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on  
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*PRACTICUM ON IONOSPHERE-  
THERMOSPHERE MODELS AND DATA:  
Exercises with TIEGCM Outputs*

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These lecture notes are intended only for distribution to participants

# Part 1. Test your Understanding of T-I Fundamentals

## Physics of the Aurora Module

(<http://www.meted.ucar.edu/hao/aurora/index.htm>)

- load text version
  - choose “upper atmosphere”
  - complete “questions & exercises” 1-4
- You will be prompted to visit the tutorials, if you encounter problems.
- Visit the pages anyway for fun, especially simulation at the bottom of 2.1
- visit the “in-depth topics”, especially “static atmospheres”  $\Rightarrow$  “force balance and scale height”



## Part 2. Explore Jiuhou Lei's TIEGCM History Files

### tgcmproc\_idl GUI tool

- load 1 of 6 files - your choice
- plot zonal mean TN vs pressure level and latitude,  
add altitude axis on RHS
- identify case: solar cycle minimum or maximum?  
equinox, June or December solstice?
- plot NE vs pressure level and local time at 42.5°N
- plot NE vs pressure level and latitude at 12 UT  
What do you see? How do you interpret it?
- explore other fields
- repeat as time allows for other cases

