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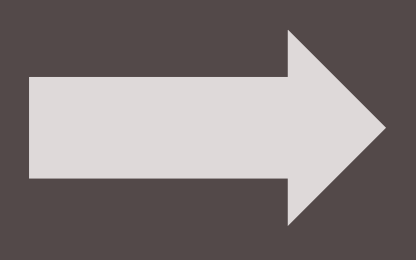
Datagrams:

Baseline Surface Radiation Network

Tiksi Downwelling Broadband Radiation



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Campbell CR10X Data
 Logger

Location: Polyarka Wx Station: NOAA Office
 File name: tikYYYYMMDDHh.dat (as of 2/11/14)
 File location in Tiksi: E:\rad1

Line ID	Year	Julian Day	Hour/Min [UTC]	Logger Voltage	Logger Temp [degC]	LWtotalDownwelling [mV]	LWtotalDownwelling STD [mV]	LWtotal Case Temp [mV]	LWtotal Dome Temp [mV]	SWdir Downwelling [mV]	SWdirDownwelling STD [mV]	SW1diffDownwelling [mV]	SW1diffDownwelling STD [mV]	SW2diffDownwelling [mV]	SW2diffDownwelling STD [mV]	SWtotalDownwelling [mV]	SWtotalDownwelling STD [mV]	Russian Downwelling Shortwave Direct [mV]	RTD1 TEMP [degC]	RTD1r [calc. Of therm]	RTD1e [V across ref. resistor]	RTDm [V across therm]	RTD2 TEMP [degC]	RTD2r [calc. Of therm]	RTD2e [V across ref. resistor]	RTDm [V across therm]	Service Switch
101	2012	137	1400	7.70	-1.06	-0.03334	0.00141	37.23	38.73	-99999	0	0.04345	0.0926	0.09351	0.01095	0.08878	0.01588	-0.00944	-6.3347	-2.439	909.90	88.77	-6.2987	-2.425	909.94	88.787	1658.1
101	2012	137	1401	8.69	-1.09	-0.03186	0.00164	37.25	37.92	-99999	0	0.06627	0.10324	0.08737	0.01541	0.09431	0.01498	-0.00186	-6.2218	-2.396	909.86	88.806	-6.3405	-2.442	909.90	88.769	1658.2

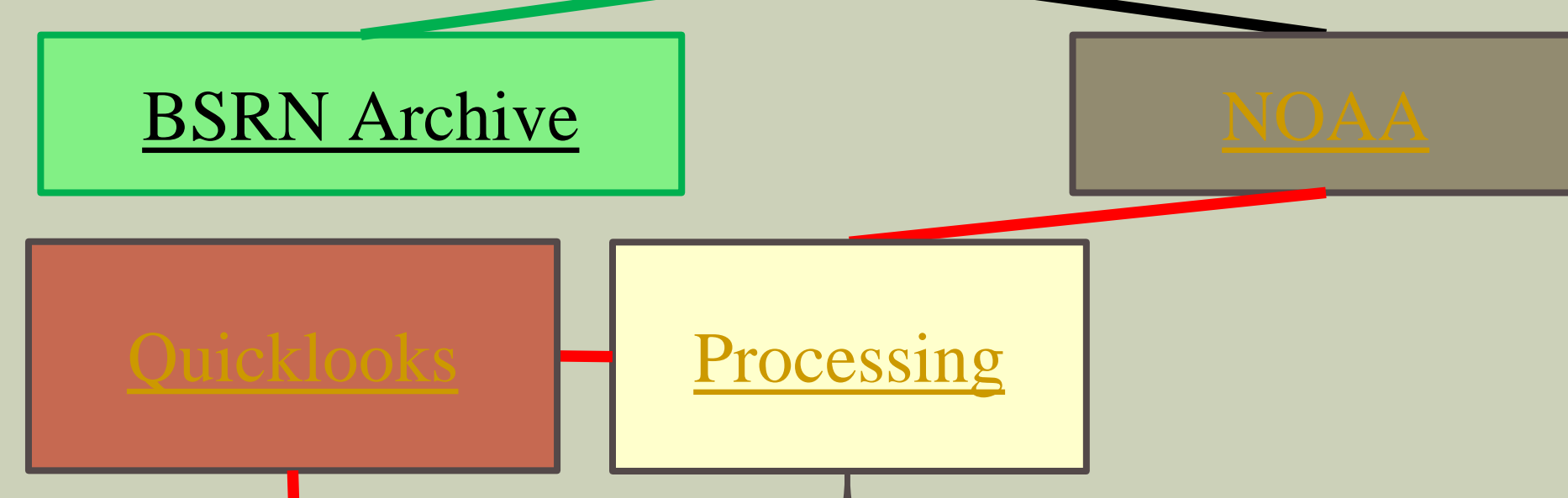
Data Diagnostics Logger Info



1: Kipp&Zonen 2AP tracker
 7: Radiometer Shade Balls
 6: Sun Sensor Tracker

Specifications	2	3	4	5	8
Measurement	Downwelling Shortwave Diffuse	Downwelling Shortwave Diffuse	Downwelling Longwave Total	Downwelling Shortwave Direct	Downwelling Shortwave Total
Serial #	35300	35828	35835	35803	060126
Instrument Manufacturer	Eppley Black&White PSP	Eppley PSP	Eppley PIR	Eppley NIP	Kipp&Zonen CM22
Type	Pyranometer (PSP)	Pyranometer (PSP)	Pyreometer (PIR)	Pyrheliometer (PSP)	Pyranometer (PSP)
Fan Included (y/n) If Yes, specify AC/DC fan	Yes; AC	Yes; AC	Yes; AC	Yes; AC	Yes; DC
Case and Dome temps both measured (no/both/case/dome)	no	no	Case, Dome	no	no
Dome Correction Factor? (value/Not Applicable)	n/a	n/a	3.9	n/a	n/a
Additional ventilation? (y/n/explain)	no	no	no	no	no
Heated/Aspirated? (y/n/both)	Aspirated	Aspirated	Aspirated	Aspirated	Heated, Aspirated
Is dome facing upward or downward?	Upward	Upward	Upward	Upward	Upward
Radiation measurement upwelling or downwelling?	Downwelling	Downwelling	Downwelling	Downwelling	Downwelling
Calibration factors	8.72 μV/W/m ²	8.76 μV/W/m ²	329.43 W/mV/m ²	8.01 μV/W/m ²	9.40 μV/W/m ²

Tiksi Data Center



FTP File locations at NOAA:
 From Tiksi Data Center to:
http://ftp.esrl.noaa.gov/psd3/arctic/tiksi/radiometric/broadband_radiation/downwelling/raw/YYYY/
 then transferred to:
http://ftp.esrl.noaa.gov/psd3/arctic/tiksi/radiometric/broadband_radiation/downwelling/ingest/YYYY/

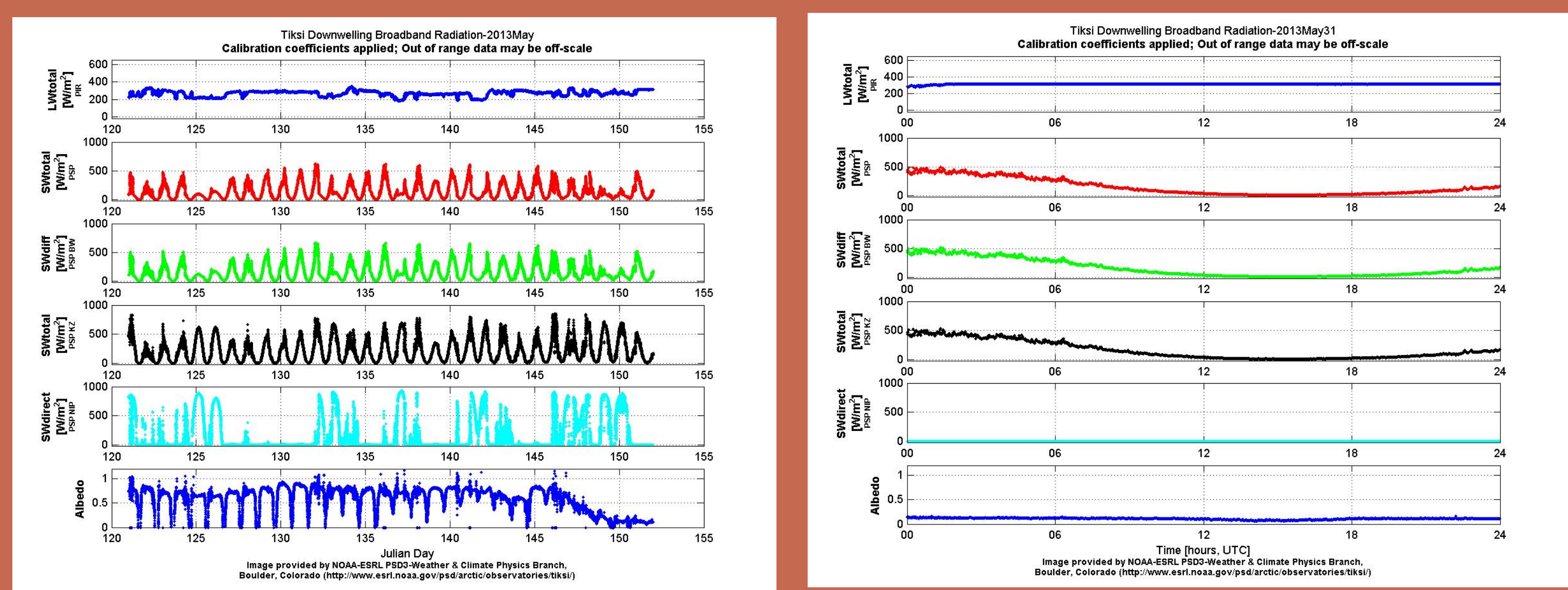
Calibration Values:

- Downwelling Shortwave Diffuse (Eppley B&W PSP)
8.72 μV/W/m² 6/1/2010 - present
- Downwelling Shortwave Diffuse (Eppley PSP)
8.76 μV/W/m² 6/1/2010 - present
- Downwelling Longwave Total (Eppley PIR)
329.435 W/mV/m², Dome = 3.90 6/11/2009 – present
- Downwelling Shortwave Direct (Eppley NIP)
8.01 μV/W/m² 6/1/2010 - present
- Downwelling Shortwave Total (K&Z CM22)
9.40 μV/W/m² 6/1/2010 – present
- Russian Downwelling Shortwave Direct (MF-19 (AT-50))
9.13 μV/W/m²

Calculations:

DCF = Dome Correction Factor (for PIR instruments)
Sigma = 5.6704 * 10⁻⁸
E = efficiency = 1
TCR = Case Temp in mV (For Eppley PIR : data Column 9)
TDR = Dome Temp in mV (For Eppley PIR : data Column 10)
TC = Eppley PIR Temp[degK]
TD = Eppley PIR Dome[degK]
 Conversion=1/((0.0010295+0.0002391*log(TCR*1000)+0.0000001568*log(TCR*1000)^3))
 Conversion=1/((0.0010295+0.0002391*log(TDR*1000)+0.0000001568*log(TDR*1000)^3))
V [mV]: PIR = data column 7, PSP Eppley = data column 13, PSP B&W = data Column 15,
 PSP K&Z = data Column 17, NIP = data Column 11, Russian = data Column 19
SF: Calibration Values (see above)
PSP thermopile (W/m²) = 1000*V/SF
PIR thermopile (W/m²) = SF*V + SIGMA *(E*TC⁴ + DCF*(TC⁴-TD⁴))

Example Plots:



Ingest

Modify Data Format:
 1. Include header information
 2. Include Day-Fraction (time)
 3. Standardize file naming convention

Folder Name	File Name	FTP Location
Raw	tikYYYYMMDDh.dat	ftp://ftp.etl.noaa.gov/psd3/arctic/tiksi/radiometric/broadband_radiation/downwelling/raw/YYYY/
Ingest	tik.bsrn1.daily.cow0.c2.YYYYMMDD.txt	ftp://ftp.etl.noaa.gov/psd3/arctic/tiksi/radiometric/broadband_radiation/downwelling/ingest/YYYY/
Products	tik.radiation.daily.cow0.c3.YYYYMMDD.txt	ftp://ftp.etl.noaa.gov/psd3/arctic/tiksi/radiometric/broadband_radiation/downwelling/products/YYYY/
Quicklooks	tik.bsrn1.daily.cow0.c2.YYYYMMDD.jpg	ftp://ftp.etl.noaa.gov/psd3/arctic/tiksi/radiometric/broadband_radiation/downwelling/quicklooks/YYYY/
Example:	tik.radiation.daily.cow0.c2.20120327.txt	ftp://ftp.etl.noaa.gov/psd3/arctic/tiksi/radiometric/broadband_radiation/downwelling/products/YYYY/

Standardized Data Format:
 Definitions:
 sss - site identifier (e.g., tik)
 inst - base instrument abbreviation
 Fn - facility abbreviation (e.g., cafl[0:1], cow[0:1], twr[0:1])
 data qualifier – daily or monthly
 data processing level (raw=c1, ingest=c2, products=c3)

Product

IASOA Portal

Example Product File:

DayFrac	Year	DOY	HourMin	SW1totalDownwellingBroadband [W/m ²]	SWdiffuseDownwellingBroadband [W/m ²]	SW2totalDownwellingBroadband [W/m ²]	SWdirectDownwellingBroadband [W/m ²]	LWtotalDownwellingBroadband [W/m ²]	SWtotalUpwellingBroadband [W/m ²]	LWtotalUpwellingBroadband [W/m ²]
7	2014	7	0	-0.706621	0.059633	-0.37766	0.781523	190.598	-1.21482	230.277
7.00069	2014	7	1	-0.674658	0.0573394	-0.351064	0.635456	190.479	-1.19849	230.926
7.00139	2014	7	2	-0.765982	0.0137615	-0.364894	0.549313	189.247	-1.22739	232.014

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