

Contacts

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Datagrams:

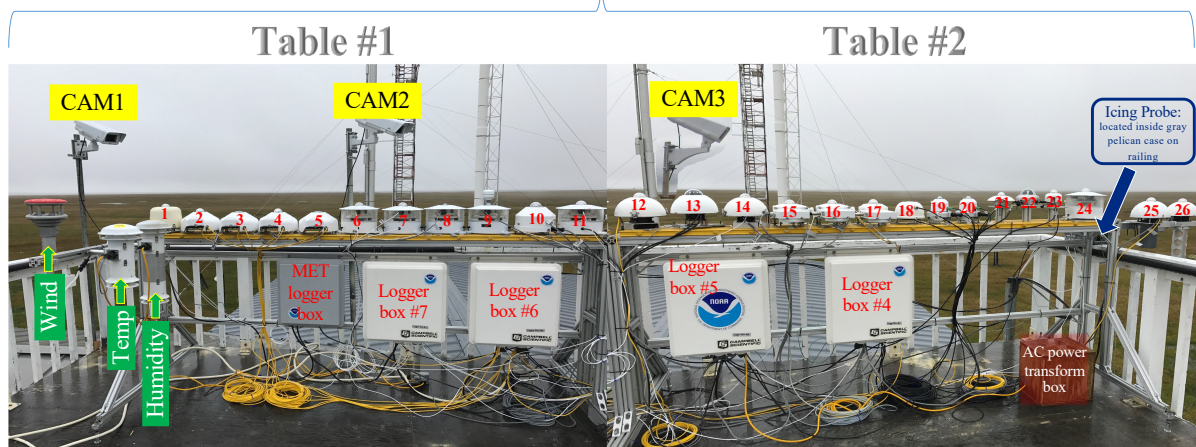
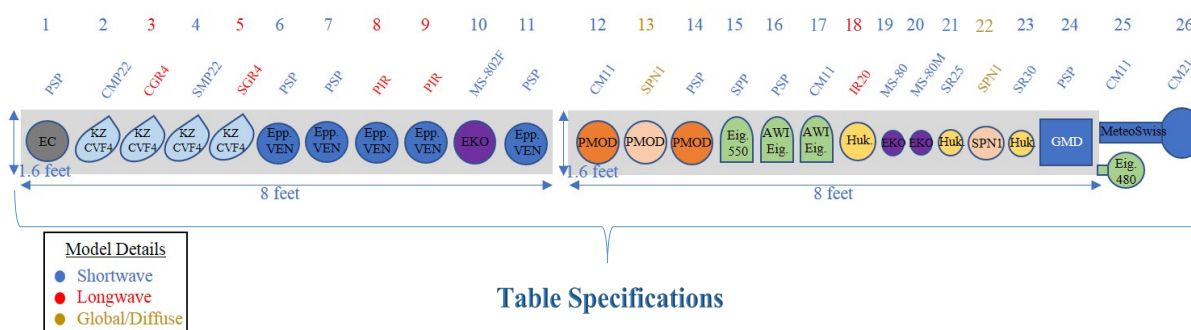
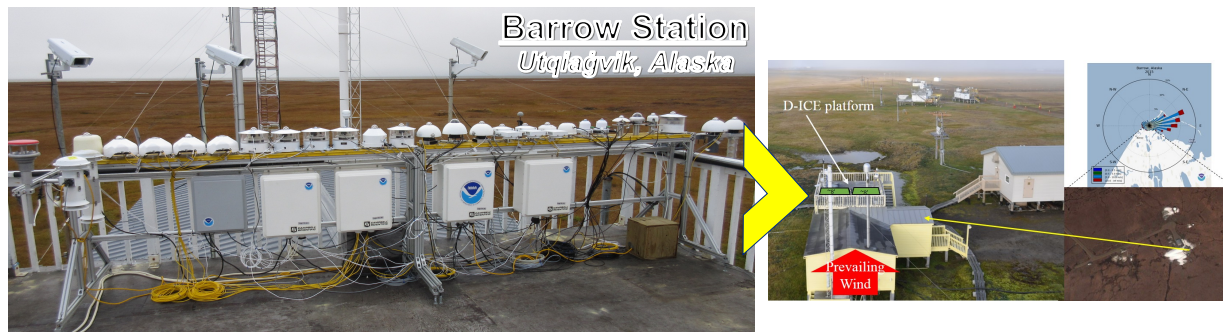
Barrow

De-Icing Comparison Experiment

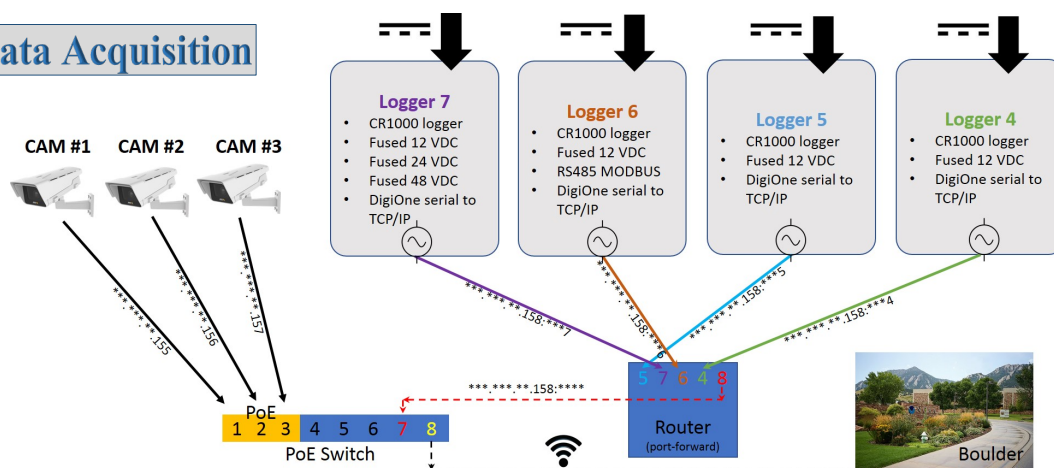
Contacts

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Data Acquisition



Instrument Details




















 SW Radiometer: CM11/CM21/ CMP22/SMP22  Direct Radiometer: CHP1	 LW Radiometer: CGR4/SGR4  Ventilator: CVP4	 PIR  PSP/SPP  Ventilator: VEN	 SR30  IR20  SR25  Ventilator: VU01	 MS80/MS80M  MS802  Ventilator: MV01	 SPN1	 Ventilator: SBL480  Ventilator: SBL550	 Ventilator: PMOD	 Ventilator: MeteoSwiss
Kipp & Zonen	Eppley	Hukseflux	EKO	Delta-T	Eigenbrodt	PMOD	MeteoSwiss	

Table	Table Position	Radiometer Logger Box #	Radiometer Serial #	Ventilator Logger Box #	Ventilator Model or Serial #	Radiometer Measurement	Radiometer Manufacturer	Radiometer Model	Radiometer Calibrations for D-ICE [$\mu\text{V/W/m}^2$]	Previous Factory Calibration ($\mu\text{V/W/m}^2$)	Ventilation Manufacturer	Ventilation Quality / Quantity	Ventilation Power (Watts)	Heat Applied (y/n)	Heat Power (Watts)	Voltage
1	1	7	34231F3	6	Alert	Shortwave	Eppley	PSP	8.397	8.41	EC, Alert	DC / 80 [cfs]	10.3	no	n/a	12
1	2	6	160478	6	171842	Shortwave	Kipp&Zonen	CMP22	9.697	9.74	Kipp&Zonen	DC / 4400 [rpm]	5	yes	5.5	12
1	3	6	160183	6	171840	Longwave	Kipp&Zonen	CGR4	$CI = 9.545$ $C2 = 0.998$	9.4	Kipp&Zonen	DC / 4400 [rpm]	5	yes	5.5	12
1	4	6	160002	6	171843	Shortwave	Kipp&Zonen	SMP22	original cal	10.07	Kipp&Zonen	DC / 4400 [rpm]	5	yes	5.5	12
1	5	6	160008	6	171841	Longwave	Kipp&Zonen	SGR4	original cal	11.03	Kipp&Zonen	DC / 4400 [rpm]	5	yes	5.5	12
1	6	7	26818F3	7	V6 909-12, washers/dome lift	Shortwave	Eppley	PSP	8.449	8.57	Eppley	DC / 80 [cfs]	10.3	no	n/a	12
1	7	7	18135F3	7	V6 809	Shortwave	Eppley	PSP	8.556	8.65	Eppley	DC / 80 [cfs]	10.3	no	n/a	12
1	8	5	34309F3	7	V6 808, washers/dome lift	Longwave	Eppley, PSD	PIR	$CI = 3.39$ $K = 3.78$	3.54	Eppley	DC / 80 [cfs]	10.3	no	n/a	12
1	9	5	28507F3	7	V6 689	Longwave	Eppley	PIR	$CI = 3.68$ $K = 3.567$	3.76	Eppley	DC / 80 [cfs]	10.3	no	n/a	12
1	10	4	F16305R	4	MS-401FU	Shortwave	EKO	MS-802F	7.056	7.01	EKO	DC / 3000 [rpm]	? (-4)	no	n/a	12
1	11, do NOT clean	7	26214	5	V6 910	Shortwave	Eppley, NCAR	PSP	8.13	8.52	Eppley, lift shield	DC / 80 [cfs]	10.3	no	n/a	12
2	12	6	130814	5	PMOD	Shortwave	Kipp&Zonen, GMD	CM11	8.327	8.31	PMOD	DC / 4200 [rpm]	2.3	yes	7.8	12
2	13	5	A1571		GMD PMOD	Total, Diffuse	Delta-T, GMD	SPN	factory set	factory set	GMD, PMOD	DC / 80 [cfs]	2.3	via inst. & ventilator	25.8	12
2	14	7	20523F3	5	PMOD	Shortwave	Eppley	PSP	9.433	9.67	PMOD	DC / 4200 [rpm]	2.3	yes	7.8	12
2	15	7	38172F3	4	0932153	Shortwave	Eppley	SPP	7.756	8.05	Eigenbrodt 550	DC / 2500 [rpm]	1.6	yes	14	24
2	16	7	26236	4	0931190	Shortwave	Eppley, NCAR	PSP	8.627	9.07	Eigenbrodt 550	DC / 2500 [rpm]	1.6	yes	14	24
2	17	6	130819	4	0932088	Shortwave	Kipp&Zonen, GMD	CM11	8.681	8.7	Eigenbrodt 550 modified	DC / 2500 [rpm]	14.7	no	n/a	48 VDC
2	18	4	4037	5	VU01	Longwave	Hukseflux	IR20-T1	$CI = 10.144$ $C2 = 0.995$	10.13	Hukseflux	DC / 50 [m ³ /hr]	7.8	via inst. & ventilator	11.5	12
2	19	4	S16088025	5	MV0117004	Shortwave	EKO	MS-80	10.616	10.64	EKO	DC / 3000 [rpm]	1.5	yes	7	12
2	20	6	S16090016	5	MV0117003	Shortwave	EKO	MS-80M	10.772	10.76	EKO	DC / 3000 [rpm]	1.5	yes	7	12
2	21	4	2510	none	none	Shortwave	Hukseflux	SR25-T1	14.804	14.87	none	n/a	n/a	via instrument	1.5	12
2	22	4	A1338	none	none	Total, Diffuse	Delta-T	SPN	factory set	factory set	none	n/a	n/a	via instrument	18	12
2	23	6	2060	none	none	Shortwave	Hukseflux	SR30-D1	original cal	10.29	none	n/a	0.6	via instrument	1.7	12
2	24, GMD BSRN	none	8041	none	n/a	Shortwave	Eppley	PSP	n/a	n/a	Eppley	DC / 80 [cfs]	10.3	no	n/a	12
2	25	6	130617	4	0932152	Shortwave	Kipp&Zonen, GMD	CM11	8.741	8.79	Eigenbrodt 480	DC / 3300 [rpm]	2.5	yes	25	24
2	26	5	970426	5 = fan 4 = heat	MeteoSwiss	Shortwave	MeteoSwiss	CM21	19.808	19.74	MeteoSwiss	DC / 3450 [rpm]	?	yes	10	12 VDC/ 48 VAC
n/a	none	5	Icing Probe	None	Icing Probe	Ice accretion	Anasphere	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
n/a	none	7	26226	n/a	SPARE	Shortwave	Eppley, NCAR	PSP	8.053	8.46	none	n/a	n/a	no	n/a	n/a



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Barrow
De-Icing Comparison Experiment**

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diagnostics

longwave

shortwave

QUICKLOOKS

Example Plots:

PROCESSING

Processing Conversions:

Shortwave Radiation (#1, #3, #4, #5, #6)

DESCRIPTION:

SW = 1000 * Recorded value / calibration coefficient

UNITS:

W/m² = 1000 * mV / μV/W/m²

Longwave Radiation (#2)

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_case³)+DCF((LW_case³)-(LW_dome³)))

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/m² = (mV/W/m²)*mV+Sigma(E(LW_case_mV³)+DCF((LW_case_mV³)-(LW_dome_mV³)))

Processing Quality Control Techniques:

Historical Quality Control Techniques:

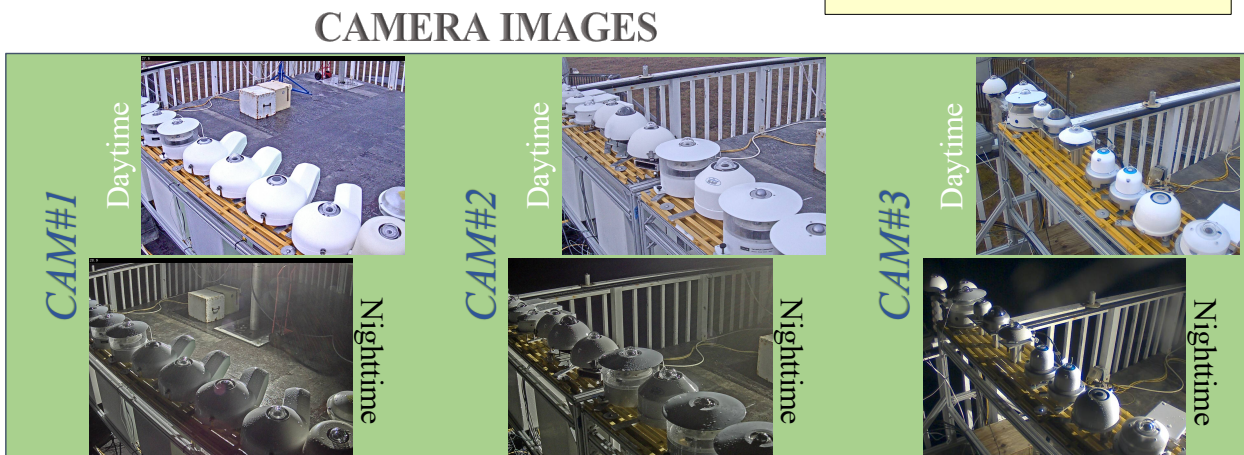
Long, C. N., & Shi, Y. (2008). *An Automated Quality Assessment and Control Algorithm for Surface Radiation Measurements*. OASJ, 2, 23-37. doi: 10.2174/1874282300802010023

Younkin, K., & Long, C. N. (2004). *Improved Correction of IR Loss in Diffuse Shortwave Measurements: An ARM Value Added Product*.

***Arctic Quality Control Techniques: contact information**

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D-ICE DATA

Data:

<ftp://ftp1.csr1.noaa.gov/psd3/arctic/DICE/>

Cox, C.: De-Icing Comparison Experiment (D-ICE) campaign data: Radiometric and icing condition observations from the NOAA Barrow Atmospheric Baseline Observatory, August 2017-July 2018 (NCEI Accession 0209059). NOAA National Centers for Environmental Information. Dataset. <https://accession.nodc.noaa.gov/0209059/>, 2020a.

Cox, C.: De-Icing Comparison Experiment (D-ICE) campaign data: Best-estimate downwelling longwave and shortwave radiometric fluxes from the NOAA Barrow Atmospheric Baseline Observatory, August 2017-July 2018 (NCEI Accession 0209058). NOAA National Centers for Environmental Information. Dataset. <https://accession.nodc.noaa.gov/0209058/>, 2020b.

DICEXACO images: <https://doi.org/10.5439/1507148>

FILE INGEST LOCATIONS

Folder Name	FTP Location
Raw	ftp://ftp1.csr1.noaa.gov/psd3/arctic/DICE/raw/
Ingest	ftp://ftp1.csr1.noaa.gov/psd3/arctic/DICE/ingest/
Products	ftp://ftp1.csr1.noaa.gov/psd3/arctic/DICE/products/
Quicklooks	ftp://ftp1.csr1.noaa.gov/psd3/arctic/DICE/quicklooks/

PRODUCT FILES

Radiometric & icing data: dice_utqiagvik_YYYYMMDD.hhmmss.cdf

Best-estimate fluxes: dice_utqiagvik_best_estimate_YYYYMMDD.hhmmss.cdf

WEBPAGE

<https://www.csr1.noaa.gov/psd/arctic/d-ice/>