE PERSON PER GROUP DO THIS DURING THIS FIRST SESSION

- To run a job on Argo do the following steps
- enter `pyi3`, which is an alias that loads the python modules necessary for running Isca
- do `sbatch --reservation=grp01_4 run_example_hs` and hit `enter` This will then submit your job to the queuing system
- To check the status of the job, enter `sq`, which is an alias for the queue checking command
- You'll find a file called `slurm1234` is created - this is a log file showing where the model is up to. To look at it, use `more slurm1234`.

Everyone

- The data created by the model run will go in a different directory - to get there, type `dai` and hit enter.
- There will be three directories present, two containing results that I created as examples, and the other one from the `held_suarez.py` experiment you've just started running.
- Let's have a look at the held_suarez example that I created using the same script that you have just run - cd into `held_suarez_analysis_example` using `cd held_suarez_analysis_example`
- There are 24 folders of the form `runNNNN`, which are the 24 months I asked the model to run for.
- Each folder will contain a netcdf file with the data from that month.
- Because I asked for daily and monthly data, there are two separate files for both of these.
- Don't worry about the other files for now.

Analysing the data

- To analyse the data from this run, type `ana`, which is an alias that will take you to the analysis folder of the `ictp-isca-workshop-2018` folder we saw at the beginning
- `analyse_single_experiment.py` will analyse the results of one experiment, and produce some plots.

- It has been setup to look for the held-suarez data we've just seen. To run it, do `python analyse_single_experiment.py` and hit `enter`
- 5 windows should then appear, with plots analysing the output
- You can change the plots that are created by editing this python script.
- `analyse_multiple_experiments.py` will compare two similar experiments and produce some difference plots. This won't currently work until you've produced some data for yourselves.

Project-specific experiments

- Let's go back to the experiment examples folder - get there quickly using `expic` alias, or do `cd ~/ictp-isca-workshop-2018/experiments`
- Let's look first at the `earth_projects` folder
- Within each project folder there are one or more example experiments, and a submission script to go with each.
- For example, `project_3_storm_tracks` has `perp_equinox_aquaplanet.py` as an experiment script and `run_p3` for submission
- Looking at these example experiments will give you an idea of how to change different options within Isca.