

GERB Station Data

Introduction

At the end of the RMIB GERB processing, the data in the SHI images (3*3 SEVIRI pixel resolution) is extracted over pre-defined pixels. These pixels correspond to the positions of ground measurement stations in the GERB field-of-view such as BSRN sites. This extraction is expected to be useful in the frame of the validation of the GERB processing and to validate surface radiation budget retrieval from GERB data.

Listing of stations

The extraction is currently performed over the following stations:

Station	Country	Lat	Lon
Achern	Germany	48.638	8.066
Balbina	Brazil	-3.2	-60.0
Bermuda	USA-sponsored	32.3	-64.3
Budapest	Hungary	47.8	19.1
Cabauw	The Netherlands	51.97	4.93
Cambourne	UK	50.0	-5.0
Carpentras	France	44.0	5.0
Chilbolton	UK	51.1445	-1.437
De-Aar	South Africa	-30.7	24.0
Florianopolis	Brazil	-27.5	-48.5
Hornisgrinde	Germany	48.604	8.204
Heselbach	Germany	48.539	8.395
Ilorin	Nigeria	8.5	4.6
Lindenburg	Germany	52.3	14.1
Niamey	Niger	13.477	2.176
AMMA-anc	Niger	13.522	2.632
Palaiseau	France	48.713	2.204
Payerne	Switzerland	46.8	6.9
Riyadh	Saudi Arabia	24.7	48.8
Sede-Boqer	Israel	30.9	34.8
Tamanrasset	Algerie	22.78	5.85
Toravere	Estonia	58.3	26.5
Uccle	Belgium	50.8	4.35
Valencia	Spain	39.57	-1.29

Files Format

For each station, a monthly ASCII file is created (for example *Uccle_200402.txt* for February 2004 at

the Uccle station). The file contains a header followed by the 15' data organized in line. The file looks like:

```
# Station: Valencia
# position      : lat=39.570 lon=-1.290 (line=187.822,column=606.480)
# nearest pixel : lat=39.549 lon=-1.342 (line= 188,column= 606)
# Viewing zenith angle=46.000000 , viewing azimuth angle=178.000000
#
# time          flux_s flux_t rad_s rad_t c_sw c_lw cc ca cp sz ra
hdf_file
20040219075510  81.00  230.75  97.25 371.75  1  3 -1 -1 -1 80 117 #
G2_SEV1_L20A_H_20040219_074500_V002.hdf
20040219081010  94.00  229.25 120.00 369.50  7 -1 -1 -1 -1 77 119 #
G2_SEV1_L20A_H_20040219_080000_V002.hdf
20040219082510 107.00  235.25 144.25 379.25  3  1  0  0  0 74 122 #
G2_SEV1_L20A_H_20040219_081500_V002.hdf
20040219084010 128.00  232.25 178.50 374.25  5  0  0  0  0 72 125 #
G2_SEV1_L20A_H_20040219_083000_V002.hdf
20040219085510 134.00  229.75 194.50 370.50  8 -2  0  0  0 70 128 #
G2_SEV1_L20A_H_20040219_084500_V002.hdf
20040219091010 149.50  228.00 214.25 367.25  5  0 22 14  0 67 131 #
G2_SEV1_L20A_H_20040219_090000_V002.hdf
20040219092510 169.75  234.00 253.00 377.50  5  1 11 11  0 65 134 #
G2_SEV1_L20A_H_20040219_091500_V002.hdf
...
...
```

The header gives:

1. the positions of the station (lat-lon and coordinates in the ARCH field-of-view)
2. the positions of the nearest pixel (lat-lon and coordinates in the ARCH field-of-view)
3. the viewing angle for the pixel
4. the viewing azimuth angle for this pixel

The different columns of data provide respectively:

1. Time (UTC) of acquisition at the station [YYYYMMDDhhmmss],
2. solar flux [W/m²],
3. thermal flux [W/m²],
4. solar radiance [W/m²/sr],
5. thermal radiance [W/m²/sr],
6. shortwave correction factor [%],
7. longwave correction factor [%],
8. cloud cover [%],
9. cloud amount [%],
10. cloud phase [%],
11. solar zenith angle [°],
12. relative azimuth angle [°],
13. original file name.

Remarks:

1. When a quantity is not available (for example the cloud retrieval during the night) the quantity is set to -1.0.
2. The user must be aware that the data files are not sorted chronologically.
3. For more information about the meaning of these different numbers see [GERB Content Description](#).
4. Details of the BSRN site are at: <http://bsrn.ethz.ch>

Station data access

The station data are available for download on the ROLSS FTP site provided you are a registered GERB data user (you need a *username* and *password* to login). The station files are in the following ROLSS directory:

```
cd G2/SEV1/G2_SEV1_L20A_H_STATION
```

For more information / addition of station

For additional information or to add new locations in the list, please email:

- To : Nicolas.Clerbaux@oma.be
- CC : gerb@oma.be

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