**Presentation/Outline**

1. Theoretical background & uncertainties
   1. Literature review – past research into the area
   2. Methods to find height of tropopause from sounding data
      1. Discrepancies between them
      2. Pros & cons of each
2. Equation & implementation
   1. NCL version – adapt for python
   2. Updated version – use method determined to be the best (from lit review)
3. Show examples making use of equation
   1. Use old soundings from university of Wyoming

**Plan – detailed**

1. Find articles on finding tropopause from sounding data
2. Compile into literature review –
   1. Past methods to determine
   2. Discrepancies between methods
   3. Pros & cons of each method
3. Choose from this which method to use
4. Compare to NCL method – understand this method
   1. Update NCL method to python
5. Write code for new method
   1. Compare new method to NCL method using sounding data (university of Wyoming database)

**CHECKPOINT 1 MATERIAL**

1. *Github issue to be addressed*

Calculating the height of tropopause from sounding data

[Describe issue as appears in metpy issue instance]

1. *Provide references from the literature giving background for the problem –* ***literature review***

**Background**

* Calculating the height of tropopause from sounding data
* what it is
* why we need it
* past research into calculating tropopause (overview)

1. *preliminary work plan for (a) addressing any uncertainties in the literature and (b) identifying a preferred, implementable solution. –* ***literature review continued***

**Past Research (previous methods people have used to calculate)**

1. *addressing uncertainties in literature*

* discrepancies between the methods/equations
* double tropopause issue
* issues with calculating tropopause

1. *identifying a preferred, implementable solution*

* pros & cons of the methods
* which one we want to use & why
* method we will use to get there:
  + use python to write equation from best method
  + compare against NCL code – update code for python
  + run test cases with past sounding data in both to determine which works better