

Contacts

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Research Contact: Von P. Walden
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Research Scientist: Penny M. Rowe
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Datagrams:

Summit

P-AERI

Polar Atmospheric Emitted Radiance Interferometer

Contacts

Research Contact: Christopher Cox
christopher.j.cox@noaa.gov
Data Support: Sara Crepinsek
sara.crepinsek@noaa.gov

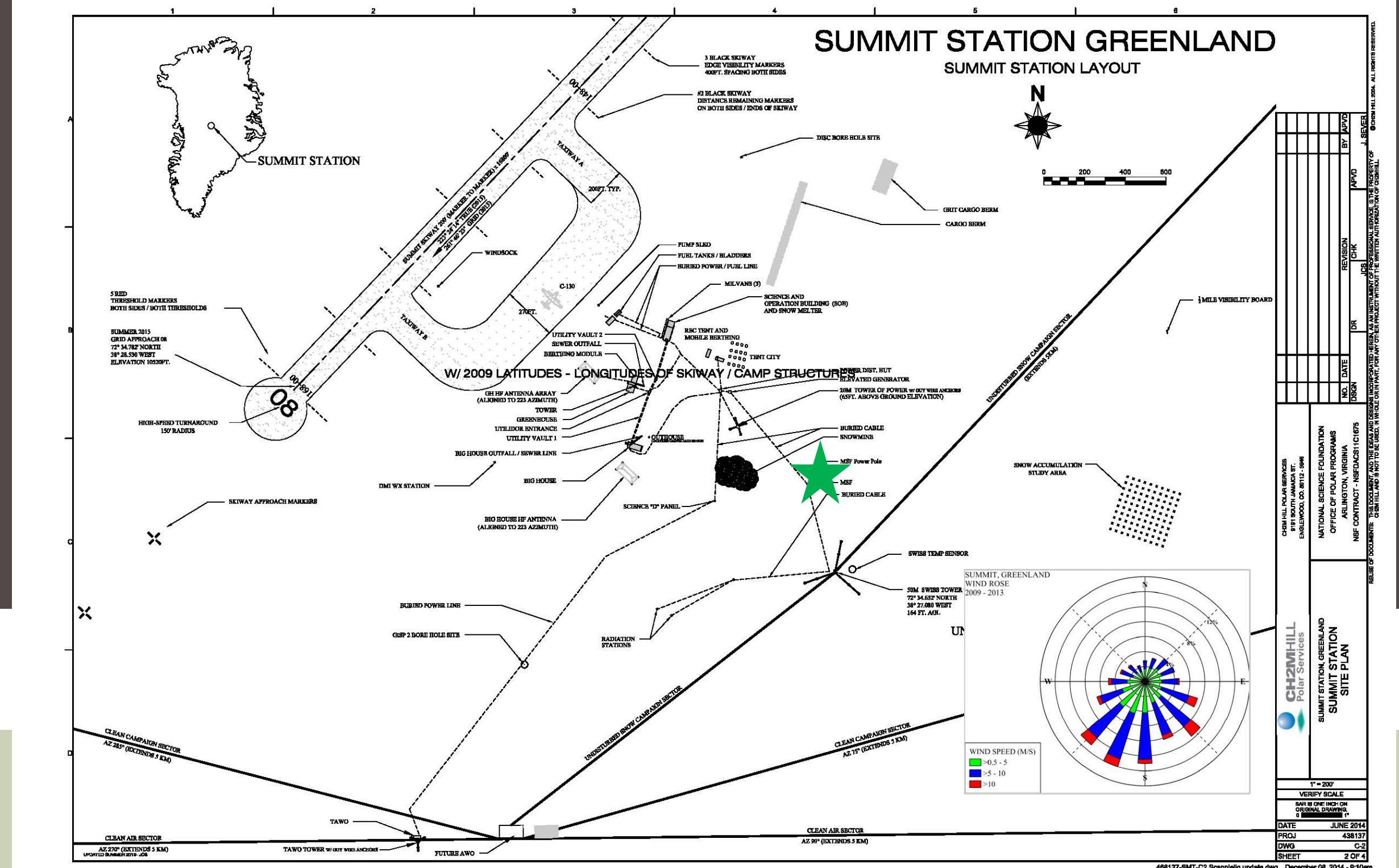
File name:

Calibrated and quality controlled radiances for channel 1 and channel 2 (Revercomb et al. 1988; Knuteson et al. 2004a,b) with additional routines (Rowe et al. 2011a,b).
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smtaerich2X1.b1.YYYYMMDD.HHMMSS.cdf

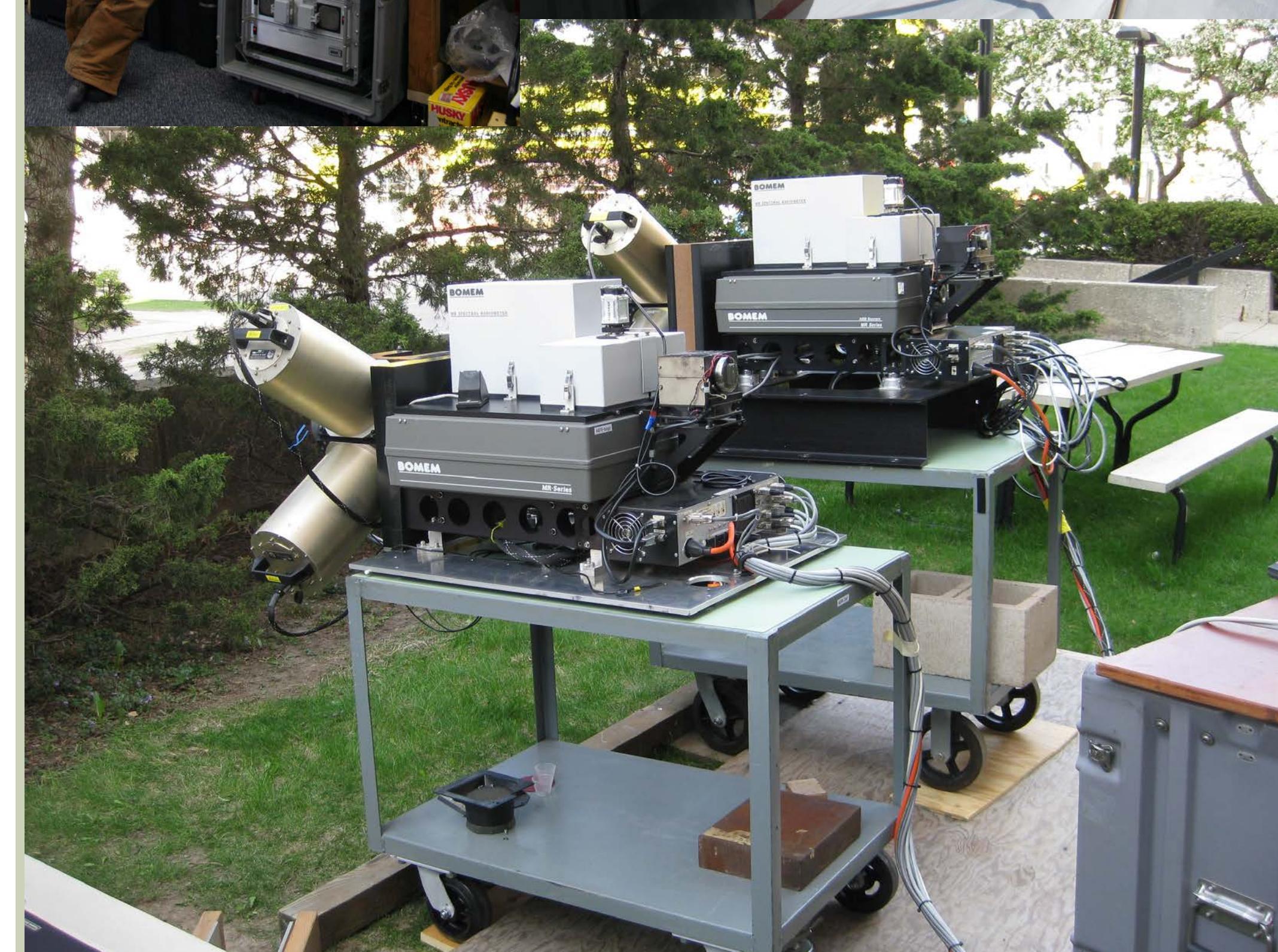
Noise-filtered radiances (Antonelli et al., 2004; Turner et al. 2006)
smtaerich1nf1turnX1.c1.YYYYMMDD.HHMMSS.cdf
smtaerich2nf1turnX1.c1.YYYYMMDD.HHMMSS.cdf

Housekeeping, etc.

smtaerisummaryX1.b1.YYYYMMDD.HHMMSS.cdf



★ Indicates current location of instrument



Summit Data Center

NOAA

Quicklooks

Processing

FTP File locations at NOAA:
From Summit Data Center to: then transferred to:
<ftp://ftp.etl.noaa.gov/psd3/arctic/summit/aeri/processed/>

Antonelli, P. and Coauthors (2004), A principal component noise filter for high spectral resolution infrared measurements, *J. Geophys. Res.*, **109**, D23102, doi:10.1029/2004JD004862.

Knuteson, R.O. and Coauthors (2004), Atmospheric Emitted Radiance Interferometer. Part I: Instrument Design, *J. Atmos. Oceanic Technol.*, **21**, 1763–1776. doi: 10.1175/JTECH-1662.1.

Knuteson, R.O. and Coauthors (2004), Atmospheric Emitted Radiance Interferometer. Part II: Instrument Performance, *J. Atmos. Oceanic Technol.*, **21**, 1777–1789. doi: 10.1175/JTECH-1663.1.

Rowe, P. M., S.P. Neshyba, and V.P. Walden (2011a), Responsivity-based criterion for accurate calibration of FTIR emission spectra: Theoretical development and bandwidth estimation, *Opt. Express*, **19**, 5451–5463. doi: 10.1364/OE.19.005451.

Rowe, P. M., S. P. Neshyba, C. J. Cox, and V. P. Walden (2011b), Responsivity-based criterion for accurate calibration of FTIR emission spectra: Identification of in-band low-responsivity wavenumbers, *Opt. Express*, **19**, 5930–5941. doi: 10.1364/OE.19.005930.

Turner, D.D., R.O. Knuteson, H.E. Revercomb, C. Lo, and R.G. Dedecker (2006), Noise Reduction of Atmospheric Emitted Radiance Interferometer (AERI) Observations Using Principal Component Analysis, *J. Atmos. Oceanic Technol.*, **23**, 1223–1238. doi: 10.1175/JTECH1906.1

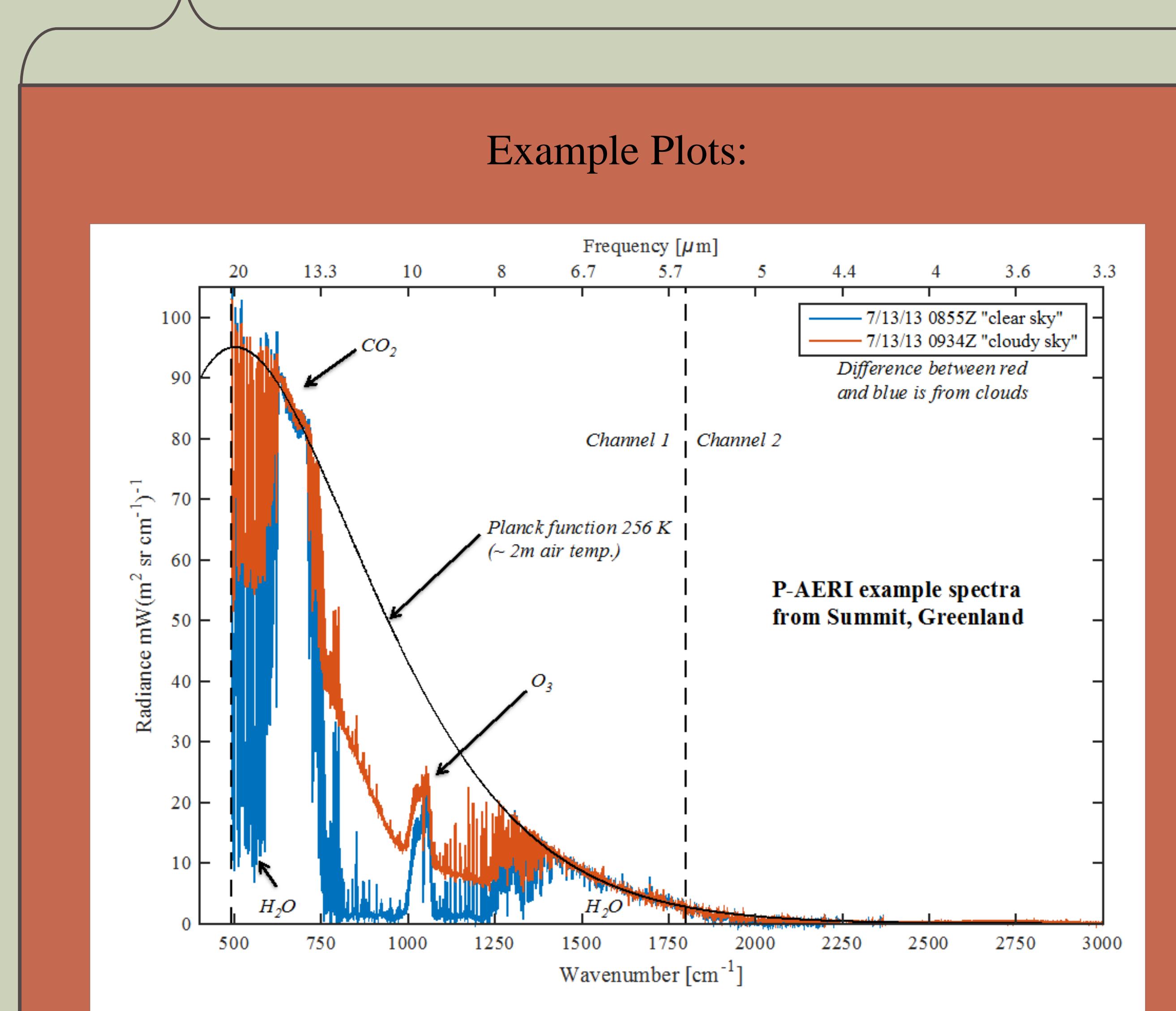
Revercomb, H.E., H. Buijs, H.B. Howell, D.D. LaPorte, W.L. Smith, and L.A. Sromovsky (1988), Radiometric calibration of IR Fourier transform spectrometers: Solution to a problem with the High-Resolution Interferometer Sounder, *Appl. Opt.*, **27**, 3210–3218.

Instrument Details

Specifications	Atmospheric Emitted Radiance Interferometer
Measurement	SZM433TL
Serial #	ABB/Bomem
Instrument Manufacturer	MR100
Type	Installed through wall of MSF and observes vertically through port

The instrument is self-calibrated by two on-board reference sources, one heated to a constant temperature and one ambient. Infrared spectral radiances ($\text{mW}[\text{m}^2 \text{ sr cm}^{-1}]^{-1}$) are acquired with a spectral resolution of about 0.5 cm^{-1} from 490 cm^{-1} to 3000 cm^{-1} ($20.4 \mu\text{m}$ to $3.3 \mu\text{m}$). This spectral range is achieved using two sandwiched detectors, one mercury-cadmium-telluride (HgCdTe) (490 - 1800 cm^{-1}) and one indiumantimonide (InSb) (1800 - 3000 cm^{-1}), each maintained at 78 K using a Stirling cooler. The absolute accuracy is $< 1\%$ of ambient radiance with $< 0.2 \text{ mW}(\text{m}^2 \text{ sr cm}^{-1})^{-1}$ noise (670 - 1400 cm^{-1}). The interferometer is manufactured by ABB/Bomem (MR100, serial #SZM433TL).

The P-AERI is operated in rapid-sample mode, alternating between views of the sky and each reference blackbody and acquiring a calibrated spectrum approximately every 30 s. Sky observations are at zenith (FOV $\sim 2.6^\circ$). The interferometer is housed inside the Mobile Science Facility with the foreoptics protruding through a hole in the wall into a hatch through which the instrument views the sky between about 1 and 3 m above the surface, depending on the level of drifting snow. The hatch can be closed during precipitation events to protect the optics, but at Summit this practice was discontinued in January 2011 because it was determined that the instrumental setup at Summit does not expose the optics to snow. Standard quality control procedures are applied during processing. These procedures screen for low responsivity (an indicator of frost on the optics), temperature stability of the reference blackbodies, and spectra exhibiting noise outside the acceptable range.



Home:

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

Data:

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

IASOA Portal

Home:

www.archive.arm.gov

ARM Archive

Product File:

File Names	File Location NOAA ftp
smtaerich1nf1turnX1.c1.YYYYMMDD.hhmmss.cdf	ftp://ftp.etl.noaa.gov/psd3/arctic/summit/aeri/processed/
smtaerich1X1.b1.YYYYMMDD.hhmmss.cdf	ftp://ftp.etl.noaa.gov/psd3/arctic/summit/aeri/processed/
smtaerich2nf1turnX1.c1.YYYYMMDD.hhmmss.cdf	ftp://ftp.etl.noaa.gov/psd3/arctic/summit/aeri/processed/
smtaerich2X1.b1.YYYYMMDD.hhmmss.cdf	ftp://ftp.etl.noaa.gov/psd3/arctic/summit/aeri/processed/
smtaerisummaryX1.b1.YYYYMMDD.hhmmss.cdf	ftp://ftp.etl.noaa.gov/psd3/arctic/summit/aeri/processed/
Archived files located at ARM.gov	http://www.archive.arm.gov/armlogin/login.jsp

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sara.crepinsek@noaa.gov

Datagrams: Summit P-AERI

Polar Atmospheric Emitted Radiance Interferometer

Product netCDF Metadata

File name: smtaerich1X1.b1.20140311.000331.cdf	Path: summit\aeiri\processed	
Attributes		
Name	Value	
Comments'	'tmp.dat'	
'experiment'	'Integrated Characterization of Energy, Clouds, Atmospheric State, and Precipitation at Summit (ICECAPS), PIs are Ralf Bennartz, Matthew Shupe, David Turner and Von P. Walden'	
'contact'	'Von P. Walden (v.walden@wsu.edu)'	
'reference_project'	'Shupe et al. (2013), Bull. Amer. Meteor. Soc., doi: 10.1175/BAMS-D-11-00249.1.'	
'date_created'	'19-Dec-2014'	
'missing_data_flag'	'-9999'	
'site_id'	'smt'	
'facility_id'	'X1: Summit, Greenland'	
'FFOVhalfAngle'	'0.0230 radians'	
'FFOVhalfAngle_description'	'Field of view half angle used in finite FOV correction'	
'description'	'This dataset contains calibrated and quality-controlled Atmospheric Emitted Radiance Interferometer (AERI) infrared spectral radiances [mW/(m^2 sr cm^-1)^-1]. Environment and instrument related metadata are also included.'	
'originalLaserWavenumber'	'15799.05'	
'originalLaserWavenumber_description'	'Original laser wavenumber assumed for this instrument'	
'outputLaserWavenumber'	'15799.00'	
'outputLaserWavenumber_description'	'Laser wavenumber used in definition of output wavenumber scale'	
'originalInterferogramSize'	'8192.0'	
'originalInterferogramSize_description'	'Size of buffer holding initial spectrum'	
'expandedInterferogramSize'	'131072.0'	
'expandedInterferogramSize_description'	'Size of buffer holding expanded spectrum before interpolation'	
Dimensions		
Name	Length	
'time'	3352	
'wnum'	2714	
'hatch_dim'	3352	
'scalar'	1	
'time1'	3352	
'wavenumber1'	2714	
Variables		
Name	Long name	Units
'date'	None	None
'base_time'	Base time in Epoch	seconds
'wnum'	Wave number in reciprocal centimeters	cm^-1
'time_offset'	Time offset from base_time	seconds since 2014-03-11 00:03:30 GMT
'missingDataFlag'	Logical flag indicating that a data record is missing (true/false)	count
'sceneMirPosEncoderMaxDrift'	Maximum departure from ideal of the mirror position over the course of all contributing views. Typically two hot Blackbody cavity geometry factor	count
'BBCavityFactor'	Corrective offset for final hot blackbody average temperature	count
'HBBtempOffset'	Corrective offset for final ambient blackbody average temperature	degrees_Kelvin
'ABBtempOffset'	Weight factor for bottom used in calculating hot blackbody temperature average	degrees_Kelvin
'HBBbottomTempWeight'	Weight factor for apex used in calculating hot blackbody temperature average	%/100
'HBBapexTempWeight'	Weight factor for top used in calculating hot blackbody temperature average	%/100
'HBBtopTempWeight'	Weight factor for bottom used in calculating ambient blackbody temperature average	%/100
'ABBbottomTempWeight'	Weight factor for apex used in calculating ambient blackbody temperature average	%/100
'ABBapexTempWeight'	Weight factor for top used in calculating ambient blackbody temperature average	%/100
'ABBtopTempWeight'	Type of scene that has been calibrated (ASCII character as float)	count
'calibratedSceneID'	Hot blackbody temperature used in calibration	degrees_Kelvin
'calibrationHBTemp'	Cold blackbody temperature used in calibration	degrees_Kelvin
'calibrationCBBtemp'	Ambient temperature used in calibration	degrees_Kelvin
'calibrationAmbientTemp'	Instrument data channel number	count
'channelNumber'	Difference between actual and ideal motor encoder values for current view; indicative of quality of the mirror positioning.	count
'sceneMirPosEncoderDrift'	Maximum Temperature Difference Between HBB Thermistors	degrees_Kelvin
'HBBmaxTempDiff'	Maximum Temperature Difference Between ABB Thermistors	degrees_Kelvin
'ABBmaxTempDiff'	Maximum roll of the interferometer during scan. Roll axis is coincident with the axis of mirror rotation. Zero value indicates level.	degrees
'maxRoll'	Maximum pitch of the interferometer during scan. Pitch axis is perpendicular to the axis of mirror rotation. Zero value indicates level.	degrees
'maxPitch'	Relative humidity measured in the optics compartment atop the interferometer.	%
'opticsCompartmentRelativeHumidity'	Motor step value given to motor controller to achieve proper mirror positioning	count
'sceneMirrorMotorStep'	Scene mirror view angle in non-negative degrees	degrees
'sceneMirrorAngle'	Maximum Standard Deviation in Thermistor Channels 0..7	degrees_Kelvin
'maxSampleStdDev'	Observation atmospheric pressure in AERI electronics	millibars
'atmosphericPressure'	Relative Humidity measured in the Interferometer Enclosure	%
'interferometerEnclosureRelativeHumidity'	Relative humidity measured near Blackbodies. Use with Air Temperature Near BBs only.	%
'atmosphericRelativeHumidity'	Interferometer window temperature measured on the outside of the aluminum window flange	degrees_Kelvin
'interferometerWindowTemp'	Rain sensor analog output: the rain sensor is located inside the hatch near the sky aperture and is used to flag the critical condition of rain falling on the AERI sky aperture. If rain is detected	millimeters/hour
'rainSensorIntensity'	Detector temperature sensed via diode near detector	degrees_Kelvin
'detectorTemp'	Stirling cycle cooler current	amperes
'coolerCurrent'	Signal conditioning electronics inside air temperature	degrees_Kelvin
'SCEtemp'	Scene mirror motor driver heat sink temperature	degrees_Kelvin
'motorDriverTemp'	AERI ingest computer temperature measured at back panel of computer	degrees_Kelvin
'computerTemp'	Electronics rack ambient temperature measured at inside top of rack	degrees_Kelvin
'rackAmbientTemp'	Stirling cooler power supply temperature measured at power supply frame	degrees_Kelvin
'coolerPowerSupplyTemp'	Stirling cycle cooler expander temperature	degrees_Kelvin
'coolerExpanderTemp'	Stirling cooler compressor temperature measured at compressor heatsink	degrees_Kelvin
'coolerCompressorTemp'	Blackbody controller Unit 2 power supply temperature	degrees_Kelvin
'BBcontroller2temp'	Blackbody controller Unit 1 power supply temperature	degrees_Kelvin
'BBcontroller1temp'	Resistive temperature of 12 Kohm fixed resistor located in SCE-P3 shell	degrees_Kelvin
'fixed12KohmResistor'	Scene mirror motor case temperature	degrees_Kelvin
'mirrorMotorTemp'	Ambient air temperature near blackbodies	degrees_Kelvin
'airNearBbTemp'	Temperature of the AERI blackbody support structure	degrees_Kelvin
'BBsupportStructureTemp'	AERI interferometer temperature at second port	degrees_Kelvin
'interferometerSecondPortTemp'	Ambient air temperature near the interferometer	degrees_Kelvin
'airNearInterferometerTemp'	Ambient air temperature at hatch opening	degrees_Kelvin
'outsideAirTemp'	Resistive temperature of 97 Kohm fixed resistor located in SCE-P4 shell	degrees_Kelvin
'fixed97KohmResistor'	Resistive temperature of 2500 Ohm fixed resistor - banana plug mounted	degrees_Kelvin
'fixed2500ohmResistor'	Hot blackbody temperature - rim bottom	degrees_Kelvin
'HBBbottomTemp'	Hot blackbody temperature - apex	degrees_Kelvin
'HBBapexTemp'	Hot blackbody temperature - rim top	degrees_Kelvin
'HBBtopTemp'	Ambient blackbody temperature	degrees_Kelvin
'ABBbottomTemp'	Ambient blackbody temperature - apex	degrees_Kelvin
'ABBapexTemp'	Ambient blackbody temperature - rim top	degrees_Kelvin
'ABBtopTemp'	Ambient blackbody temperature - rim top	degrees_Kelvin
'JulianDay'	Julian Day including day and fraction of day	days
'sceneMirPosEncoder'	Scene mirror position encoder value	count
'sceneMirPosCount'	Number of views in a sequence	count
'sceneMirrorPosition'	Instrument scene mirror position identifier	count
'coadditionsCount'	Number of complete (forward+backward) interferogram scans in sample average	count
'sceneViewDuration'	Duration of scene view	seconds
'systemReleaseNumber'	Version number of Operational Software	count
'Altitude'	Observation Altitude	feet
'Longitude'	Observation longitude	degrees_east
'Latitude'	Observation latitude	degrees_north
'timeHHMMSS'	Time at center of AERI sky observation period	hour.minute.second
'dateYYMMDD'	Observation date	year.month.day
'instrumentUnitNumber'	Character string containing instrument name	count
'AERIunitNumber'	AERI instrument unit serial number	count
'Time'	Time at center of AERI sky observation period	hours
'mean_rad'	Interferometer scan directional average of radiance	mw/(m^2 sr cm^-1)
'hatchOpen'	hatch open flag. 1 = open	unitless
'time'	Time offset from midnight	seconds since 2014-03-11 00:00:00 0:00 GMT
'qc_time'	Dummy variable for compatibility with ARM AERI files	unitless
'Time_UTC_hours'	Time at center of AERI sky observation period	hours since 2014-03-11 00:00:00 0:00 GMT
'lat'	north latitude	degrees
'lon'	east longitude	degrees
'alt'	altitude	meters above Mean Sea Level

Contacts

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Datagrams: Summit P-AERI

Polar Atmospheric Emitted Radiance Interferometer

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Product netCDF Metadata

File name: smtaerich2X1.b1.20140909.000322.cdf	Path: summit\aeiri\processed	
Attributes		
Name	Value	
'Comments'	'tmp.dat'	
'experiment'	Integrated Characterization of Energy, Clouds, Atmospheric State, and Precipitation at Summit (ICECAPS), PIs are Ralf Bennartz, Matthew Shupe, David Turner and Von P. Walden'	
'contact'	'Von P. Walden (v.walden@wsu.edu)'	
'reference_project'	Shupe et al. (2013), Bull. Amer. Meteor. Soc., doi: 10.1175/BAMS-D-11-00249.1.'	
'date_created'	'21-Dec-2014'	
'missing_data_flag'	'1.9999'	
'site_id'	'smt'	
'facility_id'	X1: Summit Greenland'	
'FFOVhalfAngle'	'0.0230 radians'	
'FFOVhalfAngle_description'	'Field of view half angle used in finite FOV correction'	
'description'	'This dataset contains calibrated and quality-controlled Atmospheric Emitted Radiance Interferometer (AERI) infrared spectral radiances [mW/(m ² sr cm ⁻¹)]. Environment and instrument related metadata are also included.'	
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'originalInterferogramSize'	'8192.0'	
'originalInterferogramSize_description'	'Size of buffer holding initial spectrum'	
'expandedInterferogramSize'	'131072.0'	
'expandedInterferogramSize_description'	'Size of buffer holding expanded spectrum before interpolation'	
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'wnum'	2531	
'hatch_dim'	3352	
'scalar'	1	
'time2'	3352	
'wavenumber2'	2531	
Variables		
Name	Long name	Units
'date'	None	None
'base_time'	Base time in Epoch	seconds
'wnum'	Wave number in reciprocal centimeters	cm ⁻¹
'time_offset'	Time offset from base_time	seconds since 2014-09-09 00:00:00 GMT
'missingDataFlag'	Logical flag indicating that a data record is missing (true/false)	count
'sceneMirPosEncoderMaxDrift'	Maximum departure from ideal of the mirror position over the course of all contributing views. Typically two hot	count
'BBCavityFactor'	Blackbody cavity geometry factor	count
'HBBtempOffset'	Corrective offset for final hot blackbody average temperature	degrees_Kelvin
'ABBtempOffset'	Corrective offset for final ambient blackbody average temperature	degrees_Kelvin
'HBBbottomTempWeight'	Weight factor for bottom used in calculating hot blackbody temperature average	%/100
'HBBapexTempWeight'	Weight factor for apex used in calculating hot blackbody temperature average	%/100
'HBBtopTempWeight'	Weight factor for top used in calculating hot blackbody temperature average	%/100
'ABBbottomTempWeight'	Weight factor for bottom used in calculating ambient blackbody temperature average	%/100
'ABBapexTempWeight'	Weight factor for apex used in calculating ambient blackbody temperature average	%/100
'ABBtopTempWeight'	Weight factor for top used in calculating ambient blackbody temperature average	%/100
'calibratedSceneID'	Type of scene that has been calibrated (ASCII character as float)	count
'calibrationHBTemp'	Hot blackbody temperature used in calibration	degrees_Kelvin
'calibrationCBTemp'	Cold blackbody temperature used in calibration	degrees_Kelvin
'calibrationAmbientTemp'	Ambient temperature used in calibration	degrees_Kelvin
'channelNumber'	Instrument data channel number	count
'sceneMirPosEncoderDrift'	Difference between actual and ideal motor encoder values for current view; indicative of quality of the mirror positioning.	count
'HBBmaxTempDiff'	Maximum Temperature Difference Between HBB Thermistors	degrees_Kelvin
'ABBmaxTempDiff'	Maximum Temperature Difference Between ABB Thermistors	degrees_Kelvin
'maxRoll'	Maximum roll of the interferometer during scan. Roll axis is coincident with the axis of mirror rotation. Zero value indicates level.	degrees
'maxPitch'	Maximum pitch of the interferometer during scan. Pitch axis is perpendicular to the axis of mirror rotation. Zero value indicates level.	degrees
'opticsCompartmentRelativeHumidity'	Relative humidity measured in the optics compartment atop the interferometer.	%
'sceneMirrorMotorStep'	Motor step value given to motor controller to achieve proper mirror positioning	count
'sceneMirrorAngle'	Scene mirror view angle in non-negative degrees	degrees
'maxSampleStdDev'	Maximum Standard Deviation in Thermistor Channels 0..7	degrees_Kelvin
'atmosphericPressure'	Observation atmospheric pressure in AERI electronics	millibars
'interferometerEnclosureRelativeHumidity'	Relative Humidity measured in the Interferometer Enclosure	%
'atmosphericRelativeHumidity'	Relative humidity measured near Blackbodies. Use with Air Temperature Near BBs only.	%
'interferometerWindowTemp'	Interferometer window temperature measured on the outside of the aluminum window flange	degrees_Kelvin
'rainSensorIntensity'	Rain sensor analog output: the rain sensor is located inside the hatch near the sky aperture and is used to flag the critical condition of rain falling on the AERI sky aperture. If rain is detected	millimeters/hour
'detectorTemp'	Detector temperature sensed via diode near detector	degrees_Kelvin
'coolerCurrent'	Stirling cycle cooler current	amperes
'SCETemp'	Signal conditioning electronics inside air temperature	degrees_Kelvin
'motorDriverTemp'	Scene mirror motor driver heat sink temperature	degrees_Kelvin
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'coolerExpanderTemp'	Stirling cycle cooler expander temperature	degrees_Kelvin
'coolerCompressorTemp'	Stirling cooler compressor temperature measured at compressor heatsink	degrees_Kelvin
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'BBcontroller1temp'	Blackbody controller Unit 1 power supply temperature	degrees_Kelvin
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'mirrorMotorTemp'	Scene mirror motor case temperature	degrees_Kelvin
'airNearBbTemp'	Ambient air temperature near blackbodies	degrees_Kelvin
'BBSupportStructureTemp'	Temperature of the AERI blackbody support structure	degrees_Kelvin
'interferometerSecondPortTemp'	AERI interferometer temperature at second port	degrees_Kelvin
'airNearInterferometerTemp'	Ambient air temperature near the interferometer	degrees_Kelvin
'outsideAirTemp'	Ambient air temperature at hatch opening	degrees_Kelvin
'fixed97KohmResistor'	Resistive temperature of 97 Kohm fixed resistor located in SCE-P4 shell	degrees_Kelvin
'fixed2500ohmResistor'	Resistive temperature of 2500 Ohm fixed resistor - banana plug mounted	degrees_Kelvin
'HBBbottomTemp'	Hot blackbody temperature - rim bottom	degrees_Kelvin
'HBBapexTemp'	Hot blackbody temperature - apex	degrees_Kelvin
'HBBtopTemp'	Hot blackbody temperature - rim top	degrees_Kelvin
'ABBbottomTemp'	Ambient blackbody temperature	degrees_Kelvin
'ABBapexTemp'	Ambient blackbody temperature - apex	degrees_Kelvin
'ABBtopTemp'	Ambient blackbody temperature - rim top	degrees_Kelvin
'JulianDay'	Julian Day including day and fraction of day	days
'sceneMirPosEncoder'	Scene mirror position encoder value	count
'sceneMirPosCount'	Number of views in a sequence	count
'sceneMirrorPosition'	Instrument scene mirror position identifier	count
'coadditionsCount'	Number of complete (forward+backward) interferogram scans in sample average	count
'sceneViewDuration'	Duration of scene view	seconds
'systemReleaseNumber'	Version number of Operational Software	count
'Altitude'	Observation Altitude	feet
'Longitude'	Observation longitude	degrees_east
'Latitude'	Observation latitude	degrees_north
'timeHHMMSS'	Time at center of AERI sky observation period	hour.minute.second
'dateYYMMDD'	Observation date	year.month.day
'instrumentUnitNumber'	Character string containing instrument name	count
'AERIunitNumber'	AERI instrument unit serial number	count
'Time'	Time at center of AERI sky observation period	hours
'mean_rad'	Interferometer scan directional average of radiance	rmw/(m ² sr cm ⁻¹)
'hatchOpen'	hatch open flag, 1 = open	unitless
'time'	Time offset from midnight	seconds since 2014-09-09 00:00:00 GMT
'qc_time'	Dummy variable for compatibility with ARM AERI files	unitless
'Time_UTC_hours'	Time at center of AERI sky observation period	hours since 2014-09-09 00:00:00 0:00 GMT
'lat'	north latitude	degrees
'lon'	east longitude	degrees
'alt'	altitude	meters above Mean Sea Level

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File name: smtaerich1nf1turnX1.c1.20140623.000315.cdf	Path: summit\aei\processed	
Attributes		
Name	Value	
'Comments'	'tmp.dat'	
'experiment'	Integrated Characterization of Energy, Clouds, Atmospheric State, and Precipitation at Summit (ICECAPS), PIs are Ralf Bennartz, Matthew Shupe, David Turner and Von P. Walden'	
'contact'	Von P. Walden (v.walden@wsu.edu)'	
'reference_project'	Shupe et al. (2013), Bull. Amer. Meteor. Soc., doi: 10.1175/BAMS-D-11-00249.1.'	
'date_created'	'21-Dec-2014'	
'missing_data_flag'	'9999'	
'site_id'	'smt'	
'facility_id'	X1: Summit, Greenland'	
'FOVhalfAngle'	'0.0230 radians'	
'FOVhalfAngle_description'	'Field of view half angle used in finite FOV correction'	
'description'	This dataset contains calibrated and quality-controlled Atmospheric Emitted Radiance Interferometer (AERI) infrared spectral radiances [mW/(m ² sr cm ⁻¹)]. These spectra have also been noise-filtered using a Principal Components (PC) technique. See the reference_datastream global attribute for references. Environment and instrument related metadata are also included.'	
'originalLaserWavenumber'	'15799.05'	
'originalLaserWavenumber_description'	'Original laser wavenumber assumed for this instrument'	
'outputLaserWavenumber'	'15799.00'	
'outputLaserWavenumber_description'	'Laser wavenumber used in definition of output wavenumber scale'	
'originalInterferogramSize'	'8192.0'	
'originalInterferogramSize_description'	'Size of buffer holding initial spectrum'	
'expandedInterferogramSize'	'131072.0'	
'expandedInterferogramSize_description'	'Size of buffer holding expanded spectrum before interpolation'	
'reference_datastream'	Antonelli et al. (2004) J. Geophys. Res.109, D23102,doi:10.1029/2004JD00482 -and- Turner et al. (2006) J. Atmos. Ocean. Tech.23: 1223-1238 doi:10.1175/JTECH1906.1.'	
Dimensions		
Name	Length	
'time'	3344	
'wnum'	2714	
'hatch_dim'	3344	
'scalar'	1	
'time1'	3344	
'wavenumber1'	2714	
Variables		
Name	Long name	Units
'date'	None	None
'base_time'	Base time in Epoch	seconds
'wnum'	Wave number in reciprocal centimeters	cm ⁻¹
'time_offset'	Time offset from base_time	seconds since 2014-06-23 00:03:15 GMT
'missingDataFlag'	Logical flag indicating that a data record is missing (true/false)	count
'sceneMirPosEncoderMaxDrift'	Maximum departure from ideal of the mirror position over the course of all contributing views. Typically two hot Blackbody cavity geometry factor	count
'BBCavityFactor'	Corrective offset for final hot blackbody average temperature	degrees_Kelvin
'HBBtempOffset'	Corrective offset for final ambient blackbody average temperature	degrees_Kelvin
'ABBtempOffset'	Weight factor for bottom used in calculating hot blackbody temperature average	%/100
'HBBbottomTempWeight'	Weight factor for apex used in calculating hot blackbody temperature average	%/100
'HBBApexTempWeight'	Weight factor for top used in calculating hot blackbody temperature average	%/100
'HBBtopTempWeight'	Weight factor for bottom used in calculating ambient blackbody temperature average	%/100
'ABBbottomTempWeight'	Weight factor for apex used in calculating ambient blackbody temperature average	%/100
'ABBapexTempWeight'	Weight factor for top used in calculating ambient blackbody temperature average	%/100
'ABBtopTempWeight'	Type of scene that has been calibrated (ASCII character as float)	count
'calibratedSceneD'	Hot blackbody temperature used in calibration	degrees_Kelvin
'calibrationHBTemp'	Cold blackbody temperature used in calibration	degrees_Kelvin
'calibrationCBTemp'	Ambient temperature used in calibration	degrees_Kelvin
'calibrationAmbientTemp'	Instrument data channel number	count
'channelNumber'	Difference between actual and ideal motor encoder values for current view; indicative of quality of the mirror positioning.	count
'sceneMirPosEncoderDrift'	Maximum Temperature Difference Between HBB Thermistors	degrees_Kelvin
'HBBmaxTempDiff'	Maximum Temperature Difference Between ABB Thermistors	degrees_Kelvin
'ABBmaxTempDiff'	Maximum roll of the interferometer during scan. Roll axis is coincident with the axis of mirror rotation. Zero value indicates level.	degrees
'maxRoll'	Maximum pitch of the interferometer during scan. Pitch axis is perpendicular to the axis of mirror rotation. Zero value indicates level.	degrees
'maxPitch'	Relative humidity measured in the optics compartment atop the interferometer.	degrees
'opticsCompartmentRelativeHumidity'	Motor step value given to motor controller to achieve proper mirror positioning	%
'sceneMirrorMotorStep'	Scene mirror view angle in non-negative degrees	count
'sceneMirrorAngle'	Maximum Standard Deviation in Thermistor Channels 0..7	degrees
'maxSampleStdDev'	Observation atmospheric pressure in AERI electronics	degrees_Kelvin
'atmosphericPressure'	Relative Humidity measured in the Interferometer Enclosure	millibars
'interferometerEnclosureRelativeHumidity'	Relative humidity measured near Blackbodies. Use with Air Temperature Near BBs only.	%
'atmosphericRelativeHumidity'	Interferometer window temperature measured on the outside of the aluminum window flange	degrees_Kelvin
'interferometerWindowTemp'	Rain sensor analog output: the rain sensor is located inside the hatch near the sky aperture and is used to flag the critical condition of rain falling on the AERI sky aperture. If rain is detected	millimeters/hour
'rainSensorIntensity'	Detector temperature sensed via diode near detector	degrees_Kelvin
'detectorTemp'	Stirling cycle cooler current	amperes
'coolerCurrent'	Signal conditioning electronics inside air temperature	degrees_Kelvin
'SCETemp'	Scene mirror motor driver heat sink temperature	degrees_Kelvin
'motorDriverTemp'	AERI ingest computer temperature measured at back panel of computer	degrees_Kelvin
'computerTemp'	Electronics rack ambient temperature measured at inside top of rack	degrees_Kelvin
'rackAmbientTemp'	Stirling cooler power supply temperature measured at power supply frame	degrees_Kelvin
'coolerPowerSupplyTemp'	Stirling cycle cooler expander temperature	degrees_Kelvin
'coolerExpanderTemp'	Stirling cooler compressor temperature measured at compressor heatsink	degrees_Kelvin
'coolerCompressorTemp'	Blackbody controller Unit 2 power supply temperature	degrees_Kelvin
'BBcontroller2temp'	Blackbody controller Unit 1 power supply temperature	degrees_Kelvin
'BBcontroller1temp'	Resistive temperature of 12 Kohm fixed resistor located in SCE-P3 shell	degrees_Kelvin
'fixed12KohmResistor'	Scene mirror motor case temperature	degrees_Kelvin
'mirrorMotorTemp'	Ambient air temperature near blackbodies	degrees_Kelvin
'airNearBBstTemp'	Temperature of the AERI blackbody support structure	degrees_Kelvin
'BBsupportStructureTemp'	AERI interferometer temperature at second port	degrees_Kelvin
'interferometerSecondPortTemp'	Ambient air temperature near the interferometer	degrees_Kelvin
'airNearInterferometerTemp'	Ambient air temperature at hatch opening	degrees_Kelvin
'outsideAirTemp'	Resistive temperature of 97 Kohm fixed resistor located in SCE-P4 shell	degrees_Kelvin
'fixed97KohmResistor'	Resistive temperature of 2500 Ohm fixed resistor - banana plug mounted	degrees_Kelvin
'HBBbottomTemp'	Hot blackbody temperature - rim bottom	degrees_Kelvin
'HBBApexTemp'	Hot blackbody temperature - apex	degrees_Kelvin
'HBBtopTemp'	Hot blackbody temperature - rim top	degrees_Kelvin
'ABBbottomTemp'	Ambient blackbody temperature	degrees_Kelvin
'ABBapexTemp'	Ambient blackbody temperature - apex	degrees_Kelvin
'ABBtopTemp'	Ambient blackbody temperature - rim top	degrees_Kelvin
'JulianDay'	Julian Day including day and fraction of day	days
'sceneMirPosEncoder'	Scene mirror position encoder value	count
'sceneMirPosCount'	Number of views in a sequence	count
'sceneMirrorPosition'	Instrument scene mirror position identifier	count
'coadditionsCount'	Number of complete (forward+backward) interferogram scans in sample average	count
'sceneViewDuration'	Duration of scene view	seconds
'systemReleaseNumber'	Version number of Operational Software	count
'Altitude'	Observation Altitude	feet
'Longitude'	Observation longitude	degrees_east
'Latitude'	Observation latitude	degrees_north
'timeHHMMSS'	Time at center of AERI sky observation period	hour.minute.second
'dateYYMMDD'	Observation date	year.month.day
'instrumentUnitNumber'	Character string containing instrument name	count
'AERIunitNumber'	AERI instrument unit serial number	count
'Time'	Time at center of AERI sky observation period	hours
'mean_rad'	Interferometer scan directional average of radiance	mw/(m ² sr cm ⁻¹)
'hatchOpen'	hatch open flag. 1 = open	unitless
'time'	Time offset from midnight	seconds since 2014-06-23 00:00:00 0:00 GMT
'qc_time'	Dummy variable for compatibility with ARM AERI files	unitless
'Time_UTC_hours'	Time at center of AERI sky observation period	hours since 2014-06-23 00:00:00 0:00 GMT
'lat'	north latitude	degrees
'lon'	east longitude	degrees
'alt'	altitude	meters above Mean Sea Level
'numberOfPCs'	Number of principal components (PC) in PC noise filtering	None

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Datagrams: Summit P-AERI

Polar Atmospheric Emitted Radiance Interferometer

Contacts

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Product netCDF Metadata

File name: smtaerich2nf1turnX1.c1.20141013.000326.cdf	Path: summit\aeiri\processed	
Attributes		
Name	Value	
'Comments'	'tmp.dat'	
'experiment'	Integrated Characterization of Energy, Clouds, Atmospheric State, and Precipitation at Summit (ICECAPS), PIs are Ralf Bennartz, Matthew Shupe, David Turner and Von P. Walden'	
'contact'	'Von P. Walden (v.walden@wsu.edu)'	
'reference_project'	Shupe et al. (2013), Bull. Amer. Meteor. Soc., doi: 10.1175/BAMS-D-11-00249.1.'	
'date_created'	'21-Dec-2014'	
'missing_data_flag'	'9999'	
'site_id'	'smt'	
'facility_id'	'X1: Summit Greenland'	
'FOVhalfAngle'	'0.0230 radians'	
'FOVhalfAngle_description'	'Field of view half angle used in finite FOV correction'	
'description'	'This dataset contains calibrated and quality-controlled Atmospheric Emitted Radiance Interferometer (AERI) infrared spectral radiances [mW(m^2 sr cm^-1)^-1]. These spectra have also been noise-filtered using a Principal Components (PC) technique. See the reference_datastream global attribute for references. Environment and instrument related metadata are also included.'	
'originalLaserWavenumber'	'15798.73'	
'originalLaserWavenumber_description'	'Original laser wavenumber assumed for this instrument'	
'outputLaserWavenumber'	'15799.00'	
'outputLaserWavenumber_description'	'Laser wavenumber used in definition of output wavenumber scale'	
'originalInterferogramSize'	'8192.0'	
'originalInterferogramSize_description'	'Size of buffer holding initial spectrum'	
'expandedInterferogramSize'	'131072.0'	
'expandedInterferogramSize_description'	'Size of buffer holding expanded spectrum before interpolation'	
'reference_datastream'	Antonelli et al. (2004) J. Geophys. Res., 109, D23102, doi:10.1029/2004JD00482 -and- Turner et al. (2006) J. Atmos. Ocean. Tech., 23, 1223-1238, doi:10.1175/JTECH1906.1.'	
Dimensions		
Name	Length	
'time'	3352	
'wnum'	2531	
'hatch_dim'	3352	
'scalar'	1	
'time2'	3352	
'wavenumber2'	2531	
Variables		
Name	Long name	Units
'date'	None	None
'base_time'	Base time in Epoch	seconds
'wnum'	Wave number in reciprocal centimeters	cm^-1
'time_offset'	Time offset from base_time	seconds since 2014-10-13 00:03:25 GMT
'missingDataFlag'	Logical flag indicating that a data record is missing (true/false)	count
'sceneMirPosEncoderMaxDrift'	Maximum departure from ideal of the mirror position over the course of all contributing views. Typically two hot Blackbody cavity geometry factor	count
'BBCavityFactor'	Corrective offset for final hot blackbody average temperature	count
'HBBtempOffset'	Corrective offset for final ambient blackbody average temperature	degrees_Kelvin
'ABBtempOffset'	Weight factor for bottom used in calculating hot blackbody temperature average	degrees_Kelvin
'HBBbottomTempWeight'	Weight factor for apex used in calculating hot blackbody temperature average	%/100
'HBBapexTempWeight'	Weight factor for top used in calculating hot blackbody temperature average	%/100
'ABBbottomTempWeight'	Weight factor for bottom used in calculating ambient blackbody temperature average	%/100
'ABBapexTempWeight'	Weight factor for apex used in calculating ambient blackbody temperature average	%/100
'ABBtopTempWeight'	Weight factor for top used in calculating ambient blackbody temperature average	%/100
'calibratedSceneD'	Type of scene that has been calibrated (ASCII character as float)	count
'calibrationHBTemp'	Hot blackbody temperature used in calibration	degrees_Kelvin
'calibrationCBTemp'	Cold blackbody temperature used in calibration	degrees_Kelvin
'calibrationAmbientTemp'	Ambient temperature used in calibration	degrees_Kelvin
'channelNumber'	Instrument data channel number	count
'sceneMirPosEncoderDrift'	Difference between actual and ideal motor encoder values for current view; indicative of quality of the mirror positioning.	count
'HBBmaxTempDiff'	Maximum Temperature Difference Between HBB Thermistors	degrees_Kelvin
'ABBmaxTempDiff'	Maximum Temperature Difference Between ABB Thermistors	degrees_Kelvin
'maxRoll'	Maximum roll of the interferometer during scan. Roll axis is coincident with the axis of mirror rotation. Zero value indicates level.	degrees
'maxPitch'	Maximum pitch of the interferometer during scan. Pitch axis is perpendicular to the axis of mirror rotation. Zero value indicates level.	degrees
'opticsCompartmentRelativeHumidity'	Relative humidity measured in the optics compartment atop the interferometer.	%
'sceneMirrorMotorStep'	Motor step value given to motor controller to achieve proper mirror positioning	count
'sceneMirrorAngle'	Scene mirror view angle in non-negative degrees	degrees
'maxSampleStdDev'	Maximum Standard Deviation in Thermistor Channels 0..7	degrees_Kelvin
'atmosphericPressure'	Observation atmospheric pressure in AERI electronics	millibars
'interferometerEnclosureRelativeHumidity'	Relative Humidity measured in the Interferometer Enclosure	%
'atmosphericRelativeHumidity'	Relative humidity measured near Blackbodies. Use with Air Temperature Near BBs only.	%
'interferometerWindowTemp'	Interferometer window temperature measured on the outside of the aluminum window flange	degrees_Kelvin
'rainSensorIntensity'	Rain sensor analog output: the rain sensor is located inside the hatch near the sky aperture and is used to flag the critical condition of rain falling on the AERI sky aperture. If rain is detected	millimeters/hour
'detectorTemp'	Detector temperature sensed via diode near detector	degrees_Kelvin
'coolerCurrent'	Stirling cycle cooler current	amperes
'SCEtemp'	Signal conditioning electronics inside air temperature	degrees_Kelvin
'motorDriverTemp'	Scene mirror motor driver heat sink temperature	degrees_Kelvin
'computerTemp'	AERI ingest computer temperature measured at back panel of computer	degrees_Kelvin
'rackAmbientTemp'	Electronics rack ambient temperature measured at inside top of rack	degrees_Kelvin
'coolerPowerSupplyTemp'	Stirling cooler power supply temperature measured at power supply frame	degrees_Kelvin
'coolerExpanderTemp'	Stirling cycle cooler expander temperature	degrees_Kelvin
'coolerCompressorTemp'	Stirling cooler compressor temperature measured at compressor heatsink	degrees_Kelvin
'BBcontroller2temp'	Blackbody controller Unit 2 power supply temperature	degrees_Kelvin
'BBcontroller1temp'	Blackbody controller Unit 1 power supply temperature	degrees_Kelvin
'fixed12KohmResistor'	Resistive temperature of 12 Kohm fixed resistor located in SCE-P3 shell	degrees_Kelvin
'mirrorMotorTemp'	Scene mirror motor case temperature	degrees_Kelvin
'airNearBBstTemp'	Ambient air temperature near blackbodies	degrees_Kelvin
'BBSupportStructureTemp'	Temperature of the AERI blackbody support structure	degrees_Kelvin
'interferometerSecondPortTemp'	AERI interferometer temperature at second port	degrees_Kelvin
'airNearInterferometerTemp'	Ambient air temperature near the interferometer	degrees_Kelvin
'outsideAirTemp'	Ambient air temperature at hatch opening	degrees_Kelvin
'fixed97KohmResistor'	Resistive temperature of 97 Kohm fixed resistor located in SCE-P4 shell	degrees_Kelvin
'fixed2500ohmResistor'	Resistive temperature of 2500 Ohm fixed resistor - banana plug mounted	degrees_Kelvin
'HBBbottomTemp'	Hot blackbody temperature - rim bottom	degrees_Kelvin
'HBBapexTemp'	Hot blackbody temperature - apex	degrees_Kelvin
'HBBtopTemp'	Hot blackbody temperature - rim top	degrees_Kelvin
'ABBbottomTemp'	Ambient blackbody temperature	degrees_Kelvin
'ABBapexTemp'	Ambient blackbody temperature - apex	degrees_Kelvin
'ABBtopTemp'	Ambient blackbody temperature - rim top	degrees_Kelvin
'JulianDay'	Julian Day including day and fraction of day	days
'sceneMirPosEncoder'	Scene mirror position encoder value	count
'sceneMirPosCount'	Number of views in a sequence	count
'sceneMirrorPosition'	Instrument scene mirror position identifier	count
'coadditionsCount'	Number of complete (forward+backward) interferogram scans in sample average	count
'sceneViewDuration'	Duration of scene view	seconds
'systemReleaseNumber'	Version number of Operational Software	count
'Altitude'	Observation Altitude	feet
'Longitude'	Observation longitude	degrees_east
'Latitude'	Observation latitude	degrees_north
'timeHHMMSS'	Time at center of AERI sky observation period	hour.minute.second
'dateYYMMDD'	Observation date	year.month.day
'instrumentUnitNumber'	Character string containing instrument name	count
'AERIunitNumber'	AERI instrument unit serial number	count
'Time'	Time at center of AERI sky observation period	hours
'mean_rad'	Interferometer scan directional average of radiance	mw/(m^2 sr cm^-1)
'hatchOpen'	hatch open flag. 1 = open	unitless
'time'	Time offset from midnight	seconds since 2014-10-13 00:00:00 0:00 GMT
'qc_time'	Dummy variable for compatibility with ARM AERI files	unitless
'Time_UTC_hours'	Time at center of AERI sky observation period	hours since 2014-10-13 00:00:00 0:00 GMT
'lat'	north latitude	degrees
'lon'	east longitude	degrees
'alt'	altitude	meters above Mean Sea Level
'numberOfPCs'	Number of principal components (PC) in PC noise filtering	None

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Datagrams: Summit P-AERI

Polar Atmospheric Emitted Radiance Interferometer

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Product netCDF Metadata

File name: smtaerisummaryX1.b1.20131006.000304.cdf	Path: summit\aeRI\processed	
Attributes		
'Comments'	Value 'tmp.dat'	
'experiment'	Integrated Characterization of Energy, Clouds, Atmospheric State, and Precipitation at Summit (ICECAPS), PIs are Ralf Bennartz, Matthew Shupe, David Turner and Von P. Walden'	
'contact'	'Von P. Walden (v.walden@wsu.edu)' Shupe et al. (2013), Bull. Amer. Meteor. Soc., doi: 10.1175/BAMS-D-11-00249.1.'	
'reference_project'	'14-Dec-2014'	
'date_created'	'smt'	
'site_id'	X1: Summit, Greenland'	
'facility_id'	'0.0230 radians'	
'FFOVhalfAngle'	'Field of view half angle used in finite FOV correction'	
'FFOVhalfAngle_description'	'This dataset contains Atmospheric Emitted Radiance Interferometer (AERI) summary data.'	
Dimensions		
Name	Length	
'time'	3352	
'wnum1'	71	
'wnum2'	56	
'wnum3'	59	
'wnum4'	49	
'wnum11'	51	
'wnum12'	48	
'hatch_dlm'	3352	
'Scalar'	1	
'times'	3352	
Variables		
Name	Long_name	Units
'date'	None	None
'base_time'	Base time in Epoch	seconds
'wnum1'	Wave number in reciprocal centimeters	centimeter^-1
'wnum2'	Wave number in reciprocal centimeters	centimeter^-1
'wnum3'	Wave number in reciprocal centimeters	centimeter^-1
'wnum4'	Wave number in reciprocal centimeters	centimeter^-1
'wnum11'	Wave number in reciprocal centimeters	centimeter^-1
'wnum12'	Wave number in reciprocal centimeters	centimeter^-1
'time_offset'	Time offset from base_time	seconds since 2013-10-06 00:03:03 GMT
'skyViewImaginaryRadiance2510_2515'	Imaginary radiance during sky view averaged over (2510_2515 cm-1)	mW/(m2 sr cm-1)
'skyViewImaginaryRadiance2282_2287'	Imaginary radiance during sky view averaged over (2282_2287 cm-1)	mW/(m2 sr cm-1)
'skyViewImaginaryRadiance2295_2300'	Imaginary radiance during sky view averaged over (2295_2300 cm-1)	mW/(m2 sr cm-1)
'skyViewImaginaryRadiance985_990'	Imaginary radiance during sky view averaged over (985_990 cm-1)	mW/(m2 sr cm-1)
'skyViewImaginaryRadiance700_705'	Imaginary radiance during sky view averaged over (700_705 cm-1)	mW/(m2 sr cm-1)
'skyViewImaginaryRadiance675_680'	Imaginary radiance during sky view averaged over (675_680 cm-1)	mW/(m2 sr cm-1)
'LWresponsivity'	Characteristic value representing overall longwave channel responsivity	Counts/(mW/m2 sr cm-1)]
'SWresponsivity'	Characteristic value representing overall shortwave channel responsivity	Counts/(mW/m2 sr cm-1)]
'SW_HBB_NEN'	Noise-equivalent Radiance in Hot Blackbody at 2500 cm-1	mW/(m2 sr cm-1)
'LW_HBB_NEN'	Noise-equivalent Radiance in Hot Blackbody at 1000 cm-1	mW/(m2 sr cm-1)
'SWskyNElimit'	Limit applied to SWskyNEN in determination of SWskyNENAcceptable	mW/(m2 sr cm-1)
'SWskyNEN'	The noise equivalent radiance observed in the shortwave channel during a sky view at 2500 cm-1	mW/(m2 sr cm-1)
'LWskyNElimit'	Limit applied to LWskyNEN in determination of LWskyNENAcceptable	mW/(m2 sr cm-1)
'LWskyNEN'	The noise equivalent radiance observed in the longwave channel during a sky view at 1000 cm-1	mW/(m2 sr cm-1)
'HBTempDriftLimit'	Limit applied to HBTempDrift in determination of HBStable flag	degrees_Kelvin
'HBTempDrift'	The maximum excursion of hot blackbody temperature over 5 consecutive scenes	count
'dataAvailable'	Logical flag indicating whether any data is available at current time (true/false)	count
'LWskyNENAcceptable'	Logical flag indicating whether longwave channel noise equivalent radiance is acceptable in sky view (true/false). Determined using LWskyNEN and LWskyNENlimit.	count
'SWskyNENAcceptable'	Logical flag indicating whether shortwave channel noise equivalent radiance is acceptable in sky view (true/false). Determined using SWskyNEN and SWskyNENlimit.	count
'HBStable'	Logical flag indicating whether HBB temperature is stable (true) or not stable (false). Determined using HBTempDrift and HBTempDriftLimit	count
'twoMinuteNoiseEstimateFactor'	Factor used to convert single-scan noise to two-minute equivalent	count
'ABBviewStdDevRadiance2510_2515'	Radiance standard deviation during ambient blackbody view averaged over (2510_2515 cm-1)	mW/(m2 sr cm-1)
'ABBviewStdDevRadiance2282_2287'	Radiance standard deviation during ambient blackbody view averaged over (2282_2287 cm-1)	mW/(m2 sr cm-1)
'ABBviewStdDevRadiance2295_2300'	Radiance standard deviation during ambient blackbody view averaged over (2295_2300 cm-1)	mW/(m2 sr cm-1)
'ABBviewStdDevRadiance985_990'	Radiance standard deviation during ambient blackbody view averaged over (985_990 cm-1)	mW/(m2 sr cm-1)
'ABBviewStdDevRadiance700_705'	Radiance standard deviation during ambient blackbody view averaged over (700_705 cm-1)	mW/(m2 sr cm-1)
'ABBviewStdDevRadiance675_680'	Radiance standard deviation during ambient blackbody view averaged over (675_680 cm-1)	mW/(m2 sr cm-1)
'HBviewStdDevRadiance2510_2515'	Radiance standard deviation during hot blackbody view averaged over (2510_2515 cm-1)	mW/(m2 sr cm-1)
'HBviewStdDevRadiance2282_2287'	Radiance standard deviation during hot blackbody view averaged over (2282_2287 cm-1)	mW/(m2 sr cm-1)
'HBviewStdDevRadiance2295_2300'	Radiance standard deviation during hot blackbody view averaged over (2295_2300 cm-1)	mW/(m2 sr cm-1)
'HBviewStdDevRadiance985_990'	Radiance standard deviation during hot blackbody view averaged over (985_990 cm-1)	mW/(m2 sr cm-1)
'HBviewStdDevRadiance700_705'	Radiance standard deviation during hot blackbody view averaged over (700_705 cm-1)	mW/(m2 sr cm-1)
'HBviewStdDevRadiance675_680'	Radiance standard deviation during hot blackbody view averaged over (675_680 cm-1)	mW/(m2 sr cm-1)
'ShortwaveWindowAirTemp2510_2515'	Radiance standard deviation during sky view averaged over (2510_2515 cm-1)	mW/(m2 sr cm-1)
'elevatedLayerAirTemp2282_2287'	Radiance standard deviation during sky view averaged over (2282_2287 cm-1)	mW/(m2 sr cm-1)
'surfaceLayerAirTemp2295_2300'	Radiance standard deviation during sky view averaged over (2295_2300 cm-1)	mW/(m2 sr cm-1)
'longwaveWindowAirTemp985_990'	Radiance standard deviation during sky view averaged over (985_990 cm-1)	mW/(m2 sr cm-1)
'elevatedLayerAirTemp700_705'	Radiance standard deviation during sky view averaged over (700_705 cm-1)	mW/(m2 sr cm-1)
'surfaceLayerAirTemp675_680'	Radiance standard deviation during sky view averaged over (675_680 cm-1)	mW/(m2 sr cm-1)
'shortwaveWindowRadiance2510_2515'	Radiance standard deviation during hot blackbody view averaged over (2510_2515 cm-1)	mW/(m2 sr cm-1)
'elevatedLayerRadiance2282_2287'	Radiance standard deviation during hot blackbody view averaged over (2282_2287 cm-1)	mW/(m2 sr cm-1)
'surfaceLayerRadiance2295_2300'	Radiance standard deviation during hot blackbody view averaged over (2295_2300 cm-1)	mW/(m2 sr cm-1)
'longwaveWindowRadiance985_990'	Radiance standard deviation during hot blackbody view averaged over (985_990 cm-1)	mW/(m2 sr cm-1)
'elevatedLayerRadiance700_705'	Radiance standard deviation during hot blackbody view averaged over (700_705 cm-1)	mW/(m2 sr cm-1)
'surfaceLayerRadiance675_680'	Radiance standard deviation during hot blackbody view averaged over (675_680 cm-1)	mW/(m2 sr cm-1)
'expandedInterferogramSize'	Size of buffer holding expanded spectrum before interpolation	32-bit words
'originalInterferogramSize'	Size of buffer holding initial spectrum	32-bit words
'outputLaserWavenumber'	Laser wavenumber used in definition of output wavenumber scale	cm-1
'originalLaserWavenumber'	Original laser wavenumber assumed for this instrument	cm-1
'channelNumber'	Instrument data channel number	count
'numberOfTerms'	Number of terms used in finite field of view correction	count
'FFOVhalfAngle'	Field of view half angle used in finite FOV correction	radians
'SceneMirPosEncoderMaxDrift'	Maximum drift of the mirror position over the course of all contributing views. Typically two hot blackbody cavity geometry factor	degrees_Kelvin
'BBcavityOffset'	Corrective offset for final hot blackbody average temperature	degrees_Kelvin
'ABBtempOffset'	Corrective offset for final ambient blackbody average temperature	degrees_Kelvin
'HBbottomTempWeight'	Weight factor for bottom used in calculating hot blackbody temperature average	%/100
'HBapexTempWeight'	Weight factor for apex used in calculating hot blackbody temperature average	%/100
'HBtopTempWeight'	Weight factor for top used in calculating hot blackbody temperature average	%/100
'ABBbottomTempWeight'	Weight factor for bottom used in calculating ambient blackbody temperature average	%/100
'ABBapexTempWeight'	Weight factor for apex used in calculating ambient blackbody temperature average	%/100
'ABBtopTempWeight'	Weight factor for top used in calculating ambient blackbody temperature average	%/100
'calibratedSceneID'	Type of scene that has been calibrated (ASCII character as float)	count
'calibrationHBtemp'	Cold blackbody temperature used in calibration	degrees_Kelvin
'calibrationBBeTemp'	Cold blackbody temperature used in calibration	degrees_Kelvin
'calibrationAmbientTemp'	Ambient temperature used in calibration	degrees_Kelvin
'SceneMinPosEncoderDrift'	Difference between actual and ideal motor encoder values for current view; indicative of quality of the mirror positioning.	degrees_Kelvin
'HBmaxTempDiff'	Maximum Temperature Difference Between HBB Thermistors	degrees_Kelvin
'ABBmaxTempDiff'	Maximum Temperature Difference Between ABB Thermistors	degrees_Kelvin
'maxRoll'	Maximum roll of the interferometer during scan. Roll axis is coincident with the axis of mirror rotation. Zero value indicates level.	degrees
'maxPitch'	Maximum pitch of the interferometer during scan. Pitch axis is perpendicular to the axis of mirror rotation. Zero value indicates level.	degrees
'opticsCompartmentRelativeHumidity'	Relative humidity measured in the optics compartment relative to the ambient air temperature.	%
'sceneMinMotorStep'	Motor step size required to move camera to proper mirror positioning	count
'SceneMirrAngle'	Scene mirror view angle in negative degrees	degrees
'maxSampledStdDev'	Maximum Standard Deviation in Thermistor Channels 0..7	degrees_Kelvin
'atmosphericPressure'	Observation atmospheric pressure in Thermistor Electronics	millibars
'InterferometerEnclosureRelativeHumidity'	Relative Humidity measured in the Interferometer Enclosure	%
'atmosphericRelativeHumidity'	Relative humidity measured near Blackbodies. Use with Air Temperature Near BBs only.	%
'interferometerWindowTemp'	Interferometer window temperature measured on the outside of the aluminum window flange	degrees_Kelvin
'rainSensorIntensity'	Rain sensor analog output. The rain sensor is located inside the hatch near the sky aperture and is used to flag the critical condition of rain falling on the AERI sky aperture. If rain is detected	millimeters/hour
'detectorTemp'	Detector temperature sensed via diode near detector	degrees_Kelvin
'cycleCurrent'	String cycle current	amperes
'SCETemp'	String conditioning electronics inside air temperature	degrees_Kelvin
'motorDriverTemp'	Scene mirror motor driver heat sink temperature	degrees_Kelvin
'computerTemp'	AERI ingest computer temperature measured at back panel of computer	degrees_Kelvin
'rackAmbientTemp'	Electronics rack ambient temperature measured at inside top of rack	degrees_Kelvin
'coolerPowerSupplyTemp'	String cooler power supply temperature measured at power supply frame	degrees_Kelvin
'coolerExpanderTemp'	String cooler cycle cooler expander temperature	degrees_Kelvin
'coolerCompressorTemp'	String cooler compressor temperature measured at compressor heatsink	degrees_Kelvin
'BBcontrolTemp1'	Blockbody controller 1 ambient power supply temperature	degrees_Kelvin
'BBcontrolTemp2'	Blockbody controller Unit 1 ambient power supply temperature	degrees_Kelvin
'fixed12kOhmResistor'	Resistance temperature of 12 kOhm fixed resistor located in SCE-P3 shell	degrees_Kelvin
'internalMotorTemp'	Scene mirror motor case temperature	degrees_Kelvin
'airNearBbTemp'	Ambient air temperature near blackbodies	degrees_Kelvin
'BBsupportStructureTemp'	Temperature of the AERI blackbody support structure	degrees_Kelvin
'interferometerSecondPortTemp'	AERI interferometer temperature at second port	degrees_Kelvin
'airNearInterferometerTemp'	Ambient air temperature near the interferometer	degrees_Kelvin
'outsideAirTemp'	Ambient air temperature at hatch opening	degrees_Kelvin
'fixed97kOhmResistor'	Resistance temperature of 97 kOhm fixed resistor located in SCE-P4 shell	degrees_Kelvin
'fixed1250kOhmResistor'	Resistance temperature of 2500 Ohm fixed resistor - banana plug mounted	degrees_Kelvin
'HBbottomTemp'	Hot blackbody temperature - rim bottom	degrees_Kelvin
'HBapexTemp'	Hot blackbody temperature - apex	degrees_Kelvin
'HBtopTemp'	Hot blackbody temperature - rim top	degrees_Kelvin
'ABBbottomTemp'	Ambient blackbody temperature	degrees_Kelvin
'ABBapexTemp'	Ambient blackbody temperature - apex	degrees_Kelvin
'ABBtopTemp'	Ambient blackbody temperature - rim top	degrees_Kelvin
'JulianDay'	Julian Day including day and fraction of day	days
'SceneMirPosEncoder'	Scene mirror position encoder value	count
'SceneMirPosCount'	Number of views in a sequence	count
'SceneMirrorPosition'	Instrument scene mirror position identifier	count
'coditionsCount'	Number of complete (forward+backward) interferogram scans in sample average	count
'sceneViewDuration'	Duration of scene view	seconds
'systemReleaseNumber'	Version number of Operational Software	count
'Altitude'	Observation Altitude	feet
'Longitude'	Observation longitude	degrees_east
'Latitude'	Observation latitude	degrees_north
'timeHHMMSS'	Time at center of AERI sky observation period	hour.minute.second
'dateYYMMDD'	Observation date	year.month.day
'instrumentUnitNumber'	Character string containing instrument name	count
'AERunNumber'	AERI instrument unit serial number	hours
'Time'	Time at center of AERI sky observation period	Counts/(mW/m2 sr cm-1)]
'ResponsivitySpectralAveragesCh1'	AERI LW Responsivity Spectral Averages (Ch1)	Counts/(mW/m2 sr cm-1)]
'ResponsivitySpectralAveragesCh2'	AERI SW Responsivity Spectral Averages (Ch2)	(mW/m2 sr cm-1)^2
'SkyVariabilityAveragesCh1'	AERI LW Scene Variability Spectral Average (Ch1)	(mW/m2 sr cm-1)^2
'SkyVariabilityAveragesCh2'	AERI SW Scene Variability Spectral Averages (Ch2)	(mW/m2 sr cm-1)^2
'SkyNEncH1'	AERI LW Scene NESR Spectral Averages (Ch1)	mW/m2 sr cm-1]
'SkyNEncH2'	AERI SW Scene NESR Spectral Averages (Ch2)	mW/m2 sr cm-1]
'HB2minNEstimateNo1ch1'	AERI LW HBB 2min NESR Estimate #1 derived from variance during HBB view (Ch1)	K
'HB2minNEstimateNo1ch2'	AERI SW HBB 2min NESR Estimate #1 derived from variance during HBB view (Ch2)	K
'HB2minNEstimateNo2ch1'	AERI LW HBB 2min NESR Estimate #2 derived from sequential HBB views (Ch1)	unitless
'HB2minNEstimateNo2ch2'	AERI SW HBB 2min NESR Estimate #2 derived from sequential HBB views (Ch2)	unitless
'SkyRadianceSpectralAveragesCh1'	AERI LW Scene Radiance Spectral Averages (Ch1)	None
'SkyRadianceSpectralAveragesCh2'	AERI SW Scene Radiance Spectral Averages (Ch2)	None
'SkyBrightnessTempSpectralAveragesCh1'	AERI LW Scene Brightness Temp Spectral Averages (Ch1)	seconds since 2013-10-06 00:00:00 0:00 GMT
'SkyBrightnessTempSpectralAveragesCh2'	AERI SW Scene Brightness Temp Spectral Averages (Ch2)	unitless
'hatchOpen'	hatch open flag. 1 = open	hours since 2013-10-06 00:00:00 0:00 GMT
'wnumsum5'	None	hours
'wnumsum6'	None	degrees</td