Status of the
World Radiation Monitoring Center

Gert König-Langlo,  Rainer Sieger, BSRN Meeting 2010
Brief BSRN History:

1. 1988: The WMO proposed the establishment of the BSRN.

2. 1992: The BSRN started with 5 sites and the WRMC at ETH Zurich under the direction of Prof. Atsumu Ohmura.

3. 2004: BSRN officially became a contributor to the Global Climate Observing System (GCOS).

4. 2008 July: After 15 years of nearly continuous operation at ETH Zurich, the archive moved to Alfred Wegener Institute (AWI) in Bremerhaven, Germany under the direction of Dr. Gert König-Langlo.
Present State of the WRMC: 47 stations providing data
Present State of the WRMC: Datasets

The typical average interval for radiation data is 1 minute:

1. LR 0100: (Global, Diffuse, Direct, Long-wave down) 47 stations
2. LR 0200: (Long-wave spectral down) 0 stations
3. LR 0300: (Reflex, Long-wave up) 9 stations
4. LR 0500: (UV) 12 stations
5. LR 1000: (Synops) 8 stations
6. LR 1100: (Upper air soundings) 25 stations
7. LR 1200: (Total ozone) 8 stations
8. LR 1300: (Aerosol optical depths) (under construction) (14) stations
9. LR 1300: (Ceilometer data) 3 stations
10. LR 30x0: (Radiation measurements from tower) 11 stations
Homepage

1. The web-address is: http://www.bsrn.awi.de. The old homepage http://bsrn.ethz.ch does not exist any more.

2. The web pages at AWI base on the content management system Typo3. It offers a web-based editing throughout the word.


4. Link-tables offer easy access to any dataset.

5. Additional, station information, parameters, software, literature etc. are offered.

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Workflow at AWI:

### Incoming Data

1. Each station scientist produces one station-to-archive file per month and station.

2. Files get copied from the station scientists to ftp.bsrn.awi.de/incoming/station.

3. Accepted files (formal check, visual inspection) get copied from the WRMC to ftp.bsrn.awi.de/station where they are public available.

4. Accepted files get additionally imported into the publishing network for geoscientific & environmental data “PANGAEA”.

### Outgoing Data

1. AWI provides ftp-access (ftp.bsrn.awi.de/station) to any station-to-archive file.

2. Additionally, AWI provides the full “PANGAEA” service with respect to any single dataset (logical record, station, month) (http://www.bsrn.awi.de).

3. For longer time series and averages the “Data Warehouse” service is available.

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Present State of the WRMC: 5622 station-months available

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| Torareve     | TOR       | Alan Hallis (kallis@aol.com)       |          | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 6    | X   |
| Xianghe      | XIA       | Xiangao Xa (xiangaoxia2008@yahoo.com)|          | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 12   | 6    | X   |
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What offers PANGAEA?

1. **Dutton, EG (2007):** Basic and other measurements of radiation at station Barrow (2001-02)
   - Size: 445443 data points
   - doi:10.1594/PANGAEA.668521 - Score: 100% - Similar datasets

2. **Dutton, EG (2007):** Basic and other measurements of radiation at station Barrow (2001-03)
   - Size: 556139 data points
   - doi:10.1594/PANGAEA.668522 - Score: 100% - Similar datasets

3. **Dutton, EG (2007):** Basic and other measurements of radiation at station Barrow (2001-04)
   - Size: 565201 data points
   - doi:10.1594/PANGAEA.668523 - Score: 100% - Similar datasets
What offers PANGAEA?

PANGAEA presents well defined metadata for any dataset (no login)

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PANGAEA presents well defined metadata for any dataset (no login)
What offers PANGAEA?

PANGAEA offers access restrictions

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What offers PANGAEA?

PANGAEA presents the data itself in different formats (ftp, text, html)

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Google Earth Overlay

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Heimo, A (2008): Other measurements at 10 m from station Paverne (1994-01)

Size: 431940 data points
doi:10.1594/PANDERA.075045

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What offers PANGAEA?

PANGAEA Data Warehouse offers averaging of long time series

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What offers PANGAEA?

Software

The Software on this page is provided by the PANGAEA-Network for the visualization, exploration and interpretation of scientific data. The tools are freeware; its use in combination with the PANGAEA Information System is recommended.

- **PanMap** is a Mini-GIS (Geographical Information System) to draw point and vector data in maps.
- **PanPlot** enables the user to plot data versus time or space in multivariable graphs.
- **Pan2Applic** is a tool to convert and compile single files or folders of output files (ascii/tab-separated data files with or without metaheader) downloaded from the information system PANGAEA to other formats used by applications, e.g. for visualization or further processing.
- Some useful tools for converting ASCII files to some special formats.
- **PanCount** is an Excel-sheet to use the keyboard as a counting device.
What offers PANGAEA? Quicklook with PanPlot
What offers PANGAEA?

Ocean Data View example:
What offers PANGAEA?

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BSRN Toolbox:

1. Downloading files from the public ftp account.
2. Decompressing files.
3. Formal check of the files.
4. Extract metadata.
5. Create files for PanPlot etc.
Future plans:

1. Publication of an updated „Technical Plan for BSRN Data Management“. A draft is already available.

2. Data handling of the “spectral aerosol optical depths” (AODs) must be redefined since AODs cannot be included in the station-to-archive files as originally planed. This work is in process (Bruce Forgan). As soon as AOD data are available they will be offered in PANGAEA.

3. A central quality management will be established from Dr. Xiuping Yan, who started to work at AWI in February 2010. The main tool of the new quality management system will be a program which adds quality flags to Pangaea derived datasets.

4. The program for data quality flagging will get offered public domain as e.g. the BSRN-Toolbox. It can be used from any customer from the WRMC. It is planned to keep the error limits flexible to allow more specific error analysis depending of the applied instrument, the station environment and the demands of the users.

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