**Websites used to collect snow data from**

**- I used data from early Feb 2013 to come up with numbers for my idealized snow cover in the basin**

**NOAA ESRL Horsepool data:**

http://esrl.noaa.gov/psd/data/obs/cgi-bin/GetArchive.pl?&source=UneditedActive&year=2013&month=2&day=1&type=Horsepool,UT%20%28hpl%29%20Surface%20Meteorology%20Time%20Series%20Image

**NOHRSC data (for low elevations):**

http://www.nohrsc.noaa.gov/nearest/index.html?city=Roosevelt%2C+UT&county=&l=5&u=e&y=2013&m=2&d=1

***Search around different cities to get more potential locations

**SNOTEL (for high elevations):**

http://www.wcc.nrcs.usda.gov/snotel/Utah/utah.html

**CoCoRAHS:**

*Find stations in Uintah/Duchesne county here:*

http://www.cocorahs.org/Stations/ListStations.aspx

*Find reports here:*

http://www.cocorahs.org/ViewData/StationSnowSummary.aspx

**NOHRSC Analysis plots:**

http://www.nohrsc.noaa.gov/interactive/html/map.html

**Snow Variables in WRF**

**From module_initialize_real.F and wrfout files:**

Snow = snow water equivalent (SWE) in $kg/m^2$

Snowh = physical snow depth in m

Snowc = flag for snow coverage (1 = snow, 0 = no snow)

Snoalb = maximum albedo allowed for snow

**From VEGPARM.TBL:**

SNUP = SWE required to fully cover vegetation in m

***Note for SWE conversions:

1 m = 1000 $kg/m^2$

Value used for "SNUP" in my VEGPARM.TBL:

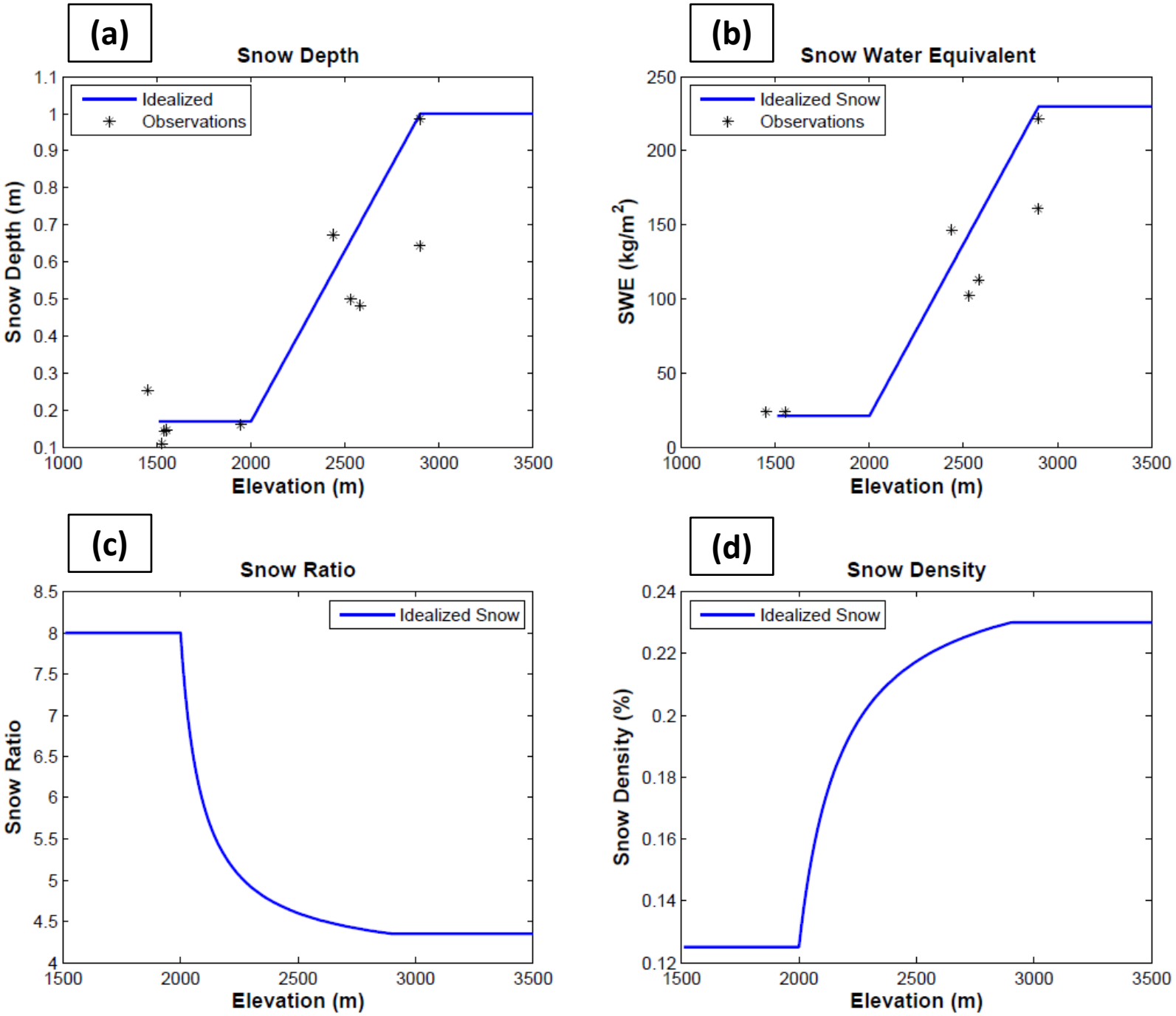
0.02 m = 20 $kg/m^2$

Value used for "snow" on basin floor in my module_initialize_real.F:

21.25 $kg/m^2$ = 0.02125 m = 2.125 cm

Since 21.25 $kg/m^2$ > 20 $kg/m^2$, the amount of snow on basin floor in my simulation will cover 100% of vegetation and the albedo calculation in NOAH LSM will rely on the "snoalb" variable (which is set to 0.82)

Idealized Snow used in WRF and Observations




Plot of prescribed snow as a function of elevation used in WRF simulations. Stars indicate observed quantities in the Uintah Basin and surrounding mountains (a) Snow depth, (b) snow water equivalent, (c) snow ratio, (d) snow density.