Section 4

"The State of the Atmosphere"

August 15, 2012

SOME NEW THINGS:

1. Italicized phrase follows each variable heading to provide a short definition of the variable.
2. Red indicates a live link – but they are inactive in the annotated file I distributed.
3. Note algorithm blocks:
   (a) Top section: variables and constants used
   (b) Bottom section: Expression for the algorithm (sometimes equations, sometimes code)

QUESTIONS TO DISCUSS

Format of Algorithm Blocks

1. Might replace constants by:
   c_{pd}, R_d, g: See Table of Constants (with link)
2. Do the same for conversion factors?

Terminology

1. "Total temperature" -> "Recovery Temperature"?
2. Why XMACH2? Wouldn't MACHX be more in line with conventions?
3. Why EDPC? vs EDPX?
4. Is it time to change from XUVI to something not starting with X?
5. Use of underscore? Reserve for location like _LMO, vs _VXL?

HUMIDITY-BASED TEMPERATURE?

- Distributed draft: primed variables denote that the moisture content of the air is included
  - Known to matter in TAS for high humidity (BL) flight
  - Have had variable TASHC for this purpose
- Should this be standard?
  - For T, error analysis indicates that max change might be 0.1°C?
  - Change is probably not significant – but it can be in TAS
- How to incorporate? Not straightforward:
  - Must avoid bad humidity values that can introduce errors
  - coding somewhat involved, with potential for errors