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Datagrams: Eureka
Fluxtower - towermet

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File name: (as of 4/2/14) eutYYJJJ.met

101	Year	DOY	GMT/UTC time HMM	Campbell Battery Voltage	Campbell internal temp	*DW LW Total – **NOT INSTALLED** [mV]*	*DW LW Total – **NOT INSTALLED**_STD [mV]*	*DW LW Total – **NOT INSTALLED** _CaseTemp[mV]*	*DW LW Total – **NOT INSTALLED** _DomeTemp [mV]*	UpwellingLongwaveTotal [mV]	UpwellingLongwaveTotal STD [mV]	UpwellingLongwaveTotal CaseTemp [mV]	Upwelling LongwaveTotalDomeTemp [mV]	*DW SW Total – **NOT INSTALLED** [mV]*	*DW SW Total – **NOT INSTALLED**_ STD[mV]*	*UpwellingShortwaveTotal [mV] – **NOT LOGGING***	*UpwellingShortwaveTotalSTD [mV] – **NOT LOGGING***									
311	Year	DOY	GMT/UTC time HMM	Probe excitation voltage [mV]	Probe excitation voltage deviation	5cm [mV]	10cm [mV]	15cm [mV]	20cm [mV]	25cm [mV]	30cm [mV]	45cm [mV]	70cm [mV]	95cm [mV]	120cm [mV]	REF [mV]	5std	10std	15std	20std	25std	30std	45std	70std	95std	120std	REF std
301	Year	DOY	GMT/UTC time HMM	Pressure 2M [mbar]	Pressure std	Wind speed [m/s]	Wind direction [degree]	Wind speed std (sigma theta)	Wind speed std	Wind direction std																
330	Year	DOY	GMT/UTC time HMM	10M temp [degC]	10M humidity [%]	6M temp [degC]	6M humidity [%]	2M temp [degC]	2M humidity [%]	10M temp std	10M humidity std	6M temp std	6M humidity std	2M temp std	2M humidity std											
331	Year	DOY	GMT/UTC time HMM	ref	Ref std	10M east TC [degC]	10M east TC std	6M east TC [degC]	6M east TC std	Differential ABS (east)	ABS (east) std	6M west TC [degC]	6M west TC std	2M west TC [degC]	2M west TC std	Differential ABS (west)	Differential ABS (west) std									
320	Year	DOY	GMT/UTC time HMM	Soil temp ave TCs	Soil temp ave TCs std	Flux plate 1 [mV]	Flux plate 2 [mV]	Flux plate 1 std	Flux plate 2 std	IR temp [mV]	IR ref [ohms]	IR temp std	IR ref std	Snow depth [mm]	Snow depth std											
333	Year	DOY	GMT/UTC time HMM	RTD1	RTD1_v1	RTD1_v2	10M RTD [degC]	RTD2	RTD2_v1	RTD2_v2	6M RTD [degC]	RTD3	RTD3_v1	RTD3_v2	2M RTD [degC]	Service switch	ABS (service switch)									
180	Year	DOY	GMT/UTC time HMM	Seconds_RTM	RTD1	RTD1_v1	RTD1_v2	10M RTD [degC]	RTD2	RTD2_v1	RTD2_v2	6M RTD [degC]	RTD3	RTD3_v1	RTD3_v2	2M RTD [degC]	**LineID 180 and 181 are 3-second data from instruments collected in lineID's 320 and 333 [repeated data]**									
181	Year	DOY	GMT/UTC time HMM	Seconds_RTM	IR temp [mV]	IR ref	IR temp std	IR ref std	IR ref [repeat]	IR ref std [repeat]																
101	2014	118	0	13.42	-6.078	-0.11646	0.00469	54.081	56.097	0.00137	0.00032	9.9784	9.9673	1.4529	0.00222	0	0									
311	2014	118	0	4959.2	0.27709	382.2	385.84	386.21	387.21	388.41	388.94	386.17	386.04	381.55	378.96	87.257	0.3012	0.29582	0.26007	0.32749	0.25961	0.20818	0.34616	0.23758	0.39696	0.17554	0.02575
301	2014	118	0	1017.1	0	1.0026	101.07	0.02356	0.10192	0.04387																
330	2014	118	0	-17.609	62.588	-17.737	65.325	-18.192	64.869	0.02209	0.124	0.0213	0.08835	0.01873	0.05813											
331	2014	118	0	-13.332	0.02085	-16.863	0.05725	-17.107	0.01692	0.24444	0.07033	-15.946	0.05464	-99999	0	99999	0									
320	2014	118	0	-26.303	0.0375	0.14271	0.19504	0.00033	0.00011	0.41432	67355	0.00219	37.088	2671.3	0.36896											
333	2014	118	0	0.93261	83.791	78.145	-17.573	0.93155	83.812	78.075	-17.929	0.9296	83.808	77.909	-18.365	-33.564	33.564									
180	2014	291	0	3.375	0.949	83.659	79.392	-13.295	0.94813	83.675	79.335	-13.597	0.9452	83.669	79.083	-14.299										
181	2014	291	0	3.5	0.08125	68412	0	0	68412	0																

Data | Diagnostics | Logger Info

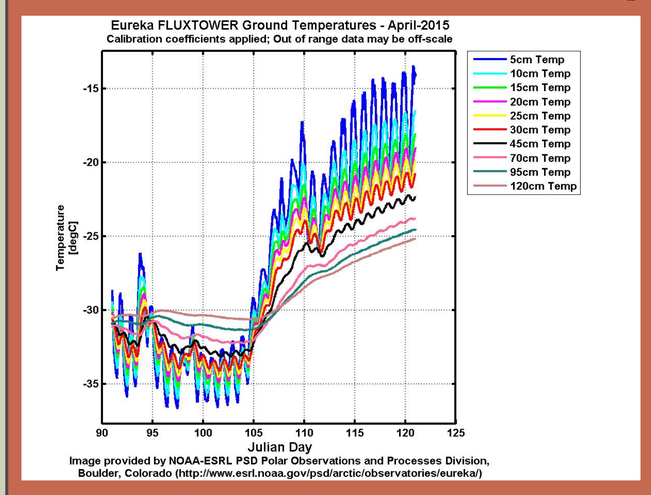
Eureka Data Center

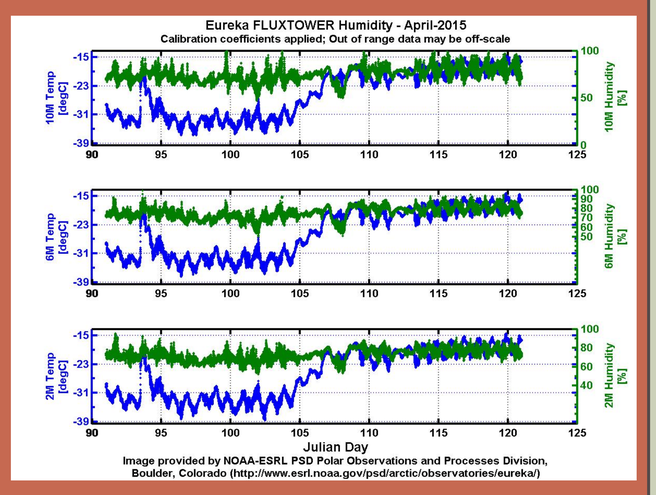
NOAA

Processing

Quicklooks

Example Plots:





Ingest

Folder Name	File Name	FTP Location
Raw	eutYYJJJ.met	ftp://ftp.etl.noaa.gov/psd3/arctic/eureka/surface_properties/fluxtower/towermet/raw/
Ingest	eurmettwr.a1.YYYYMMDD.hhmmss.txt	ftp://ftp.etl.noaa.gov/psd3/arctic/eureka/surface_properties/fluxtower/towermet/ingest/
Products	eurmeteorologicaltwr.b1.YYYYMMDD.hhmmss.txt	ftp://ftp.etl.noaa.gov/psd3/arctic/eureka/surface_properties/fluxtower/towermet/products/daily_meteorological
	eurradiationtwr.b1.YYYYMMDD.hhmmss.txt	ftp://ftp.etl.noaa.gov/psd3/arctic/eureka/surface_properties/fluxtower/towermet/products/daily_radiation
	eursoiltwr.b1.YYYYMMDD.hhmmss.txt	ftp://ftp.etl.noaa.gov/psd3/arctic/eureka/surface_properties/fluxtower/towermet/products/daily_soil
Quicklooks	eurradiationbsrn.a1.YYYYMMDD.hhmmss.jpg	ftp://ftp.etl.noaa.gov/psd3/arctic/eureka/surface_properties/fluxtower/towermet/quicklooks/

Product

IASOA Portal

Home:
http://www.esrl.noaa.gov/psd/iasoa/
Data:
http://www.esrl.noaa.gov/psd/iasoa/dataataglance

Example Product File:

DayFrac	Year	JulianDay	HourMin	LWTotalDownwelling[W/m^2]	SWTotalDownwelling[W/m^2]	LWTotalUpwelling[W/m^2]	SWTotalUpwelling[W/m^2]	QualityControl
32	2015	32	0	165.696	-0.353503	447.797	-0.226852	0000-10230044000
32.0007	2015	32	1	165.638	-0.353503	447.834	-0.277778	0000-10230044000
32.0014	2015	32	2	165.722	-0.353503	447.968	-0.277778	0000-10230044000

Official Data Submission to an Archive | Data Cable | rsync | NOAA server

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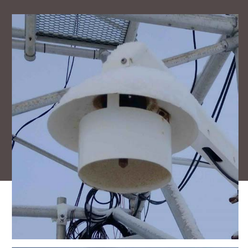
Instrument Specifications










Instrument Details							
Specifications	**1**	**2**	**3**	**4**	**5**	**6**	**7**
Line ID#	**101**	**311**	**301**	**330**	**331**	**320 (& 181-fast IR data)**	**333 (& 180-fast data)**
Measurement	a. *Downwelling Longwave Total – NOT INSTALLED* b. **Upwelling Longwave Total** c. *Downwelling Shortwave Total – NOT INSTALLED* *d. Upwelling Shortwave Total – NOT LOGGING HERE*	Thermistor Soil Probe	a. Pressure b. Wind Speed, Wind Direction	Temperature, Humidity	Thermocouple	a. IR surface temp b. Ground Height c. Conductive FluxA d. Conductive FluxB e. Soil Thermocouple	Aspirated Temperature
Serial #	*a. 34309 – NOT INSTALLED* b**. 34310** c. *060130 – NOT INSTALLED* *d. 060133 – NOT LOGGING HERE*		a. A3110005 b.	a. A3840003 b. D2130038 c. A3840001	a. 1323 b. 1320, 1321 c. 1319	a. 1972 b. C4559 c. H053033 d. H053034 e.	a. TS14389 b. TS14385 c. TS14386
Instrument Manufacturer	*a. Eppley PIR* b. **Eppley PIR** c. *Kipp&Zonen CM22* *d. Kipp&Zonen CM22*	MRC	a. Vaisala b. R.M. Young	Vaisala (w/ Campbell housing)	Campbell Scientific	a. Apogee b. Campbell Scientific c. Hukseflux d. Hukseflux e. Campbell Scientific	RTD Logan temp probe (w/Cambridge System, Inc housing)
Type	a. *Pyrgeometer PIR* b. **Pyrgeometer PIR** c. *Pyranometer PSP* *d. Pyranometer PSP*	TP-101	a. PTB-220 b. Cup and Vane	a. HMT 337 b. HMT 337 c. HMT 337	ASP TC	a. IRTS-P b. SR50A c. HFT3 d. HFT3 e. TCAV	a. b. c.
Height Location on Tower	11.1m	Depth: 5cm-120cm	a. 2.0m b. 11.1m	a. 2.33m b. 6.10m c. 10.10m	a. 2.33m b. 6.10m (x2) c. 11.1m	a. 3.21m b. 2.835m c. Depth: ~3cm d. Depth: ~3cm e. Depth ~0.2m	a. 2.33m b. 5.98m c. 9.75m
Instrument Specifications	a., b. Aspirated, AC fan c., d. Heated, Aspirated, DC fan	n/a	n/a	Aspirated	Aspirated	e. Measurement is average of 4 thermocouples at ~0.2m depth	Aspirated
Measurement Unit	mV	mV	a. mbar b. Direction: Degrees Speed: m/s	Temp: Degree Celsius Humidity: %	Degree Celsius	a. mV b. mm c. mV d. mV e. Degree Celsius	Degree Celsius
Calibration factors (y/n/value)	a. *295.858 W/mV/m²* *(Dome = 3.867)* b. **253.614 W/mV/m²** **(Dome = 3.30)** c. *9.42 μV/W/m²* *d.8.64 μV/W/m²*	A=0.002478535 B=0.0002538399 C=0.0000002812234				a. See calibration details on specifications page c. 62.4 V/W/m² d. 61.8 V/W/m²	
Unit after Applied Calibration or Conversion	W/m²	Degree Celsius	a. mbar b. Direction: Degrees Speed: m/s	Temp: Degree Celsius Humidity: %	Degree Celsius	a. Degree Celsius b. mm c. W/m² d. W/m² e. Degree Celsius	Degree Celsius
Additional Corrections Applied (y/n/explain)	Downwelling SW and LW taken off of tower on June 17, 2012	no	no	no	no	b. Zero value for ground =	Shield damaged Jan 2010, replaced 7/15/2010

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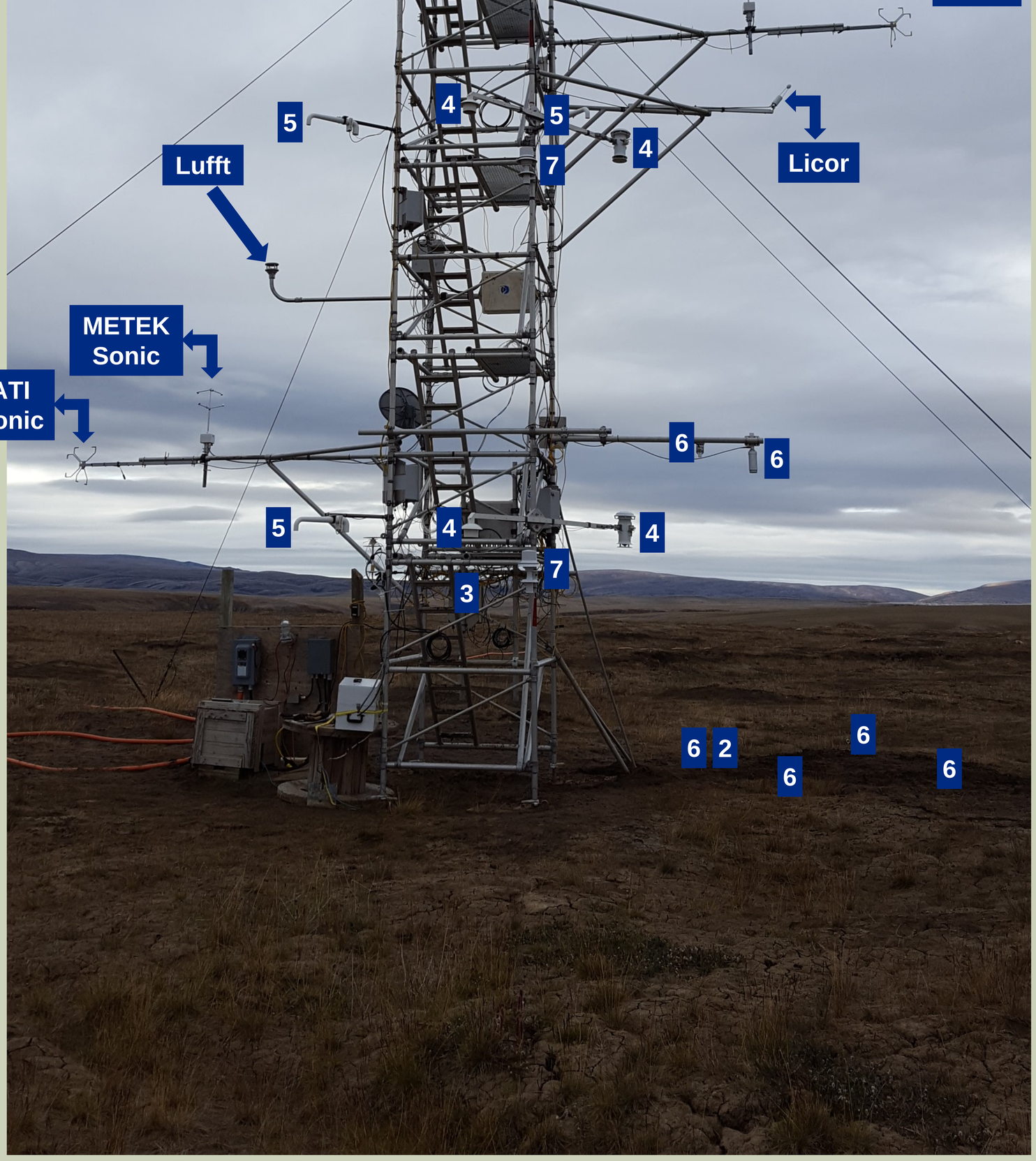

Processing

Calibration Values Radiometers:

1a. Downwelling Longwave Total (Eppley PSP) – **NOT INSTALLED**
295.858 W/mV/m^2, Dome = 3.867 01/01/2014 – present
287.770 W/mV/m^2, Dome = 3.50 07/13/2007 – 12/31/2013
1b. Upwelling Longwave Total (Eppley PSP)
253.614 W/mV/m^2, Dome = 3.30 07/13/2007 – present
1c. Downwelling Shortwave Total (K&Z PIR) **– NOT INSTALLED**
9.42 µV/W/m^2 01/01/2014 – present
1d. Upwelling Shortwave Total (K&Z PIR)
8.64 µV/W/m^2 08/25/2007 – present

Processing Conversions:

Shortwave Radiation (#1d – logged in different logger)
DESCRIPTION:
SW = 1000 * Recorded value / calibration coefficient

UNITS:
W/m^2 = 1000 * mV / µV/W/m^2

Longwave Radiation (#1b)
DESCRIPTION:
Sigma = 5.6704e-8, Emissivity = 1, DCF = dome correction factor, SF = calibration coefficient
A = 0.0010295
B = 0.0002391
C = 0.0000001568
LW_case = 1/(A+B*ln(T_case*1000)+C*ln(T_case*1000)^3)
LW_dome = 1/(A+B*ln(T_dome*1000)+C*ln(T_dome*1000)^3)
LW = SF*Recorded value+Sigma(E(LW_case^4)+DCF((LW_case^4)-(LW_dome^4))

UNITS:
LW_case_mV = 1/(A+B*ln(mV*1000)+C*ln(mV*1000)^3)
LW_dome_mV = 1/(A+B*ln(mV*1000)+C*ln(mV*1000)^3)
W/m^2 = (mV/W/m^2)*mV+Sigma(E(LW_case_mV^4)+DCF ((LW_case_mV^4)-(LW_dome_mV^4))

Snow Depth (#6)
DESCRIPTION/UNITS:
Snow_depth_zero = 0
Snow_depth_instrument_height = mm
Arg = IR temp in degrees Celsius
Snow Depth in mm = (Snow_depth_instrument_height – Recorded Value in mm * sqrt(Arg)) – Snow_depth_zero

Thermistor Soil Probe (#2)
DESCRIPTION/UNITS:
A = 0.002478535
B = 0.0002538399
C = 0.0000002812234
REF = mV
D = (Recorded Value in mV) – REF + 87.15
D = ln(D)
Temp in degrees Celsius = (1/(A + B * D + C * D^3)) – 273.15

Flux Plate (#6)
DESCRIPTION/UNITS:
Esen = calibration factor [FluxA = 62.4 V/W/m^2, FluxB = 61.8 V/W/m^2]
Vsen = (Recorded Value in mV) / 1000
Flux in W/m^2 = Vsen / Esen

Infrared Temperature Sensor (#6)
*IR sensor calibration coefficients for 2007 DOY 240 - 2015 DOY 41:
mC2 = 114562;
mC1 = 26066700;
mC0 = 4717850000;
bC2 = 37365.8;
bC1 = -1462220;
bC0 = -34531700;
*IR sensor calibration coefficients for 2015 DOY 41 – 2016 DOY 213:
mC2 = 212168;
mC1 = 20267700;
mC0 = 4706900000;
bC2 = -1815.69;
bC1 = 181051;
bC0 = -26835700;
* IR sensor calibration coefficients for 2016 DOY 214 - present
mC2 = 67766.9;
mC1 = 7935340;
mC0 = 1454960000;
bC2 = 2490.09;
bC1 = 122348;
bC0 = -1692850;

Calculation of m(slope) and b(intercept) coefficients for target temp calculation
m = mC2.*(SBTempC.^2) + mC1.*SBTempC + mC0;
b = bC2.*(SBTempC.^2) + bC1.*SBTempC + bC0;

Target temp calculation based on m and b coefficients
SBTempK = SBTempC + 273.15; %sensor body temperature in degrees Kelvin

Tsqr = (SBTempK.^4) + m.*TmV + b;
TargTempK = sqrt(sqrt(Tsqr));
Tskin = TargTempK - 273.15; % target temp in degrees Celsius