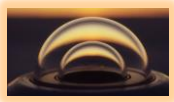


The World Radiation Monitoring Center of the Baseline Surface Radiation Network

Status April 2017



Amelie Driemel, Gert König-Langlo, Rainer Sieger, and Charles N Long



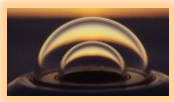
Baseline Surface Radiation Network (BSRN)

Global observatory network providing observations of the best possible quality for short- & long-wave surface radiation fluxes in 1 min resolution

World Radiation Monitoring Center (WRMC)

The WRMC is the central archive for all data from the BSRN, since 2008 operated at the Alfred-Wegener Institut in Bremerhaven

In 2017 the director changed from G. König-Langlo to A. Driemel



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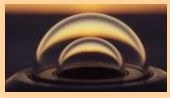


Data overview, status 04-2017



1	LR 0100: Global, Diffuse, Direct, Long-wave down	59 stations
2	LR 0300: Reflex, Long-wave up	15 stations
3	LR 0500: UV	12 stations
4	LR 1000: Synops	13 stations
5	LR 1100: Upper air soundings	30 stations
6	LR 1200: Total ozone	9 stations
7	LR 1300: Ceilometer data	3 stations
8	LR 30x0: Radiation measurements from tower	13 stations

Status April 2017, LR0100 **>9500 monthly datasets** (>790 years)



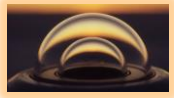
Stations temporal range



1992

→ 2017

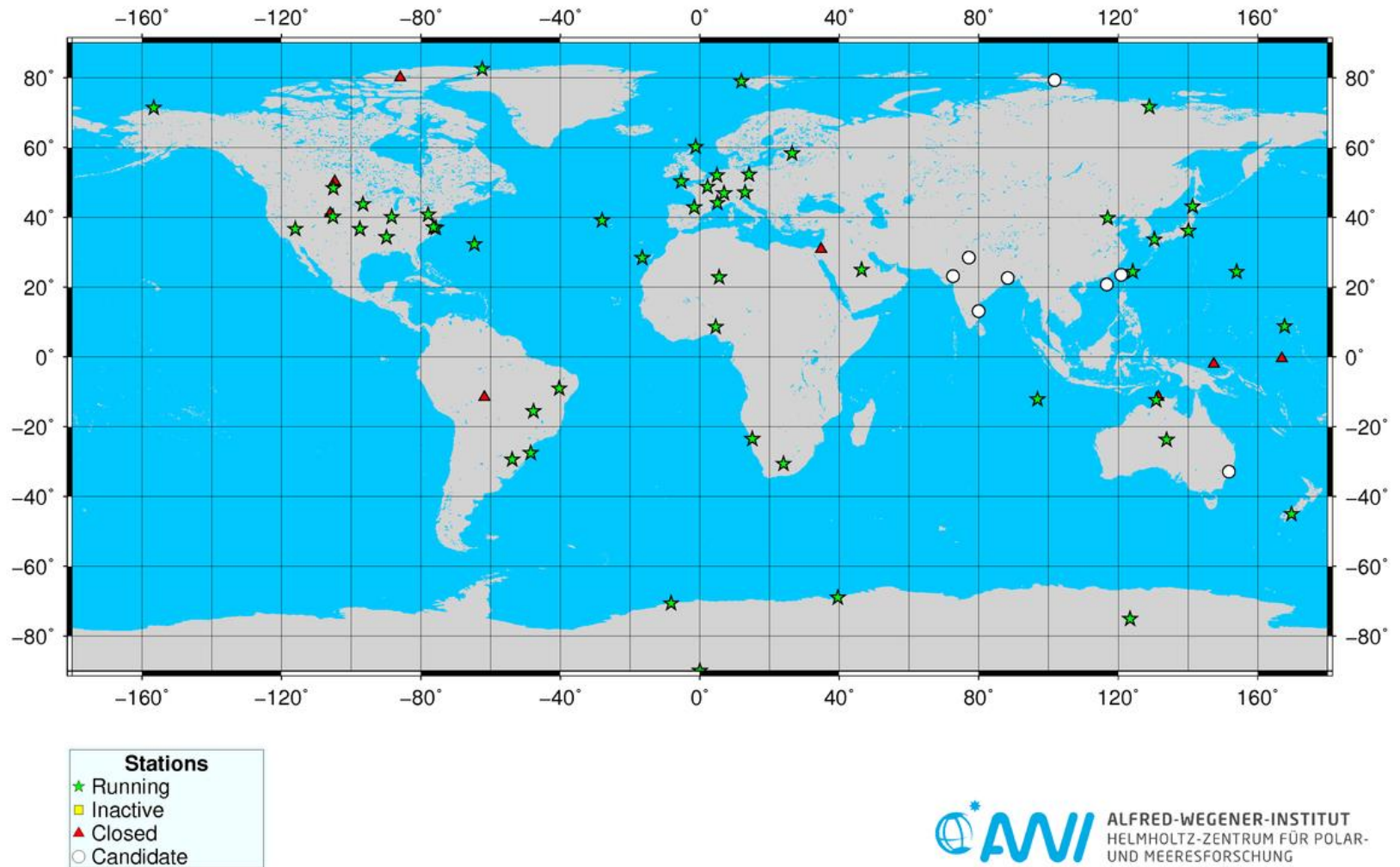
Station	Short	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Alert	ALE													5	12	12	12	12	12	12	12	12	12	6			
Alice Springs	ASP				12	12	12	12	12	12	11	12	12	12	12	12	12	12	12	12	12	12	11	12	12		
Barrow	BAR	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2							
Bermuda	BER	12	12	12	12	12	12	12	12	12	12	12	10	12	12	12	12	12	12	12	12	12	2			2	2
Billings	BIL		4	12	12	12	12	12	12	12	11	12	12	12	12	12	12	12	12	12	12	12					
Bondville	BON				12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12			
Boulder, SURFRAD	BOS				5	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12			
Boulder	BOU*	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6	
Cabauw	CAB													11	12	12	12	12	12	12	12	12	12	12	12	2	2
Camborne	CAM									12	12	12	12	12	12	12	12	12	12	4	12	12	12	12	12	12	2
Carpentras	CAR				4	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2
Chesap. Light	CLH*									8	12	11	12	12	12	12	12	12	12	12	12	12	12	12	12	11	2
Cocos Island	COC													3	10	8	12	12	12	12	9	4	12	12	12		
Darwin	DAR*											10	12	12	12	12	12	12	12	12	12	12	12	12	12	1	
Desert Rock	DRA							10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12		
Concordia St.n	DOM															12	12	12	12	12	12	11	12	12	12		
S. Great Plains	E13			12	7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12				
Florianopolis	FLO			6	12	12	10	12	12	9	12	12	12	12	12								4	12	12	12	1
Fort Peck	FPE				12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Fukuoka	FUA																			10	12	12	12	12	12	12	2
Goodwin Creek	GCR				12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Neumayer St.	GVN	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	1
Izana	IZA																		10	12	12	12	12	12	12	12	2
Kwajalein	KWA	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	5
Lauder	LAU								5	12	12	12	12	12	12	12	12	12	12	11	12	12	12	12	9		
Lerwick	LER										12	12	12	12	11	11	12	12	12	4	12	12	12	12	12	12	2
Lindenber	LIN			3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	11								
Momote	MAN*					3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	10				
Nauru Island	NAU*							2	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9				
Ny-Ålesund	NYA	5	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Palaiseau	PAL												7	12	12	12	12	12	12	12	12	12	12	12	12	12	2
Payerne	PAY	3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	5							
Rock Springs	PSU							7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Regina	REG*				12	12	12	12	11	12	12	12	12	12	12	12	12	12	12	12	12	12					
Sapporo	SAP																			9	12	12	12	12	12	12	1
Sede Boqer	SBO*												12	12	12	12	12	12	12	12	12	9					
South Pole	SPO	12	12	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2
Sioux Falls	SXF												7	12	12	12	12	12	12	12	12	12	12	12	12		
Syowa	SVO			12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	1	
Tamanrasset	TAM									10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2
Tateno	TAT					11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
Toravere	TOR								12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2
Xianghe	XIA														12	12	12	12	12	12	12	7	10	12	10		
		1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017

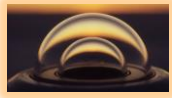


Stations geographical range



Running, planned, and closed BSRN Stations, February 2017



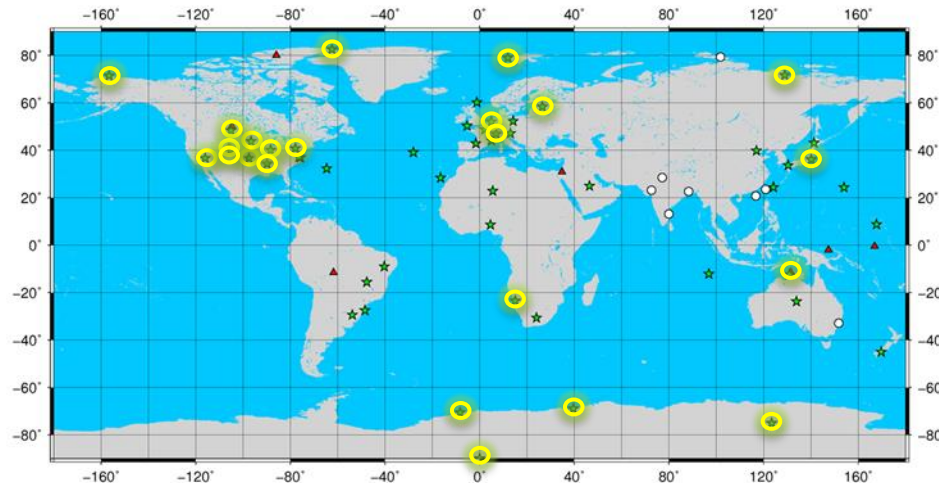


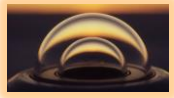
Stations with complete budget



Station	Short	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Alert	ALE													5	12	12	12	12	12	12	12	12	12	6			
Barrow	BAR	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2							
Bondville	BON				12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12			
Boulder, SURFRAD	BOS				5	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12			
Boulder	BOU	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6	
Cabauw	CAB														11	12	12	12	12	12	12	12	12	12	12	2	
Darwin	DAR											10	12	12	12	12	12	12	12	12	12	12	12	12	1		
Desert Rock	DRA							10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12			
Concordia St.	DOM															12	12	12	12	12	12	11	12	12			
S. Great Plains	E13			12	7	12	12	12	12	12	12	12	12	12	12	12	12	12	11	12	12	12					
Fort Peck	FPE				12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12			
Goodwin Creek	GCR				12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12			
Gobabeb	GOB																					8	12	12	12	2	
Neumayer St.	GVN	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	1	
Ny-Ålesund	NYA	5	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Payerne	PAY	3	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	5						
Rock Springs	PSU							7	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12			
South Pole	SPO	12	12	10	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	9	
Sioux Falls	SXF												7	12	12	12	12	12	12	12	12	12	12				
Syowa	SYO			12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	1		
Tateno	TAT					11	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	
Tiksi	TIK																			7	12	12	12	12	7		
Toravere	TOR								12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	2	

Running, planned, and closed BSRN Stations, February 2017





Data usage



April 2016 - April 2017 in total **140 access requests** from 33 countries





Data extraction



1. **ftp server:**
[ftp.bsrn.awi.de](ftp://ftp.bsrn.awi.de)
 station-to-archive files

Datei...	Zuletzt geändert	Berechtigungen	Besitzer/Gruppe
..			
ale	2015-12-12	drwxr-x---	bsrnadm bsrn
asp	2016-03-30	drwxr-x---	bsrnadm bsrn
bar	2012-10-08	drwxr-x---	bsrnadm bsrn
ber	2015-06-03	drwxr-x---	bsrnadm bsrn
bil	2017-02-01 15:07:00	drwxr-x---	bsrnadm bsrn
bon	2017-01-23 19:45:00	drwxr-x---	bsrnadm bsrn
bos	2017-03-06 09:18:00	drwxr-x---	bsrnadm bsrn
hou	2016-07-21	drwxr-x---	bsrnadm bsrn

2. **PANGAEA:**
<https://dataportals.pangaea.de/bsrn/>



PANGAEA.

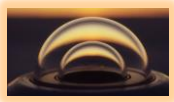
Data Publisher for Earth & Environmental Science

Baseline Surface Radiation Network – Status

[BSRN homepage] - [Staff | Stations | Parameter | Methods] - [LR0100 | LR0300 | LR0500 | LR1000 | LR1100 | LR1200 | LR1300 | LR3010 | LR3030 | LR3300 | All | latest datasets | latest snapshot]

Click on a X shows a list of all datasets for selected year and station.

Station	Short name	Station scientist currently in charge	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	All
Alert	ALE	Christopher Cox (christopher.j.cox@noaa.gov)													X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Alice Springs	ASP	Nicole Hyett (N.Hyett@bom.gov.au)				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Barrow	BAR	David Longenecker (David.U.Longenecker@noaa.gov)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							X	
Bermuda	BER	David Longenecker (David.U.Longenecker@noaa.gov)	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Billings	BIL	Charles Long (chuck.long@noaa.gov)		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Bondville	BON	John Augustine (John.A.Augustine@noaa.gov)				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Boulder. SURFRAD	BOS	John Augustine (John.A.Augustine@noaa.gov)				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Boulder	BOU	** Station closed in July 2016 **	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Brasilia	BRB	Enio Bueno Pereira (enio.pereira@inpe.br)														X	X	X	X	X	X	X	X	X	X	X	X	X	
Cabauw	CAB	Wouter Knap (knap@knmi.nl)														X	X	X	X	X	X	X	X	X	X	X	X	X	
Camborne	CAM	Jonathan Tamlyn (jonathan.tamlyn@metoffice.gov.uk)										X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Carpentras	CAR	Thierry Duprat (thierry.duprat@meteo.fr)				X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Chesapeake Light	CLH	** Inactive as of Dec 2016, structural issues need to be solved **									X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
Cener	CNR	Xabier Olano (xolano@cener.com)																		X	X	X	X	X	X	X	X	X	

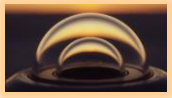


Ongoing issues

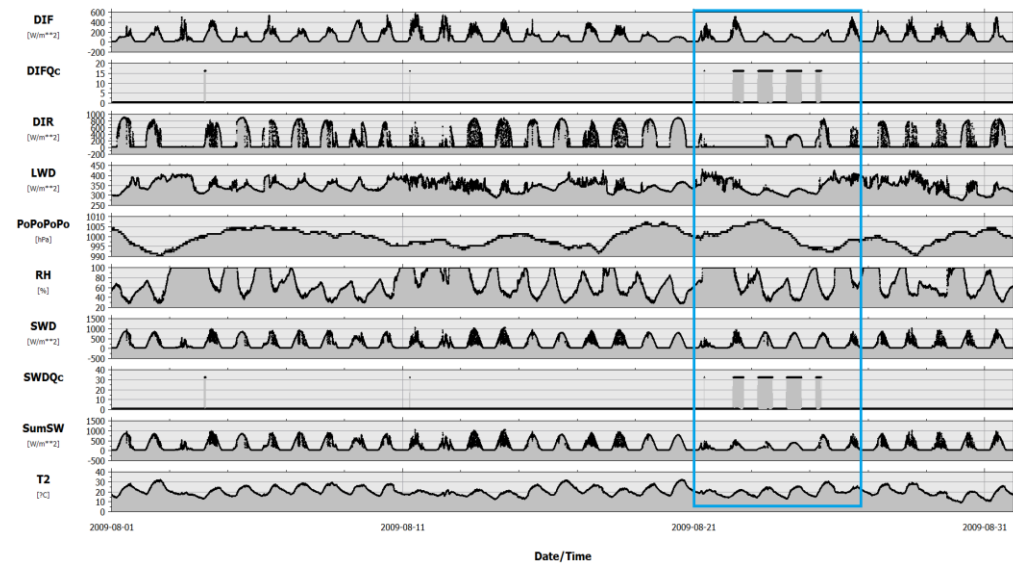
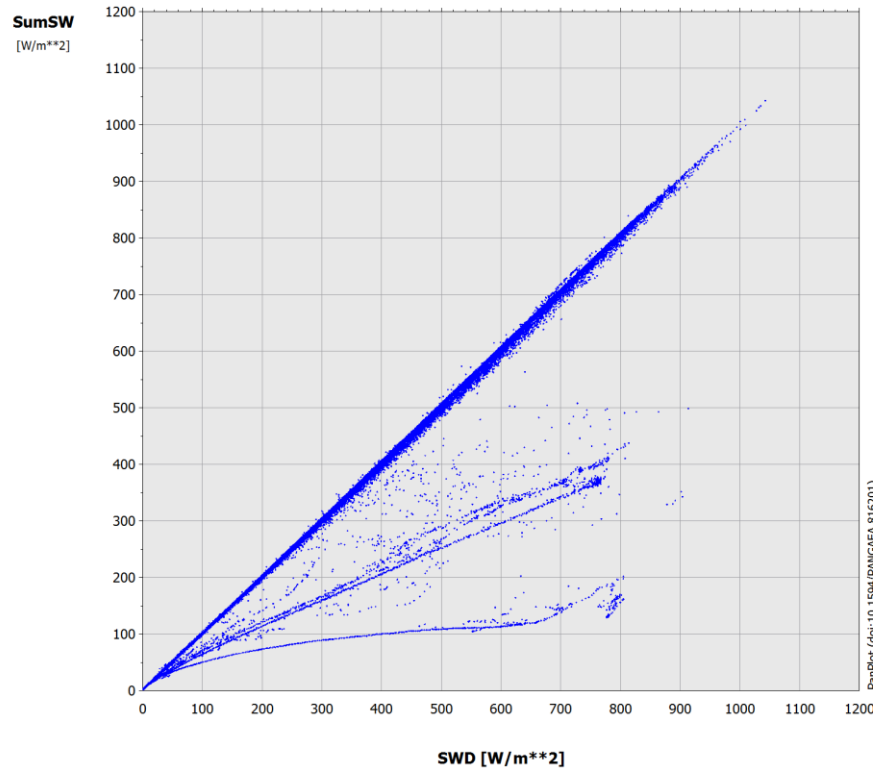


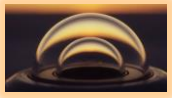
- Some **stations closed**/no longer maintained/with financial problems
- Data submission in arrears => **inactive** status will be introduced
- Some **quality issues** e.g. in remote areas difficult to manage
- Discussion on WSG/WISG standard, see e.g. Nyeki et al. 2017

doi:10.5194/amt-2017-41



Ongoing issues

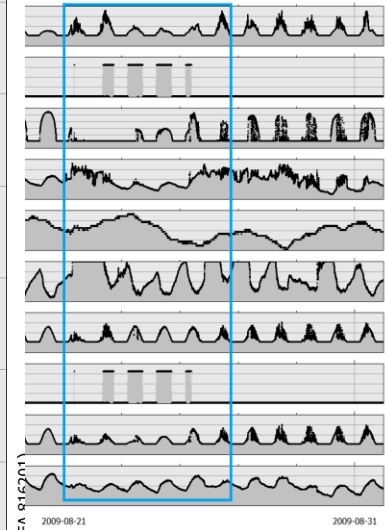
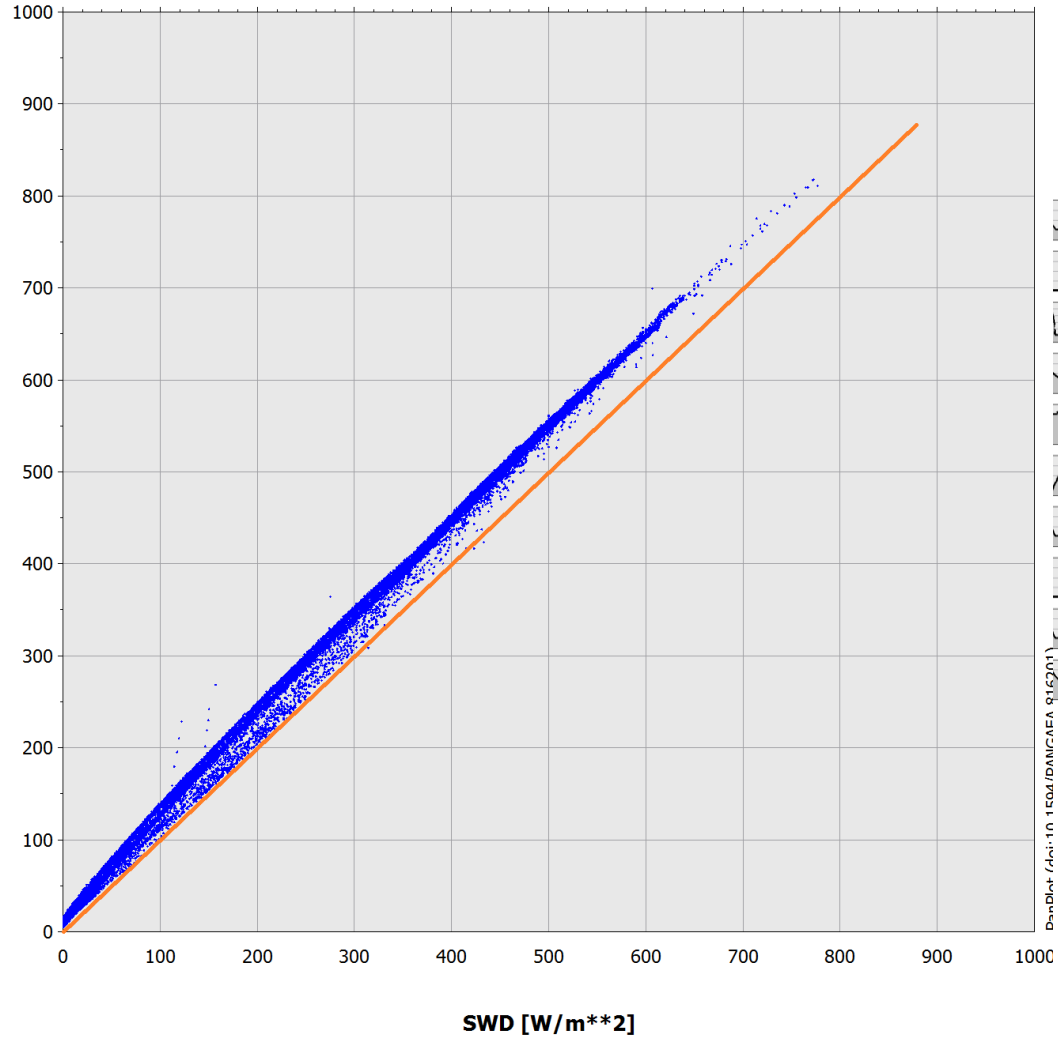




Ongoing issues



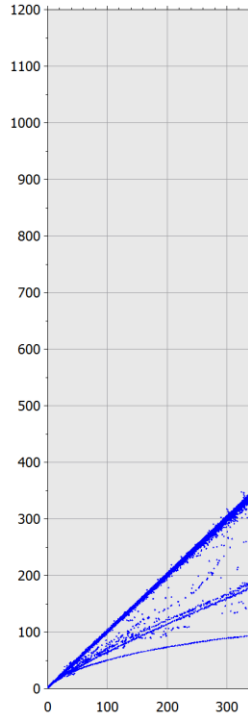
SumSW
[W/m**2]



DasDAt / Ani-10 1EQ4 / DAMC/EA 9162/011

www.awi.de

SumSW
[W/m**2]

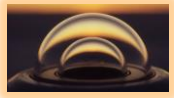




Thanks!



....To all **station scientists and technicians**
working to keep BSRN alive

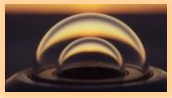


Thanks!



....To **Gert König-Langlo** who was WRMC director for the last 10 years and who retires at the end of this month





Thanks!



....For listening!

More information at: <http://bsrn.awi.de/>

WRMC-BSRN
World Radiation Monitoring Center -
Baseline Surface Radiation Network

Contact | English | Site Map | English

Project Stations Data Products Meetings News Software Other

WRMC-BSRN
World Radiation Monitoring Center - Baseline Surface Radiation Network

Welcome

to the World Radiation Monitoring Center (WRMC), the central archive of the Baseline Surface Radiation Network (BSRN). All radiation measurements are stored together with collocated surface and upper-air meteorological observations and station metadata in an integrated database. These pages offer both: Information for all scientists who will use BSRN-data as well as information to any station scientist who delivers data.

BSRN is a project of the Data and Assessments Panel from the Global Energy and Water Cycle Experiment (GEWEX) under the umbrella of the World Climate Research Programme (WCRP) and as such is aimed at detecting important changes in the Earth's radiation field at the Earth's surface which may be related to climate changes.

The data are of primary importance in supporting the validation and confirmation of satellite and computer model estimates of these quantities. At a small number of stations (currently 59) in contrasting climatic zones, covering a latitude range from 80°N to 90°S (see [station map](#)), solar and atmospheric radiation is measured with instruments of the highest available accuracy and with high time resolution (1 to 3 minutes).

In 2004 the BSRN was designated as the global baseline network for surface radiation for the Global Climate Observing System (GCOS). The BSRN stations also contribute to the Global Atmospheric Watch (GAW). Since 2011 the BSRN and the Network for the Detection of Atmospheric Composition Change (NDACC) have reached a formal agreement to become cooperative networks.

Contact persons
Related Pages

GEWEX

GCOS
GLOBAL CLIMATE OBSERVING SYSTEM

NDACC
NETWORK FOR THE DETECTION OF ATMOSPHERIC COMPOSITION CHANGE