Antofagasta Airport

MERRA-2 3D tables Versus Weather Balloons

Daily launch of weather balloons from Antofagasta
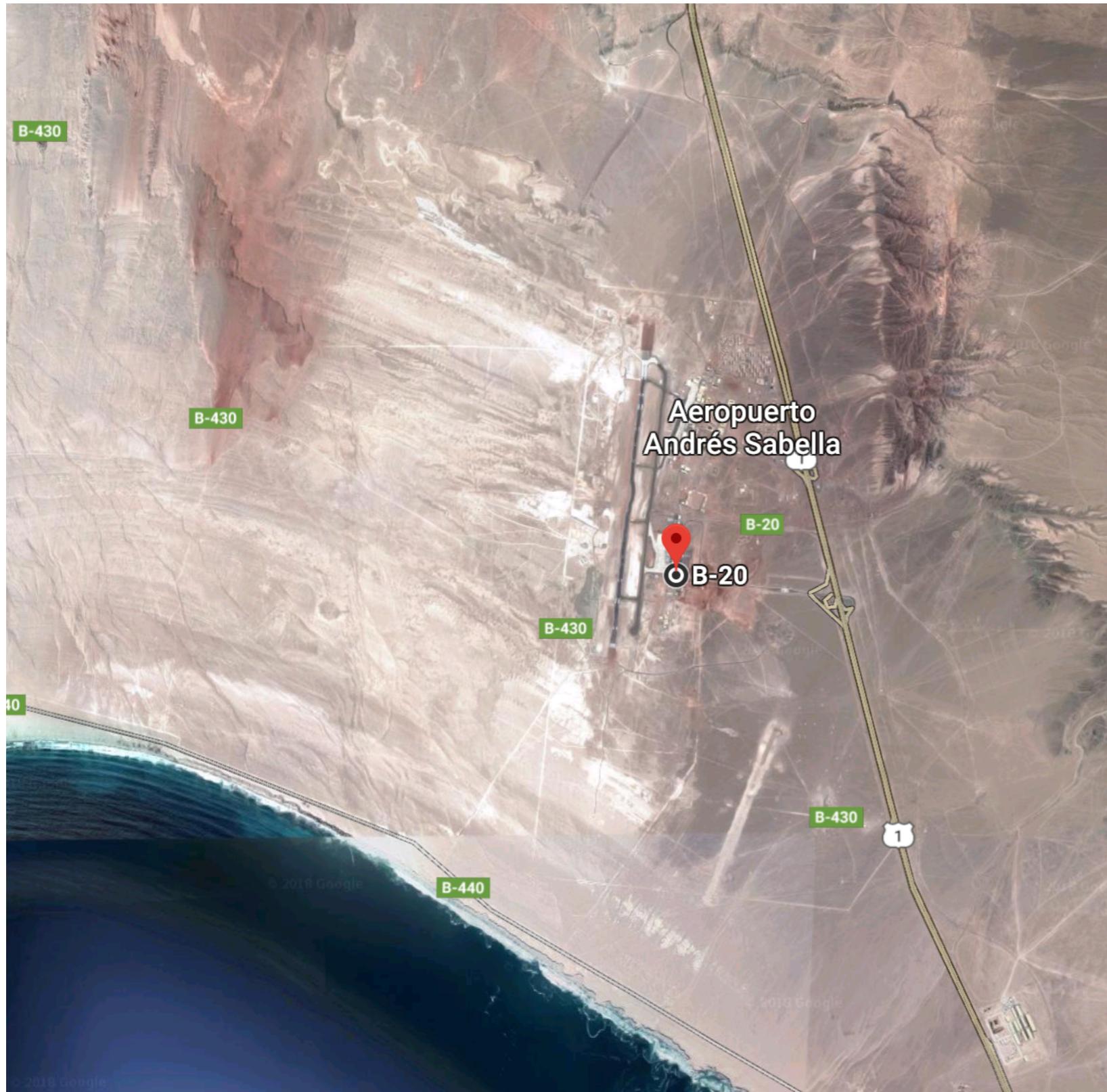

Site is near sea level

Weather Balloons Vs. MERRA-2

Daily Barometric Pressure
Above Antofagasta

January 2017

Weather Balloons
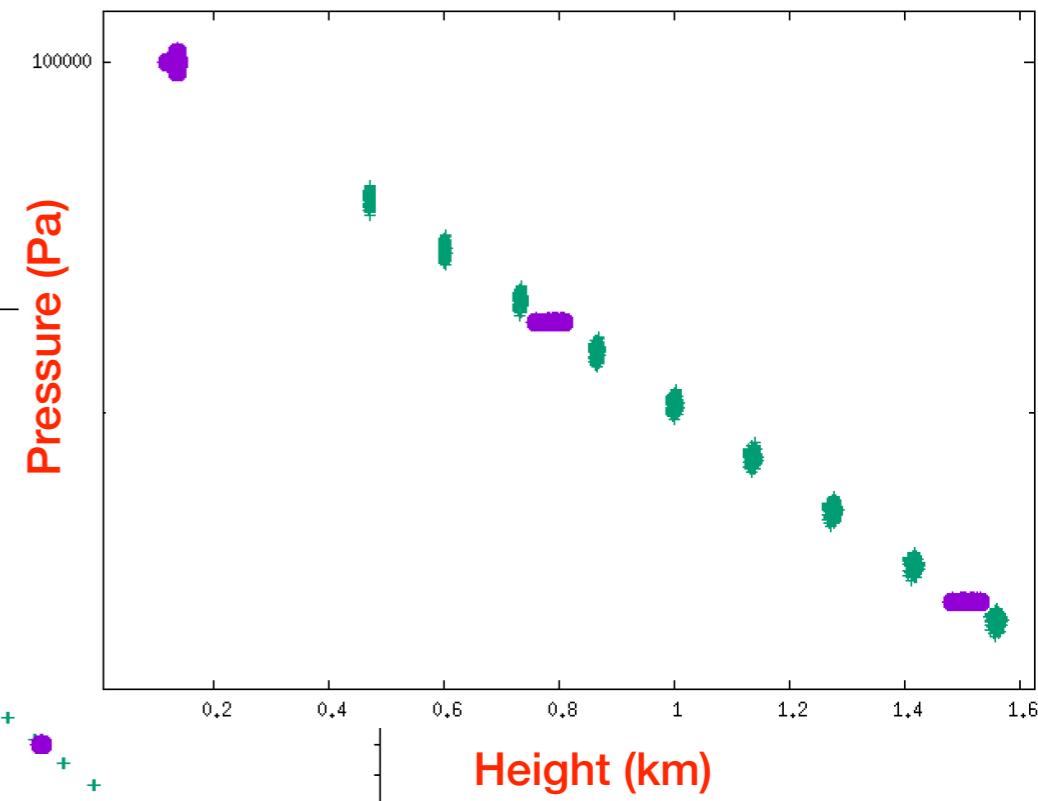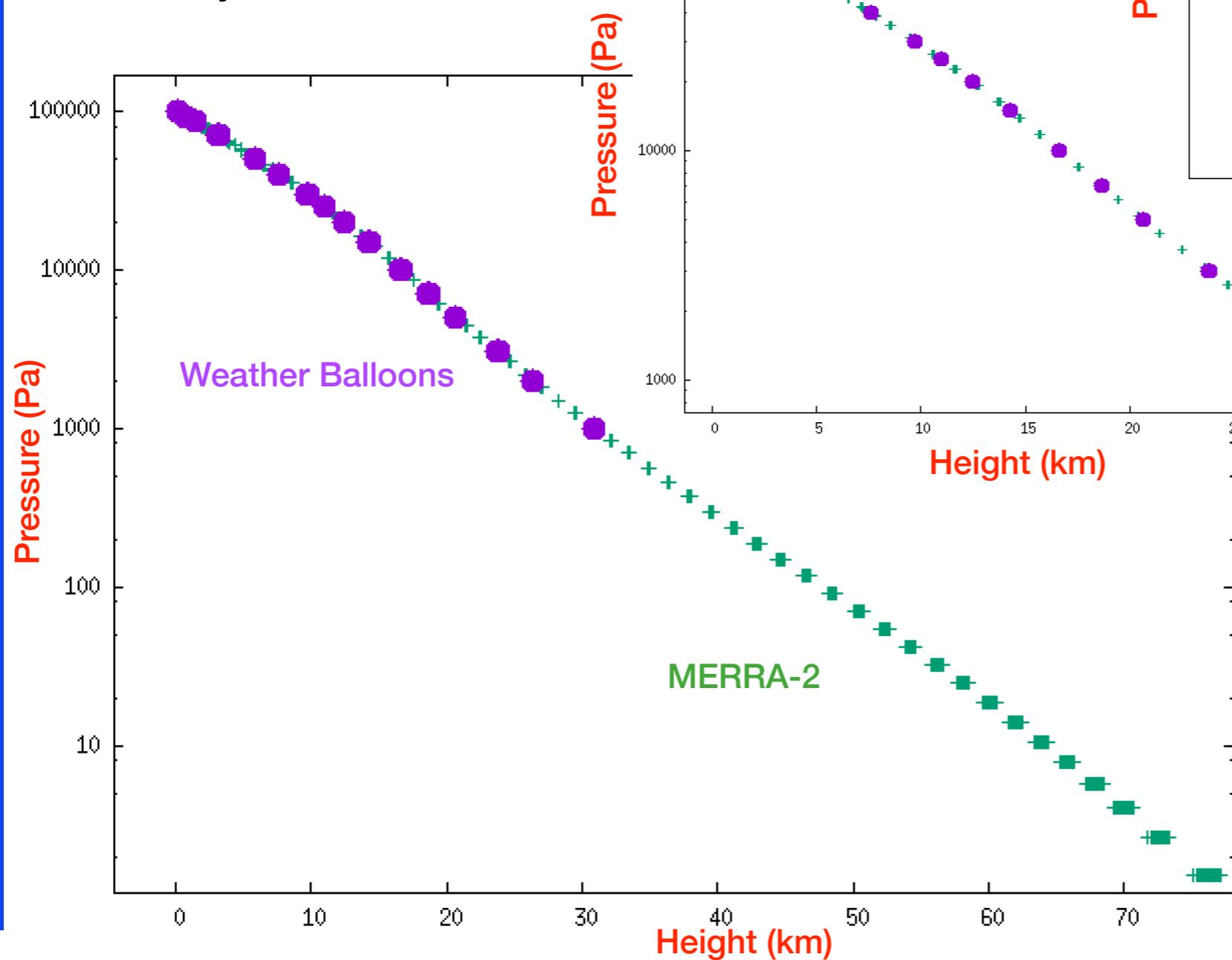
MERRA-2

Weather Balloons Vs. MERRA-2

Daily Temperature
Above Antofagasta

January 2017
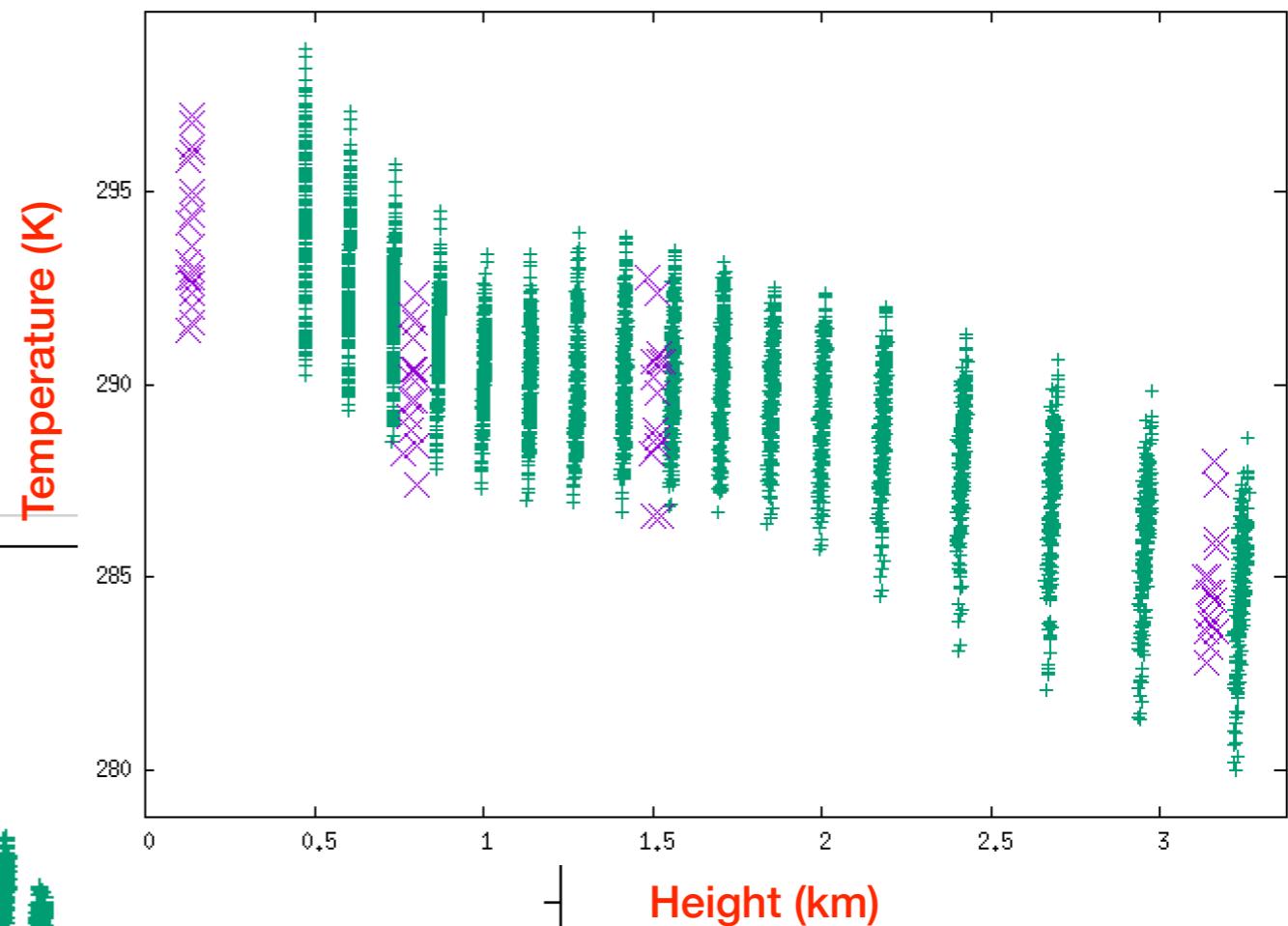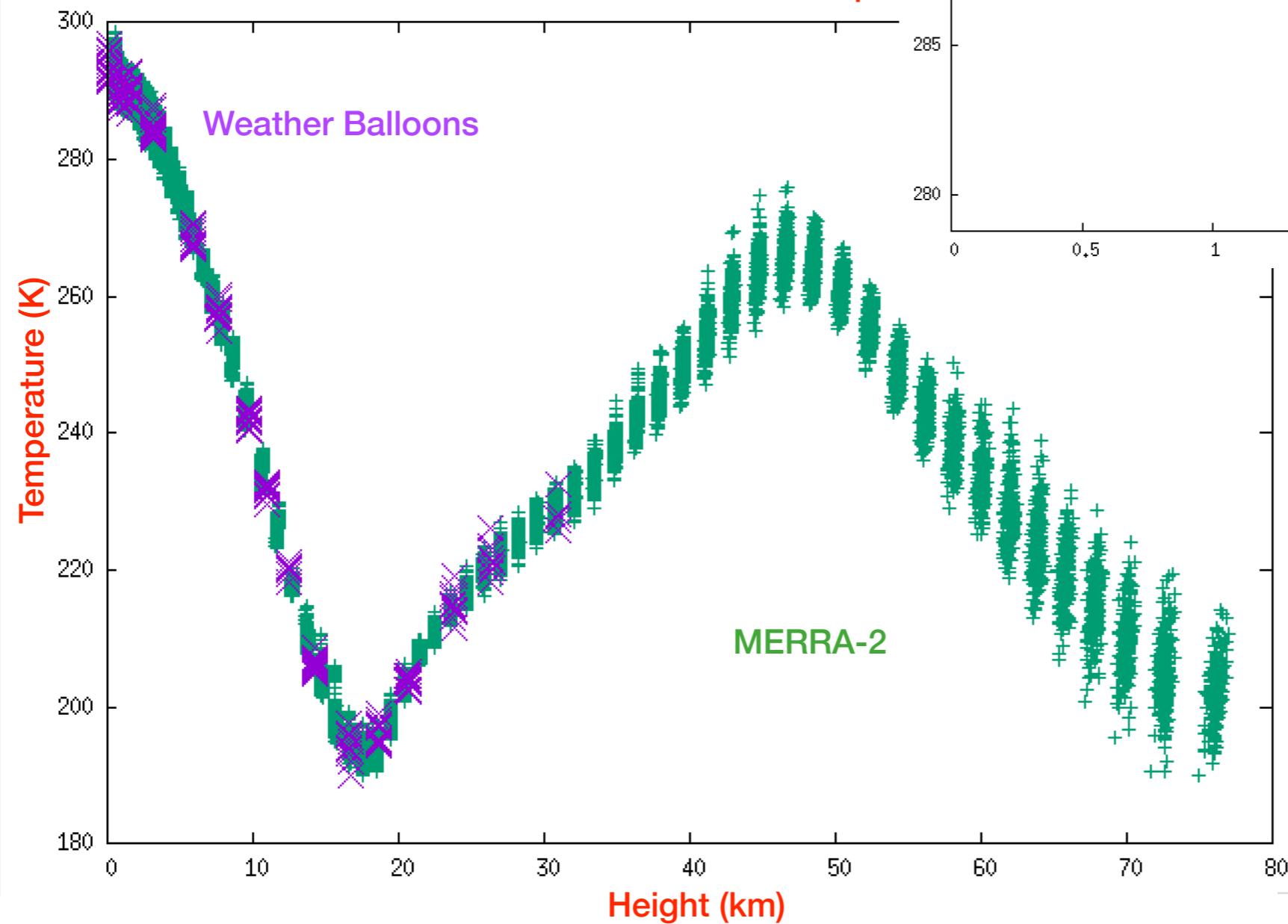
Weather Balloons Vs. MERRA-2

☑ Both temperature and pressure are well correlated.

‣ Should check for the rest of the year 2017,

‣ Should check for other variable (relative humidity, wind).

‣ Redo the exercise from a site on a mountain.

Misc.

https://www1.ncdc.noaa.gov/pub/data/igra/igra2-station-list.txt
CIM00085442 -23.4503 -70.4408 113.0   ANTOFAGASTA   1957 2018 17234
https://www1.ncdc.noaa.gov/pub/data/igra/data/data-y2d/

The assimilated ones :
https://www1.ncdc.noaa.gov/pub/data/igra/derived/igra2-derived-format.txt

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Variable      Columns Type     value          definition
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PRESS          1- 7    Integer  100600        pressure (Pa)
REPGPH         9- 15    Integer  137           reported geopotential height (meters)
CALCGPH       17- 23    Integer  137           calculated geopotential height (meters)
TEMP          25- 31    Integer  2850          reported temperature (K * 10)
TEMPGRAD   33- 39 Integer  -214               temperature gradient between the current level and the next higher level with a temperature [(K/km) * 10,
positive if temperature increases with height].
PTEMP         41- 47    Integer  2845          potential temperature (K * 10)
PTEMPGRAD  49- 55    Integer  -36            potential temperature gradient between the current level and the next higher level
VTEMP         57- 63    Integer  2860          virtual temperature (K * 10)
VPTEMP        65- 71    Integer  2855          virtual potential temperature (K * 10)
VAPPRESS      73- 79    Integer  9923          vapor pressure (mb * 1000) as computed from temperature, pressure, and dewpoint depression at the same level.
SATVAP        81- 87    Integer  13897         saturation vapor pressure (mb * 1000)
REPRH         89- 95    Integer  -99999        reported relative humidity (Percent * 10)
CALCRH        97-103    Integer  714           calculated relative humidity (Percent * 10)
RHGRAD        105-111   Integer  2321          relative humidity gradient
UWND          113-119   Integer  -9            zonal wind component [(m/s) * 10]
UWDGRAD       121-127   Integer  214           vertical gradient of the zonal wind
VWND          129-135   Integer  50            meridional wind component [(m/s) * 10]
VWNDGRAD      137-143   Integer  -679          vertical gradient of the meridional wind
N             145-151   Integer  320           refractive index (unitless)
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