2D squall line demonstration

ATM 419/563 Spring 2024 -- Fovell

*** Preliminaries**

• Make a directory called SQUALL in your lab space, move into it, and copy into it:

cp $LAB/SQUALL_snow/run_WRF_SQUALL_snow.ipynb .

• In ARCC Jupyterlab, spawn a process on **Snow**, NOT BATCH

→ if you are NOT given the drop-down menu

- go to File > Hub Control Panel, then select **Stop My Server**
- then select Start My Server when it appears

• Select "Snow 4 cores 32 GB 8 hours" (the smallest resource request on offer)

• Move to your SQUALL directory and launch the notebook

*** A 6-h simulation using the Purdue Lin scheme (mp_physics = 2)**

• The notebook is pre-configured to make a 6 h simulation using microphysics

• scheme #2, the Purdue Lin scheme, with 10-min output, and make plots.

• **No editing needed at this time.**

*** Class ensemble**

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* You will be assigned a microphysics configuration to provide to the class ensemble

* I suggest you select Kernel > Restart Kernel and Clear All Outputs before continuing

→ Cell #3 is where your name and the scheme name will be entered

→ Cell #4 is where your member option(s) will be specified

→ Plots will be created using your name and scheme name

• please copy these to $LAB/SQUALL_ensemble/

→ When executed last cell will report two statistics:

MAXIMUM NEAR-SURFACE WIND SPEED (m/s)

TOTAL SIMULATED PRECIPITATION (mm)

• please enter these into the online spreadsheet linked here:

https://docs.google.com/spreadsheets/d/1JTupaOu8I1I9OcJkiQiiMHj-jEPcpb0hxygPVBOhMEI/edit?usp=sharing

NOTES: The NTU scheme (mp_physics = 56) runs rather slowly, so be advised.

MP schemes 1, 3, 5, 11, 13, 30, and 56 do not generate radar reflectivity fields.