

HimawariCloud Data Set Information

Table A: Volume of Himawari Standard Data for 1 Full-Disk observation
(MB, compressed file size)

◆ These values are based on actual observation made at 0300 UTC on 8 January 2015 as a sample with 10% added in consideration of maximum values relating to diurnal and seasonal change.

			Segment										Total
	R(km) *		S01	S02	S03	S04	S05	S06	S07	S08	S09	S10	
Band	B01	1.0	3.69	8.25	11.01	11.62	12.71	12.40	12.57	11.90	9.67	5.21	99.02
	B02	1.0	3.98	8.68	11.42	12.03	13.08	12.79	13.04	12.32	10.02	5.48	102.83
	B03	0.5	16.34	33.60	43.57	45.04	47.92	46.84	48.26	46.38	37.56	21.07	386.59
	B04	1.0	5.21	9.90	12.47	13.01	13.65	13.39	13.64	13.06	10.70	6.28	111.32
	B05	2.0	0.96	2.21	2.79	2.96	3.11	3.02	3.11	2.97	2.42	1.35	24.89
	B06	2.0	0.97	2.14	2.71	2.85	3.03	2.98	3.03	2.88	2.33	1.33	24.24
	B07	2.0	1.12	2.16	2.71	2.85	2.99	2.86	2.99	3.00	2.37	1.41	24.47
	B08	2.0	0.51	0.89	0.99	1.31	1.55	1.54	1.53	1.21	0.94	0.54	11.02
	B09	2.0	0.63	1.10	1.16	1.50	1.88	1.86	1.82	1.44	1.12	0.66	13.17
	B10	2.0	0.98	1.71	1.77	2.08	2.67	2.65	2.56	2.10	1.63	1.03	19.18
	B11	2.0	1.28	2.37	2.79	3.04	3.41	3.33	3.33	3.11	2.38	1.37	26.40
	B12	2.0	0.95	1.85	2.41	2.71	3.13	3.04	3.03	2.72	2.00	1.09	22.93
	B13	2.0	1.35	2.38	2.77	3.00	3.40	3.33	3.32	3.09	2.39	1.42	26.45
	B14	2.0	1.35	2.39	2.76	2.99	3.41	3.34	3.31	3.07	2.37	1.41	26.41
	B15	2.0	1.36	2.35	2.66	2.87	3.31	3.25	3.21	2.95	2.30	1.41	25.67
	B16	2.0	1.16	1.90	2.13	2.33	2.75	2.70	2.68	2.41	1.91	1.23	21.22
			41.86	83.88	106.12	112.20	122.01	119.34	121.41	114.60	92.11	52.29	965.81

* R is the spatial resolution of each band.

Example of estimated necessary connection speeds

- Connection speed needed to download Himawari Standard Data for 1 Full-Disk observation within 10 minutes:

$$965.81 \times 1,024^2/10^6 \times 8/600 = 13.5 \text{ Mbps}$$

- Connection speed needed to download 5 bands (B03, B07, B08, B13, B15) corresponding to MTSAT-2 (Himawari-7) bands within 10 minutes:

$$(386.59 + 24.47 + 11.02 + 26.45 + 25.67) \times 1,024^2/10^6 \times 8/600 = 6.63 \text{ Mbps}$$

- Connection speed needed to download 4 segments of S04-S07 near the equator within 10 minutes:

$$(112.20 + 122.01 + 119.34 + 121.41) \times 1,024^2/10^6 \times 8/600 = 6.64 \text{ Mbps}$$

Table B: Volume of Himawari-8/9 HRIT data for 1 Full-Disk observation
(MB, compressed file size)

◆ These values are based on actual observation made on 4 December 2015 as a sample with 10% added in consideration of maximum values relating to seasonal change.

	R (km) *2	Segment										Total	
		S01	S02	S03	S04	S05	S06	S07	S08	S09	S10		
Band *1	B03 (VIS)	1.0	1.38	3.10	4.04	4.73	5.26	5.57	5.45	5.29	4.41	2.59	41.87
	B04	4.0	0.10	0.23	0.29	0.34	0.39	0.40	0.39	0.37	0.33	0.22	3.05
	B05	4.0	0.07	0.18	0.23	0.29	0.31	0.33	0.34	0.34	0.30	0.19	2.57
	B06	4.0	0.07	0.18	0.23	0.28	0.32	0.34	0.33	0.33	0.29	0.19	2.55
	B07 (IR4)	4.0	0.15	0.39	0.48	0.56	0.62	0.64	0.62	0.54	0.43	0.22	4.63
	B08 (IR3)	4.0	0.08	0.18	0.20	0.26	0.37	0.36	0.30	0.22	0.18	0.08	2.23
	B09	4.0	0.08	0.19	0.20	0.24	0.36	0.36	0.29	0.22	0.19	0.08	2.21
	B10	4.0	0.10	0.24	0.23	0.28	0.42	0.43	0.32	0.26	0.24	0.10	2.62
	B11	4.0	0.17	0.40	0.45	0.50	0.59	0.62	0.55	0.52	0.40	0.18	4.38
	B12	4.0	0.10	0.29	0.36	0.42	0.53	0.54	0.46	0.42	0.30	0.11	3.52
	B13 (IR1)	4.0	0.19	0.42	0.45	0.50	0.62	0.63	0.56	0.52	0.41	0.19	4.46
	B14	4.0	0.19	0.42	0.45	0.50	0.61	0.63	0.55	0.52	0.41	0.19	4.43
	B15 (IR2)	4.0	0.19	0.41	0.42	0.46	0.59	0.62	0.53	0.50	0.40	0.18	4.26
B07 *3	2.0	0.84	1.10	2.09	2.20	2.20	2.20	2.20	2.20	1.10	1.10	17.23	
		3.67	7.70	10.12	11.54	13.18	13.65	12.87	12.24	9.36	5.59	100.00	

*1: Parentheses indicate corresponding MTSAT band names. B01- and B02-band HRIT data are not distributed.

*2: R is the spatial resolution of each band.

*3: B07-band files with 2 km horizontal resolution are distributed from 0800 to 2150 UTC.

Example of estimated necessary connection speeds

- Connection speed needed to download all the HRIT Data for 1 Full-Disk observation within 10 minutes:

$$100.00 \times 1,024^2/10^6 \times 8/600 = 1.40 \text{ Mbps}$$

- Connection speed needed to download 5 bands (B03, B07, B08, B13, B15) corresponding to MTSAT-2 (Himawari-7) bands within 10 minutes:

$$(41.87 + 4.63 + 2.23 + 4.46 + 4.26) \times 1,024^2/10^6 \times 8/600 = 0.80 \text{ Mbps}$$

- Connection speed needed to download 4 segments of S04-S07 near the equator within 10 minutes:

$$(11.54 + 13.18 + 13.65 + 12.87) \times 1,024^2/10^6 \times 8/600 = 0.72 \text{ Mbps}$$

Table C: Volume of 10-minute distributed data except for Table A and B data
(MB, compressed file size)

◆ These values are based on actual observation made at 0300 UTC on 8 January 2015 as a sample with 10% added in consideration of maximum values relating to diurnal and seasonal change.

		Full Disk	Target Area		
		PNG	Himawari Standard Data	NetCDF	PNG
Band	B01	156.02	4.19	5.70	6.63
	B02		4.32	5.93	
	B03		16.38	22.63	
	B04		4.68	6.49	
	B05		1.08	1.50	
	B06		1.04	1.46	
	B07		1.03	1.44	
	B08		0.37	0.54	
	B09		0.43	0.64	
	B10		0.74	1.07	
	B11		1.07	1.48	
	B12		0.88	1.21	
	B13		1.06	1.48	
	B14		1.06	1.48	
	B15		1.03	1.43	
	B16		0.80	1.15	
		156.02	40.16	55.62	6.63

Example of estimated necessary connection speed

- Connection speed needed to download all HimawariCloud service data within 10 minutes:

$$(965.81 + 100.00 + 156.02 + 40.16 + 55.62 + 6.63) \times 1,024^2/10^6 \times 8/600 = 18.51 \text{ Mbps}$$

Table D: File naming conventions

File type	File naming convention
Himawari Standard Data (HSD)	HS_ <i>aaa_yyyymmdd_hhnn_Bbb_cccc_Rjj_SkkLL</i> .DAT.bz2
NetCDF	NC_ <i>aaa_yyyymmdd_hhnn_Bbb_cccc_Rjj</i> .nc.bz2
PNG	PI_ <i>aaa_yyyymmdd_hhnn_bbb_cccc_Rjj_Pqrrr</i> .png
HRIT	Please refer to HimawariCast_dataset_20150624_en.pdf
Character	Description
<i>aaa</i>	Satellite name H08: Himawari-8 H09: Himawari-9 H07: Himawari-7 (MTSAT-2)
<i>yyyy</i>	Observation start time (timeline) [year] (4 digits)
<i>mm</i>	Observation start time (timeline) [month] (01 – 12)
<i>dd</i>	Observation start time (timeline) [day] (01 – 31)
<i>hh</i>	Observation start time (timeline) [hour] (00 – 23)
<i>nn</i>	Observation start time (timeline) [min.] (every 10 min.) During backup operation by Himawari-7 (MTSAT-2), <i>nn</i> is equivalent to 00, 15 or 30.
<i>bb</i>	Band number (01 – 16) reference During backup operation by Himawari-7 (MTSAT-2): 01: Himawari-7 VIS (central wavelength 0.68 μm) 02: Himawari-7 IR4 (central wavelength 3.7 μm) 03: Himawari-7 IR3 (central wavelength 6.8 μm) 04: Himawari-7 IR1 (central wavelength 10.8 μm) 05: Himawari-7 IR2 (central wavelength 12.0 μm)
<i>bbb</i> (for PNG)	TRC: True color image (band 1,2,3)
<i>cccc</i>	Observation area and number FLDK: Full Disk JPee: Japan Area Observation number on the timeline (ee = 01 – 04) R3ff: Target Area Observation number on the timeline (ff = 01 – 04) During backup operation by Himawari-7 (MTSAT-2): FLDK: Full Disk HNDK: Half Disk Northern Hemisphere HSDK: Half Disk Southern Hemisphere
<i>jj</i>	Spatial resolution at SSP 05: 0.5 km 10: 1 km 20: 2 km 40: 4 km
<i>kkLL</i> (for HSD)	Information on Himawari Standard Data segment division kk: segment number (01 – 11) ll: total number of segments (01 – 99) (0101: no division)
<i>qrrr</i> (for PNG)	qq Projection GP: Normalized geostationary projection LL: Latitude/longitude grids rr Image area FD: Full disk JP: Japan area TG: Target area