



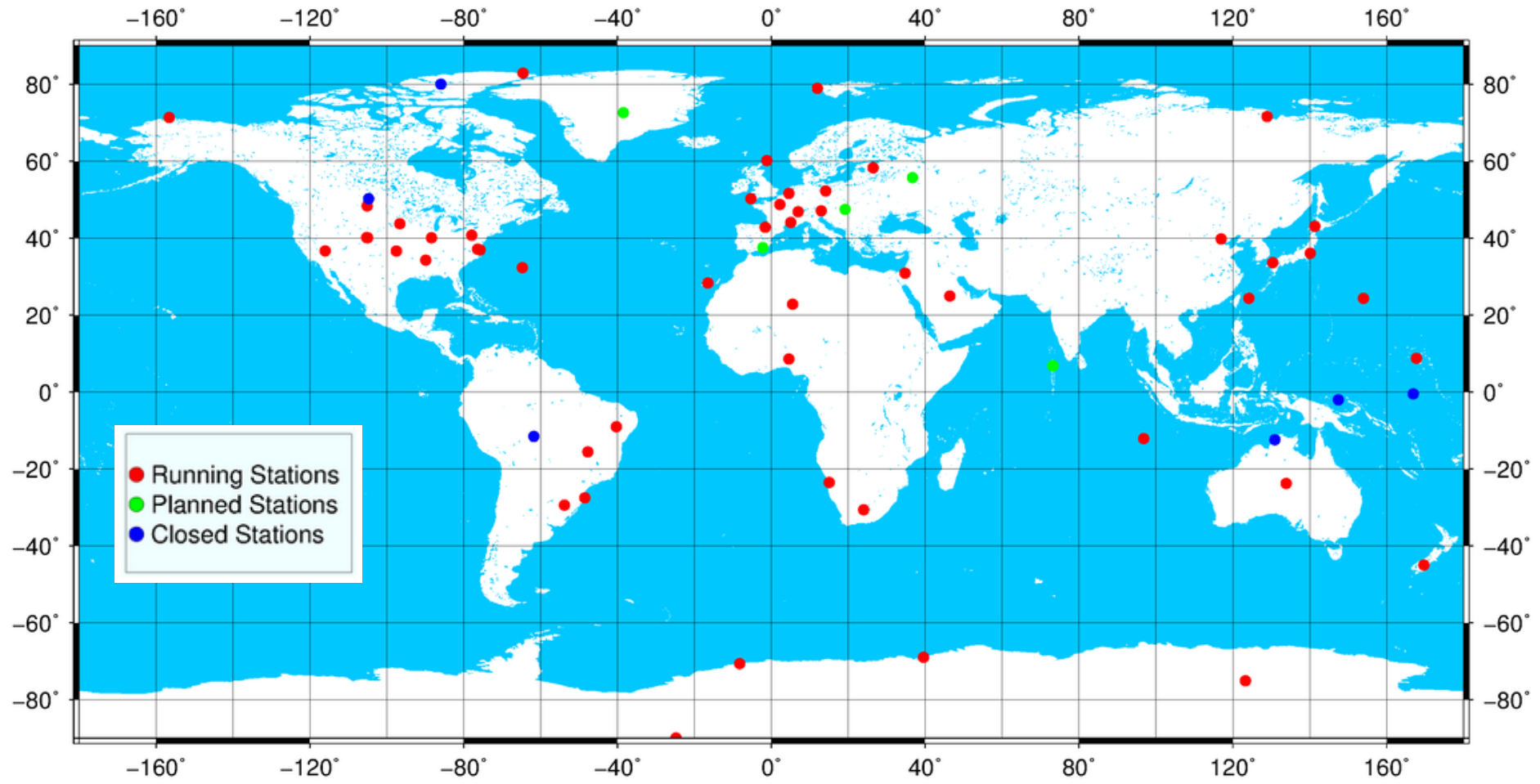
# **Current state of the World Radiation Monitoring Center**





# Present State of the WRMC:

**59 stations provided data**





# **Present State of the WRMC:                      Station Month:    8761**

| The typical average interval for radiation data is 1 minute:         | Stations        |
|--|-----------------|
|  | 2016 (2012)     |
| 1. LR 0100: (Global, Diffuse, Direct, Long-wave down)                | 59 (54)         |
| 2. LR 0300, 3010: (Reflex, Long-wave up)                             | 23 (19)         |
| 3. LR 0500: (UV)   | 14 (12)         |
| 4. LR 1000: (Synops)   | 13 (12)         |
| 5. LR 1100: (Upper air soundings)                                    | 30 (29)         |
| 6. LR 1200: (Total ozone)  | 9 (9)           |
| <del>7. LR 1300: (Aerosol optical depths) (under construction)</del> | <del>(14)</del> |
| 8. LR 1300: (Ceilometer data)  | 3 (3)           |
| 9. LR 30x0: (Radiation measurements from tower)                      | 13 (13)         |



**Present State of the WRMC: 8391 (6719) station-months available**

| Station            | Short name | Station manager currently in charge                | pre BSRN        | 1992        | 1993        | 1994        | 1995        | 1996        | 1997        | 1998        | 1999        | 2000        | 2001        | 2002        | 2003        | 2004        | 2005        | 2006        | 2007        | 2008        | 2009        | 2010        | 2011        | 2012        | All        |   |
|--------------------|------------|--|-----------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|------------|---|
| Alert              | ALE        | David Halliwell (David.Halliwell@ec.gc.ca)         |                 |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |            |   |
| Alice Springs      | ASP        | Bruce Forgan (B.Forgan@bom.gov.au)                 |                 |             |             |             | 12          | 12          | 12          | 12          | 12          | 12          | 11          | 12          | 12          | 12          | 12          | 12          |             |             |             |             |             |             |            |   |
| Barrow             | BAR        | Ellsworth Dutton (Ellsworth.G.Dutton@noaa.gov)     |                 | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          |             |             |             |             |             |             |            |   |
| Bermuda            | BER        | Ellsworth Dutton (Ellsworth.G.Dutton@noaa.gov)     |                 | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 10          |             |             |             |             |             |             |             |             |             |            |   |
| Billings           | BIL        | Charles Long (chuck.long@prl.gov)                  |                 |             | 4           | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 11          |             |             |             |             |             |             |             |             | 7           | 12          | 4           | X          |   |
| Bondville          | BON        | John Augustine (John.A.Augustine@noaa.gov)         |                 |             |             |             | 12          | 12          | 12          | 12          | 12          | 12          |             |             |             |             |             |             | 12          | 6           |             |             |             |             | X          |   |
| Boulder, SURFRAD   | BOS        | John Augustine (John.A.Augustine@noaa.gov)         |                 |             |             |             | 5           | 12          | 12          | 12          |             |             |             |             |             |             |             |             | 12          | 12          | 6           |             |             |             | X          |   |
| Boulder            | BOU        | Ellsworth Dutton (Ellsworth.G.Dutton@noaa.gov)     |                 | 12          | 12          | 12          | 12          | 12          |             |             |             |             |             |             |             |             | 12          | 12          | 12          | 12          | 12          | 2           |             |             | X          |   |
| Brasilia           | BRB        | Enio Bueno Pereira (eniobp@cptec.inpe.br)          |                 |             |             |             |             |             |             |             |             |             |             |             |             |             | 8           | 10          | 4           | 9           | 12          | 12          | 5           |             | X          |   |
| Cabauw             | CAB        | Wouter Knap (knap@knmi.nl)                         |                 |             |             |             |             |             |             |             |             |             |             |             |             |             | 11          | 12          | 12          | 12          | 12          | 12          | 4           |             | X          |   |
| Camborne           | CAM        | Patrick Fishwick (patrick.fishwick@metoffice.com)  |                 |             |             |             |             |             |             |             |             | 12          | 12          | 12          | 12          | 12          | 12          | 6           |             |             |             |             |             |             | X          |   |
| Carpentras         | CAR        | Jean-Philippe Morel (jean-philippe.morel@meteo.fr) |                 |             |             |             |             |             |             | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 5           |            | X |
| Chesapeake Light   | CLH        | Fred M. Denn (Frederick.M.Denn@nasa.gov)           |                 |             |             |             |             |             |             |             |             | 8           | 12          | 11          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 6           |            | X |
| Serra              |            |  |                 |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |            |   |
| Solar Village      | SOV        | Naif Al-Abbad                                      |                 |             |             |             |             |             |             | 3           | 12          | 12          | 12          | 12          |             |             |             |             |             |             |             |             |             |             |            | X |
| South Pole         | SPO        | Ellsworth Dutton                                   |                 | 12          | 12          | 10          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 2           |             |             |            | X |
| Syowa              | SYO        | Shigeaki Matsushima (shigeaki.matsushima@go.jp)    |                 |             |             | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 11          |             |            | X |
| Sioux Falls        |            | John Augustine (John.A.Augustine@noaa.gov)         |                 |             |             |             |             |             |             |             |             |             |             |             | 7           | 12          | 12          | 12          | 12          | 12          | 6           |             |             |             |            | X |
| Tamara             |            | Abdelmimoun Dzidzic (abdelmimouni_dz@yahoo.fr)     |                 |             |             |             |             |             |             |             |             | 10          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 4           |            | X |
|                    |            | Yoshinori Jimma (jimma@met.kishou.go.jp)           |                 |             |             |             |             | 11          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 4           |             |            | X |
|                    |            | Vasilii Kustov (kustov@aari.ru)                    |                 |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             | 7           | 9           |             |            | X |
|                    |            | Ain Kallis (kallis@aai.ee)                         |                 |             |             |             |             |             |             |             | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 12          | 5           |             |            | X |
|                    | XIA        | Xiangao Xia (xiangaoxia2000@yahoo.com)             |                 |             |             |             |             |             |             |             |             |             |             |             |             |             | 12          | 12          | 12          | 8           |             |             |             |             |            | X |
| Historical station | Eismitte   |  | 1               |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |             |            | X |
|                    | <b>All</b> |  |                 | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X           | X          | X |
|                    |            |  | <b>pre BSRN</b> | <b>1992</b> | <b>1993</b> | <b>1994</b> | <b>1995</b> | <b>1996</b> | <b>1997</b> | <b>1998</b> | <b>1999</b> | <b>2000</b> | <b>2001</b> | <b>2002</b> | <b>2003</b> | <b>2004</b> | <b>2005</b> | <b>2006</b> | <b>2007</b> | <b>2008</b> | <b>2009</b> | <b>2010</b> | <b>2011</b> | <b>2012</b> | <b>All</b> |   |

**~ 730 (560) years of radiation measurements**

# WRMC-BSRN

World Radiation Monitoring Center- Baseline Surface Radiation Network

hosted by 


Redesign of:

<http://www.bsrn.awi.de>

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

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**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 Assimilation 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 58) in contrasting climatic zones, covering a latitude range from 80°N to 90°S (see [station maps](#)), 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.

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## Mailing Lists

- [\*bsrn-stations@listserv.dfn.de\*](mailto:bsrn-stations@listserv.dfn.de)

**Communication between the BSRN/WRMC administration and all BSRN station scientists. Only persons included in this group are allowed to use it.**

- [\*bsrn-user@listserv.dfn.de\*](mailto:bsrn-user@listserv.dfn.de)

**Communication between the BSRN/WRMC administration and all BSRN user. To avoid spam and too much mails the use of this list is restricted to the BSRN/WRMC administration.**



# Typical Customers

About 150 account requests in 2016

- **Satellite Validation**

*Remote Sens.* **2015**, 7, 8067-8101; doi:10.3390/rs70608067

**OPEN ACCESS**

*remote sensing*  
ISSN 2072-4292  
[www.mdpi.com/journal/remotesensing](http://www.mdpi.com/journal/remotesensing)

*Article*

**Digging the METEOSAT Treasure—3 Decades of Solar Surface Radiation**

**Richard Müller \***, Uwe Pfeifroth , Christine Träger-Chatterjee, Jörg Trentmann and Roswitha Cremer

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\* Author to whom correspondence should be addressed; E-Mail: richard.mueller@dwd.de; Tel.: +49-69-8062-4922; Fax: +49-69-8062-3759.

Academic Editors: Dongdong Wang and Prasad S. Thenkabail

*Received: 23 February 2015 / Accepted: 2 June 2015 / Published: 18 June 2015*

# Typical Customers

About 150 account requests in 2016

- *Satellite Validation*
- *Climate Research*



[Climate Dynamics](#)

June 2015, Volume 44, [Issue 11](#), pp 3393-3429

Open Access

Article

## The energy balance over land and oceans: an assessment based on direct observations and CMIP5 climate models

Martin Wild, Doris Folini, Maria Z. Hakuba, Christoph Schär, Sonia I. Seneviratne, Seiji Kato, David Rutan,  
Christof Ammann, Eric F. Wood, Gert König-Langlo

First online: 11 December 2014

Received: 19 February 2014 | Accepted: 24 November 2014

DOI: 10.1007/s00382-014-2430-z

Citations: [14](#)



# Typical Customers

About 150 account requests in 2016

- *Satellite Validation*
- *Climate Reseach*
- *Solar Energy*

|                   |   |
|-------------------|---|
| <b>Title:</b>     | Energy Loss Due to Irradiance Enhancement   |
| <b>Author(s):</b> | M. Zehner, T. Weigl, S. Thaler, O. Schrank, M. Czakalla, B. Mayer, T.R. Betts, R. Gottschalg, K. Behrens, G. Koenig Langlo, B. Giesler, G. Becker, O. Mayer |
| <b>Keywords:</b>  | Solar Radiation, System Performance, Modelling / Modeling, Sizing Ratio, Irradiation Enhancement Effects  |
| <b>Topic:</b>     | PV Systems  |
| <b>Subtopic:</b>  | Large PV Power Plants and Distributed PV: System Aspects and Grid Connection  |
| <b>Event:</b>     | 26th European Photovoltaic Solar Energy Conference and Exhibition   |



## BSRN in Web of Science (2016)

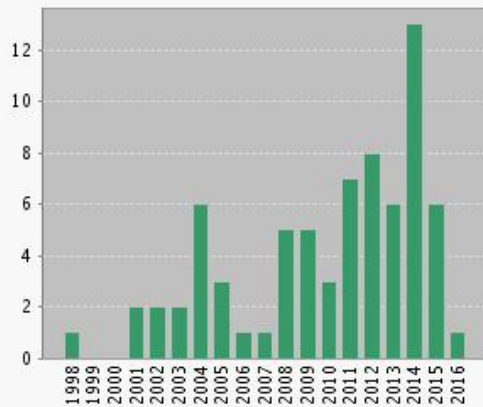
**Citation Report: 72**

(from All Databases)

You searched for: TOPIC: (BSRN) [...More](#)

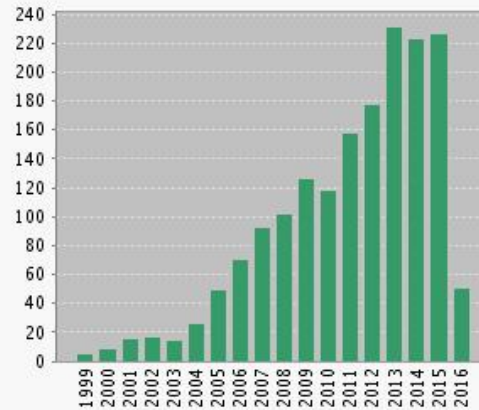
This report reflects citations to source items indexed within All Databases.

**Published Items in Each Year**



The latest 20 years are displayed.

**Citations in Each Year**



The latest 20 years are displayed.

Results found: 72

Sum of the Times Cited [?]: 1716

Sum of Times Cited without self-citations [?]: 1593

Citing Articles [?]: 1274

Citing Articles without self-citations [?]: 1218

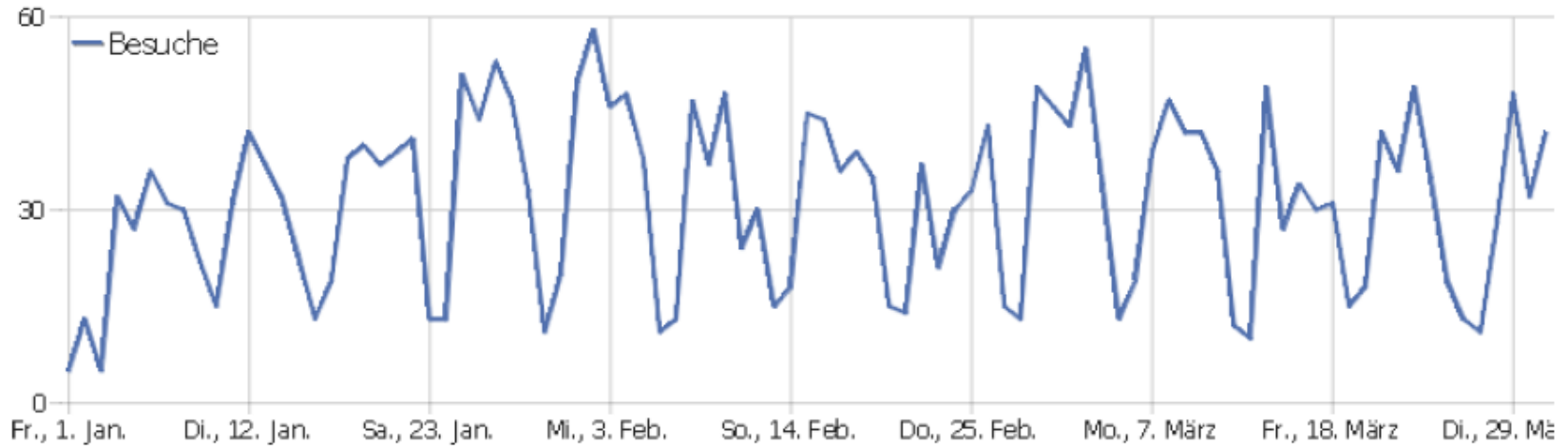
Average Citations per Item [?]: 23.83

h-index [?]: 21



# Web Statistics: Jan – March 2016














**Visits per day**



| Name           | Wert   |
|----------------|--------|
| <b>Visits</b>  | 2.842  |
| <b>Actions</b> | 11.368 |



## Web Statistics: Jan – March 2016

| Land   | Visits | Actions | Aktionen pro Besuch | Durchschnittszeit auf der Website |
|--|--------|---------|---------------------|-----------------------------------|
|  Vereinigte Staaten     | 1.190  | 4.632   | 4                   | 00:03:29                          |
|  Deutschland            | 268    | 1.209   | 5                   | 00:04:31                          |
|  Spanien                | 177    | 773     | 4                   | 00:03:41                          |
|  Frankreich             | 172    | 719     | 4                   | 00:02:24                          |
|  China                  | 158    | 684     | 4                   | 00:05:37                          |
|  Japan                  | 148    | 399     | 3                   | 00:02:06                          |
|  Vereinigtes Königreich | 134    | 535     | 4                   | 00:03:02                          |
|  Brasilien              | 107    | 257     | 2                   | 00:02:55                          |
|  Südkorea               | 90     | 480     | 5                   | 00:05:43                          |
|  Italien                | 61     | 258     | 4                   | 00:05:09                          |
|  Russland             | 39     | 134     | 3                   | 00:01:57                          |
|  Niederlande          | 36     | 159     | 4                   | 00:04:41                          |
|  Australien           | 26     | 118     | 5                   | 00:04:19                          |
|  Estland              | 26     | 117     | 5                   | 00:05:36                          |



# Web Statistics: Jan – March 2016

## Visits per continent

| Kontinent   | Visits | Actions | Aktionen pro Besuch |
|-------------|--------|---------|---------------------|
| Nordamerika | 1.202  | 4.698   | 4                   |
| Europa      | 1.063  | 4.555   | 4                   |
| Asien       | 416    | 1.607   | 4                   |
| Südamerika  | 117    | 332     | 3                   |
| Ozeanien    | 27     | 122     | 5                   |
| unbekannt   | 16     | 19      | 1                   |
| Afrika      | 1      | 35      | 35                  |



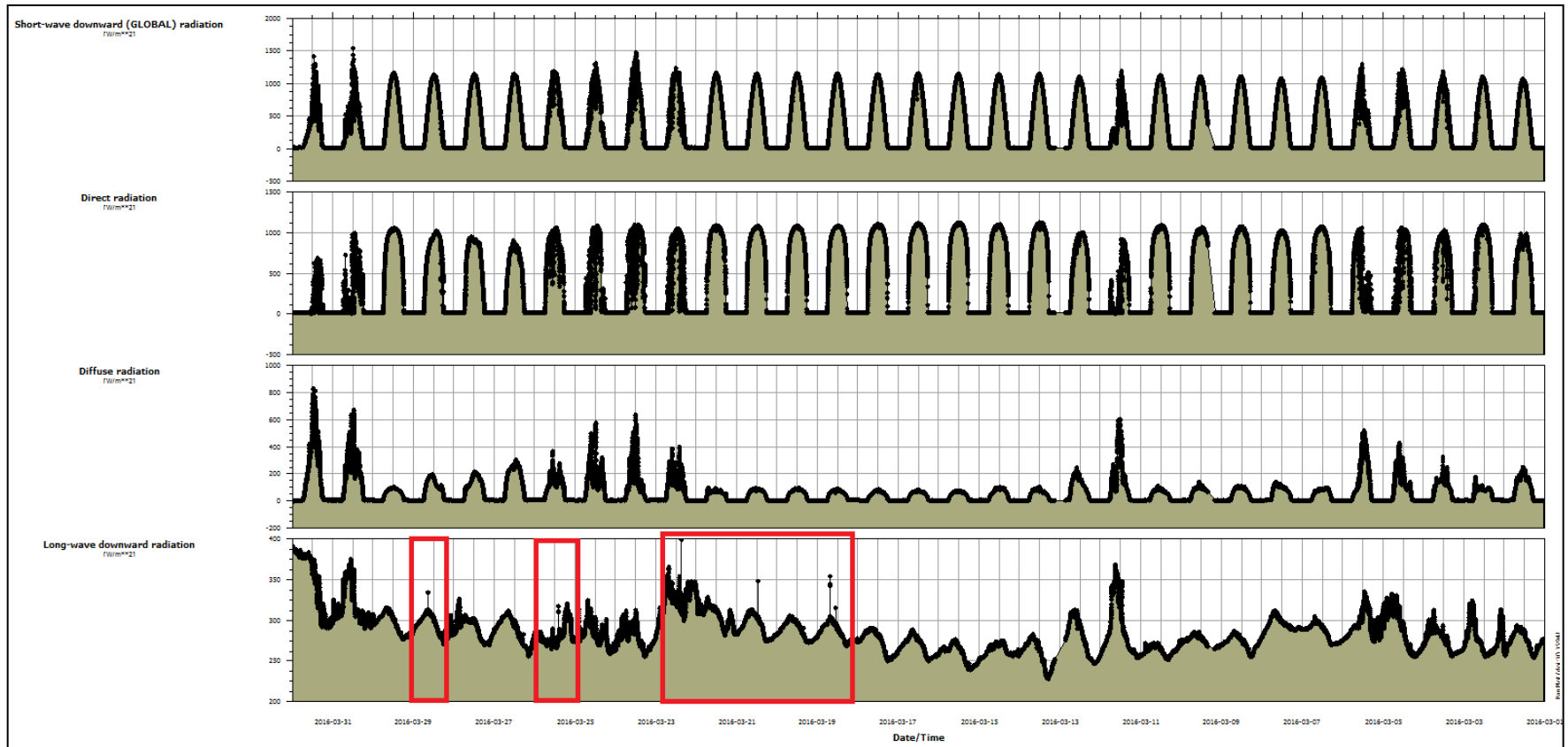
## **FTP Statistics: ftp.bsrn.awi.de**

TOTALS FOR SUMMARY PERIOD Tue Mar 1 2016 TO Fri Apr 1 2016

|                                  |                        |
|----------------------------------|------------------------|
| Files Transmitted :              | 16.229                 |
| Bytes Transmitted:               | 16.728.110.291 (16 GB) |
| Average Files Transmitted Daily: | 560                    |



# Current Staff of the WRMC



## Current Staff of the WRMC

- Amelie Driemel (Bücker) (postdoc, data curator)

### Dr. Amelie Driemel




Division Infrastructure/Administration | Computing and Data Centre

[Related page >](#)

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#### Responsibilities

Data Editor of PANGAEA - Publishing Network for Geological and Environmental Data [PANGAEA](#)

Data Curator of BSRN - Baseline Surface Radiation Network [BSRN](#)





## Current Staff of the WRMC

- Holger Schmithüsen(postdoc, BSRN-Toolbox, QC)





## Current Staff of the WRMC

- Wolfgang Cohrs (technical coordinator)



Gert König-Langlo, BSRN Meeting 2016

## Current Staff of the WRMC

- Rainer Sieger (PANGAEA administrator)


### Dr. Rainer Sieger

Data curator



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[Related page >](#)

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#### Responsibilities

Data curator of PANGAEA - Publishing Network for Geological and Environmental Data - Software development



## Current Staff of the WRMC

- Gert König-Langlo (director of the WRMC)





## Staff of the WRMC from May 2017 onward

- **Successor** (student, data curator)
- Amelie Driemel (Bücker) (**director of the WRMC**)
- Holger Schmithüsen (**station scientist: GVN**)
- Wolfgang Cohrs (technical coordinator)
- Rainer Sieger (PANGAEA administrator)
- ~~Gert König-Langlo (director of the WRMC)~~
- **Marion Maturilli (station scientist NYA)**



Director of AWI Karin Lochte:

“AWI will continue to host the BSRN network at present level”