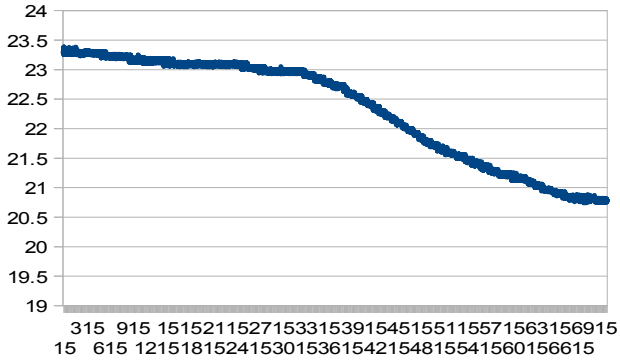


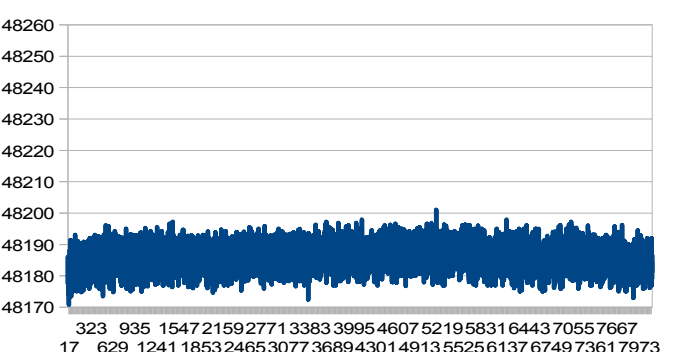
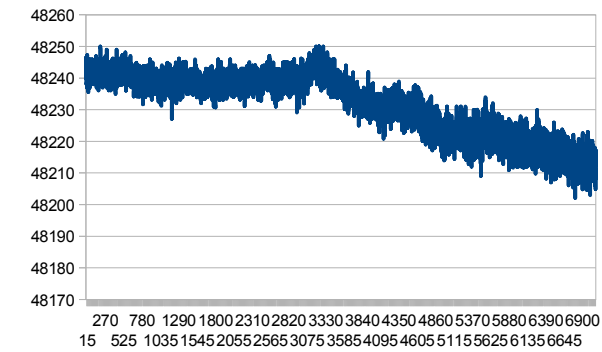
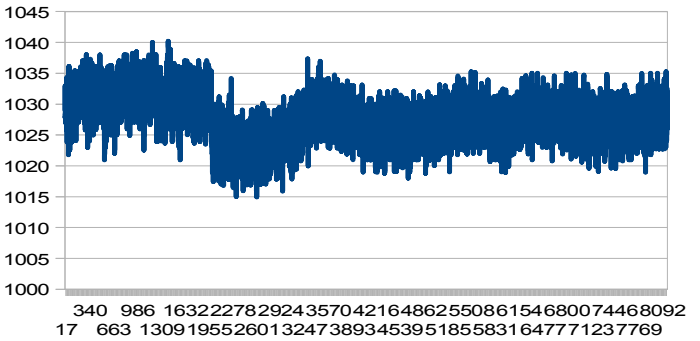
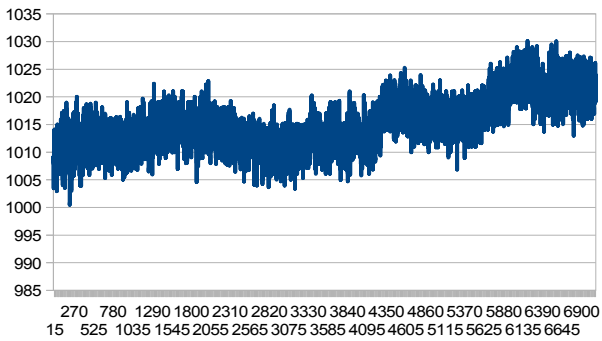
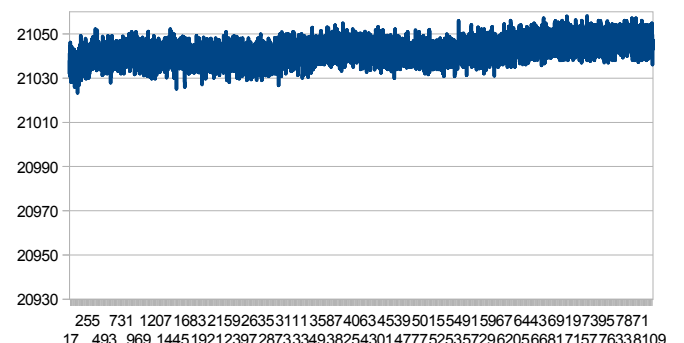
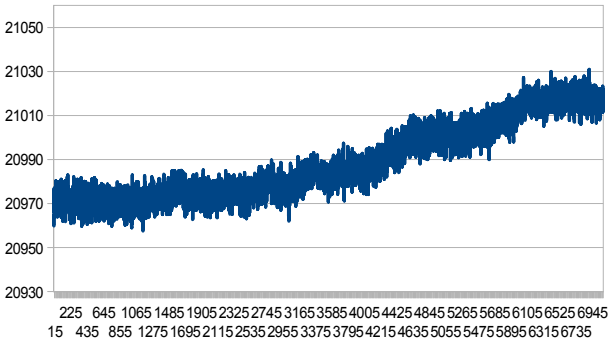
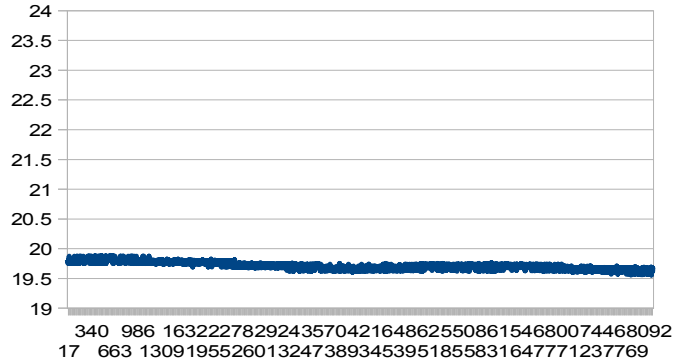
# Temperature Analysis of RM3100 Magnetometer static runs of 07/29/2020 -07/30/20

J. Madey-K2KGJ  
Hillsdale, NY

### RM3100a wxproof box 2100-2300 edt 0729



### RM3100a wxproof box 0500-0700 edt 0730

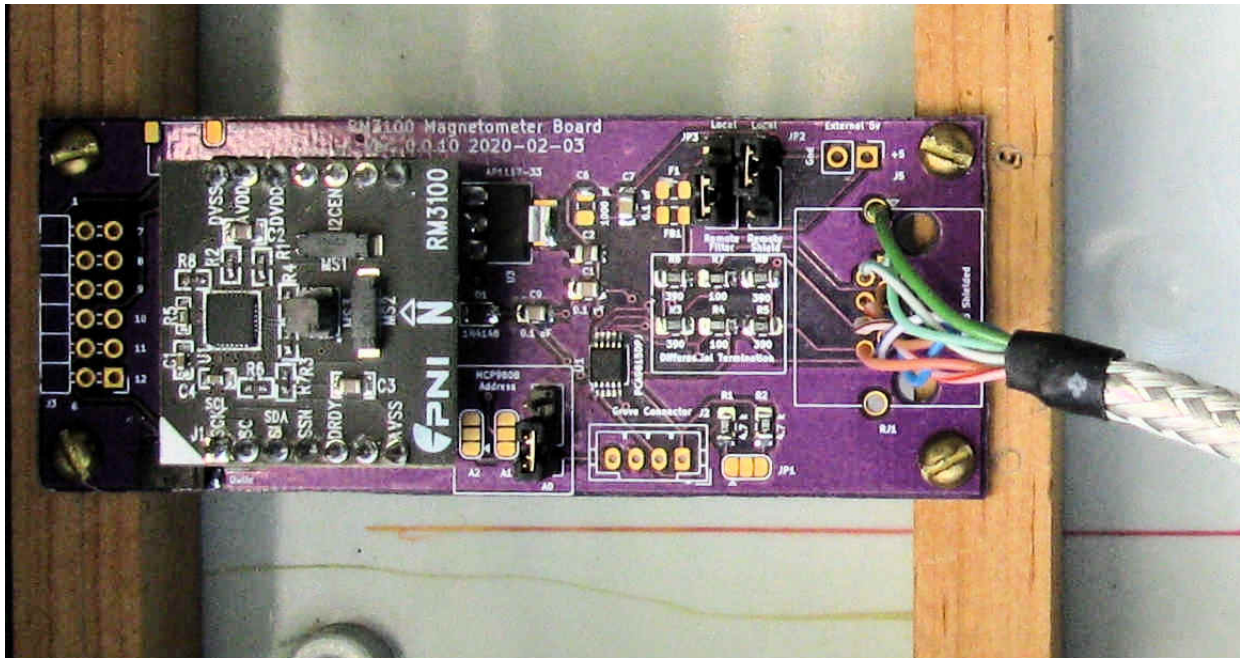


These two runs were an attempt to check the RM3100 at constant temperature. The location is at the end of a 400 foot run of CAT5E using differential mode i2c extenders. The magnetometer and adapter board are in a gasketed weather tight polycarbonate box on a leveled concrete block, 8 inches above ground level. X axis oriented close to magnetic north but not 'fine tuned'.

In order, the plots are:

Temperature in degrees C reported by a MicroChip MCP9808T i2c precision temperature sensor with a max/min accuracy of +/- 0.5 degrees C from -20C to +100C.

The RM3100 plugs into the adapter board shown below, designed by David Witten KD0EAG, and which also contains an NXP PCA9615 differential i2c extender and a 3.3 volt regulator.



The two runs were made with a cycle setting of 600, a 0A register value of 10 at a one per second rate. The RM3100 status register was queried after each conversion was complete to eliminate the possible effects of i2c bus activity during the measurement.

Scale factors of all plots were made as equal as possible to directly compare magnitudes.

This is the best evidence I have of apparent temperature related effects in RM3100 measurements. In the early morning run of 7/30, temperature variation over the 2 hour run was less than 0.5degree C.

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07-30-2020



