Ancillary Information for the prime products

JIR-IAPS-SY-003-2023
Issue 1
9/1/2023

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Juno
JIRAM
Ancillary Information for the prime products

JIR-IAPS-SY-003-2023
Version 1.0

January 09, 2023

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Table of Contents

List of Tables

1 INTRODUCTION

The Jovian Infrared Auroral Mapper (JIRAM, Adriani et al., 2017) is an imaging spectrometer on board the Juno spacecraft, which started observing Jupiter on August 2016 (Bolton et al., 2017). The JIRAM scientific goals are to explore the Jovian aurorae and the planet's atmospheric structure, dynamics and composition. The main auroral oval emission has been investigated by JIRAM since orbit insertion (2016), as well as the thermal emission from the atmosphere. All technical information on JIRAM instrument can be found in Adriani et al., (2017).

In summaty JIRAM has two imaging channel (L-band and M-band) and one spectrometer channel. Both JIRAM L-band and M-band imaging channels acquire images (128 x 432 pixels each), with a pixel angular resolution is 0.01°. The FoV of both bands is 5.87° by 1.74 ° degrees; the spatial resolution, at the surface, varies along the spacecraft distance and it is of the order of 100 km. The integration time for L-band (auroral images) is always 1 s, while for the M-band (atmosphere) it is of the order of 10 ms, The spectrometer acquires 256 spectra, from 2 to 5 μm with 9nm spectral sampling, arranged along a 1D slit (the spectrometer data is not used in this dataset)Because Juno is a spinning spacecraft, there is a dedicated de-spinning mirror that compensates for the spacecraft rotation. For this reason, the instrument can perform only one acquisition for each spacecraft turn (that is, every 30 s), made both 2 images (2 filters) and one slit of spectra. By setting the time of the observation, and taking advantage of the rotation of Juno, JIRAM can tilt its field of view (FoV) above or below the sub-spacecraft point, along the plane perpendicular to Juno spin axis. JIRAM cannot articulate its FoV in any other direction without turning the spacecraft.

2 JIRAM AURORAL MOSAICS OF H3+ EMISSION

JIRAM detects the infrared emission from the main roto-vibrational band of H3+, composed of a large number (~200) of transitions in the range 3.0-5.0 μm. In particular, there is a spectral interval (3.2 to 4.0 μm) where the solar and thermal radiance emitted by the planet are very low due to the intense atmospheric methane absorption band. This results in a high auroral contrast against Jupiter's dark disk. Hence, one of the two imaging channels, called L-band, has band-pass filter from 3.3 to 3.6 μm. In Mura et al., (2017) , specific details on the Auroral observation with JIRAM can be found, including the procedure of removing the background noise, which is quite relevant in auroral images.

This data set present 4 mosaics made of images of auroras taken during PJ1 and 4, for the North and South pole. The data used are summarized in the table below. Each line represents a "scan", i.e. a series of acquisition taken every 30s without interruption, trying to cover as much Aurora as possible, scanning from one edge of the Aurora to the other . When the instrument FoV reaches gets outside the region of interest, a new scan is commanded. This requires to issue a new telecommand to JIRAM, and results in a gap of 60 seconds between scans.

The table is organized in this way:

- First column: orbit number
- Second column: hemisphere (North/South)
- Third column: number of acquisitions
- Fourth column: start and stop UTC
- Fifth column: first and last Acquisition filename

1	N	25	2016-08-27T08:24:17.027 2016-08-27T08:36:34.952	JIR_IMG_EDR_2016240T082421_V01.IMG JIR_IMG_EDR_2016240T083639_V01.IMG
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1	N	25	2016-08-27T09:09:20.492 2016-08-27T09:21:38.512	JIR_IMG_EDR_2016240T090924_V01.IMG JIR_IMG_EDR_2016240T092142_V01.IMG
1	N	25	2016-08-27T09:24:11.373 2016-08-27T09:36:29.441	JIR_IMG_EDR_2016240T092415_V01.IMG JIR_IMG_EDR_2016240T093633_V01.IMG
1	N	25	2016-08-27T09:39:02.233 2016-08-27T09:51:20.358	JIR_IMG_EDR_2016240T093906_V01.IMG JIR_IMG_EDR_2016240T095124_V01.IMG
1	N	25	2016-08-27T09:54:23.790 2016-08-27T10:06:41.960	JIR_IMG_EDR_2016240T095427_V01.IMG JIR_IMG_EDR_2016240T100646_V01.IMG
1	N	18	2016-08-27T10:09:14.590 2016-08-27T10:17:57.509	JIR_IMG_EDR_2016240T100918_V01.IMG JIR_IMG_EDR_2016240T101801_V01.IMG
1	N	25	2016-08-27T10:24:05.340 2016-08-27T10:36:23.663	JIR_IMG_EDR_2016240T102409_V01.IMG JIR_IMG_EDR_2016240T103627_V01.IMG
1	N	25	2016-08-27T10:38:56.041 2016-08-27T10:51:14.447	JIR_IMG_EDR_2016240T103900_V01.IMG JIR_IMG_EDR_2016240T105118_V01.IMG
1	N	25	2016-08-27T10:54:17.373 2016-08-27T11:06:35.876	JIR_IMG_EDR_2016240T105421_V01.IMG JIR_IMG_EDR_2016240T110640_V01.IMG
1	N	25	2016-08-27T11:09:07.860 2016-08-27T11:21:26.482	JIR_IMG_EDR_2016240T110912_V01.IMG JIR_IMG_EDR_2016240T112130_V01.IMG
1	N	25	2016-08-27T11:23:58.175 2016-08-27T11:36:16.893	JIR_IMG_EDR_2016240T112402_V01.IMG JIR_IMG_EDR_2016240T113621_V01.IMG
1	N	25	2016-08-27T11:38:48.236 2016-08-27T11:51:06.904	JIR_IMG_EDR_2016240T113852_V01.IMG JIR_IMG_EDR_2016240T115111_V01.IMG
4	N	30	2017-02-02T03:58:13.282 2017-02-02T04:13:12.606	JIR_IMG_EDR_2017033T035831_V01.IMG JIR_IMG_EDR_2017033T041316_V01.IMG
4	N	26	2017-02-02T04:14:58.801 2017-02-02T04:27:56.251	JIR_IMG_EDR_2017033T041517_V01.IMG JIR_IMG_EDR_2017033T042800_V01.IMG
4	N	26	2017-02-02T04:30:12.906 2017-02-02T04:43:10.364	JIR_IMG_EDR_2017033T043031_V01.IMG JIR_IMG_EDR_2017033T044314_V01.IMG
4	N	26	2017-02-02T04:44:56.540 2017-02-02T04:57:54.014	JIR_IMG_EDR_2017033T044515_V01.IMG JIR_IMG_EDR_2017033T045758_V01.IMG

4	N	26	2017-02-02T05:00:10.645 2017-02-02T05:13:08.125	JIR_IMG_EDR_2017033T050029_V01.IMG JIR_IMG_EDR_2017033T051312_V01.IMG
4	N	26	2017-02-02T05:14:54.276 2017-02-02T05:27:51.764	JIR_IMG_EDR_2017033T051512_V01.IMG JIR_IMG_EDR_2017033T052755_V01.IMG
4	N	26	2017-02-02T05:30:08.376 2017-02-02T05:43:05.871	JIR_IMG_EDR_2017033T053026_V01.IMG JIR_IMG_EDR_2017033T054310_V01.IMG
4	N	26	2017-02-02T05:44:52.003 2017-02-02T05:57:49.507	JIR_IMG_EDR_2017033T054510_V01.IMG JIR_IMG_EDR_2017033T055753_V01.IMG
4	N	26	2017-02-02T06:00:06.099 2017-02-02T06:13:03.609	JIR_IMG_EDR_2017033T060024_V01.IMG JIR_IMG_EDR_2017033T061307_V01.IMG
4	N	26	2017-02-02T06:14:49.720 2017-02-02T06:27:47.254	JIR_IMG_EDR_2017033T061508_V01.IMG JIR_IMG_EDR_2017033T062751_V01.IMG
4	N	26	2017-02-02T06:30:03.810 2017-02-02T06:43:01.352	JIR_IMG_EDR_2017033T063022_V01.IMG JIR_IMG_EDR_2017033T064305_V01.IMG
4	N	26	2017-02-02T06:44:47.427 2017-02-02T06:57:44.983	JIR_IMG_EDR_2017033T064505_V01.IMG JIR_IMG_EDR_2017033T065749_V01.IMG
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1	S	25	2016-08-27T15:09:02.428 2016-08-27T15:21:20.623	JIR_IMG_EDR_2016240T150907_V01.IMG JIR_IMG_EDR_2016240T152125_V01.IMG
1	S	26	2016-08-27T17:53:59.331 2016-08-27T18:06:48.134	JIR_IMG_EDR_2016240T175404_V01.IMG JIR_IMG_EDR_2016240T180652_V01.IMG
1	S	26	2016-08-27T18:09:21.472 2016-08-27T18:22:10.274	JIR_IMG_EDR_2016240T180926_V01.IMG JIR_IMG_EDR_2016240T182215_V01.IMG
1	S	26	2016-08-27T18:24:43.616 2016-08-27T18:37:32.408	JIR_IMG_EDR_2016240T182448_V01.IMG JIR_IMG_EDR_2016240T183737_V01.IMG
1	S	26	2016-08-27T18:40:36.501 2016-08-27T18:53:25.292	JIR_IMG_EDR_2016240T184041_V01.IMG JIR_IMG_EDR_2016240T185330_V01.IMG
1	S	26	2016-08-27T18:55:58.652 2016-08-27T19:08:47.425	JIR_IMG_EDR_2016240T185603_V01.IMG JIR_IMG_EDR_2016240T190852_V01.IMG
1	S	26	2016-08-27T19:11:20.804 2016-08-27T19:24:09.574	JIR_IMG_EDR_2016240T191125_V01.IMG JIR_IMG_EDR_2016240T192414_V01.IMG
1	S	26	2016-08-27T19:26:42.959 2016-08-27T19:39:31.723	JIR_IMG_EDR_2016240T192647_V01.IMG JIR_IMG_EDR_2016240T193936_V01.IMG
1	S	20	2016-08-27T19:41:34.375 2016-08-27T19:51:18.702	JIR_IMG_EDR_2016240T194139_V01.IMG JIR_IMG_EDR_2016240T195123_V01.IMG
4	S	30	2017-02-02T15:58:01.337 2017-02-02T16:12:59.874	JIR_IMG_EDR_2017033T155818_V01.IMG JIR_IMG_EDR_2017033T161304_V01.IMG
4	S	26	2017-02-02T16:15:17.400 2017-02-02T16:28:14.088	JIR_IMG_EDR_2017033T161534_V01.IMG JIR_IMG_EDR_2017033T162818_V01.IMG
4	S	26	2017-02-02T16:30:01.115 2017-02-02T16:42:57.836	JIR_IMG_EDR_2017033T163018_V01.IMG JIR_IMG_EDR_2017033T164301_V01.IMG

4	S	26	2017-02-02T16:45:15.320 2017-02-02T16:58:12.063	JIR_IMG_EDR_2017033T164532_V01.IMG JIR_IMG_EDR_2017033T165816_V01.IMG
4	S	26	2017-02-02T16:59:59.059 2017-02-02T17:12:55.825	JIR_IMG_EDR_2017033T170016_V01.IMG JIR_IMG_EDR_2017033T171259_V01.IMG
4	S	26	2017-02-02T17:15:13.284 2017-02-02T17:28:10.072	JIR_IMG_EDR_2017033T171530_V01.IMG JIR_IMG_EDR_2017033T172814_V01.IMG
4	S	26	2017-02-02T17:29:57.039 2017-02-02T17:42:53.847	JIR_IMG_EDR_2017033T173014_V01.IMG JIR_IMG_EDR_2017033T174257_V01.IMG
4	S	26	2017-02-02T17:45:11.279 2017-02-02T17:58:08.106	JIR_IMG_EDR_2017033T174528_V01.IMG JIR_IMG_EDR_2017033T175812_V01.IMG
4	S	26	2017-02-02T17:59:55.049 2017-02-02T18:12:51.884	JIR_IMG_EDR_2017033T180012_V01.IMG JIR_IMG_EDR_2017033T181256_V01.IMG
4	S	26	2017-02-02T18:15:09.298 2017-02-02T18:28:06.152	JIR_IMG_EDR_2017033T181526_V01.IMG JIR_IMG_EDR_2017033T182810_V01.IMG

Table 1:Auroral Data Overview.

For each scan, the procedure of noise removal is applied, and a super-image (one per scan) is produced (i.e. the first super-image of orbit 1, North, is made of 25 images). Then all super-images for the same orbit and hemisphere are stacked in a single mosaic map. Because the noise removal algorithm can't remove the background, for each super-image a supplementary background level is subtracted in order to minimize the difference between overlapping super-images. SPICE software has been used to project the maps onto a 500 km level above the 1-bar reference one (see section 3).

Each file includes three matrixes: a mosaic map with the value of radiance in W m^{-2} sr^{-1} integrated between 3.3 e 3.6 μm; the x and y coordinates for each point, in km, in a orthographic projection.

3 JIRAM GLOBAL CYLINDRICAL (EQUIRECTANGULAR) MAP OF ATMOSPHERIC EMISSION

JIRAM detects the infrared emission from the atmosphere in the longest wavelength band (M band), which has a band-pass filter from 4.5 to 5 μm. During the first orbit, both in activity period 2 (inbound) and 3 (Perijove pass) a series of images have been acquired, and a cylindrical map (equirectangular) has been generated by stacking all images on the same mosaic. The data used are summarized in the table below. Each line represents a "scan", i.e. a series of acquisition taken every 30s without interruption, trying to cover as much of Jupiter as possible, scanning from one edge of Jupiter to the other . When the instrument FoV reaches gets outside the planetary limb, a new scan is commanded. This requires to issue a new telecommand to JIRAM, and results in a gap of 60 seconds between scans.

The table is organized in this way:

- First column: activity period
- Second column: number of acquisitions
- Third column: start and stop UTC
- Fourth column: first and last Acquisition filename

JM0002	157	2016-08-25T16:51:33.094 2016-08-25T18:11:41.690	JIR_IMG_EDR_2016238T165151_V01.IMG JIR_IMG_EDR_2016238T181144_V01.IMG
JM0002	157	2016-08-25T18:31:24.526 2016-08-25T19:51:33.116	JIR_IMG_EDR_2016238T183142_V01.IMG JIR_IMG_EDR_2016238T195135_V01.IMG
JM0002	157	2016-08-25T20:11:15.957 2016-08-25T21:31:24.544	JIR_IMG_EDR_2016238T201134_V01.IMG JIR_IMG_EDR_2016238T213126_V01.IMG
JM0002	157	2016-08-25T21:51:38.113 2016-08-25T23:11:46.695	JIR_IMG_EDR_2016238T215156_V01.IMG JIR_IMG_EDR_2016238T231149_V01.IMG
JM0002	157	2016-08-25T23:31:29.543 2016-08-26T00:51:38.121	JIR_IMG_EDR_2016238T233147_V01.IMG JIR_IMG_EDR_2016239T005140_V01.IMG
JM0002	157	2016-08-26T01:11:20.973 2016-08-26T02:31:29.544	JIR_IMG_EDR_2016239T011139_V01.IMG JIR_IMG_EDR_2016239T023131_V01.IMG
JM0002	157	2016-08-26T02:51:43.126 2016-08-26T04:11:51.733	JIR_IMG_EDR_2016239T025201_V01.IMG JIR_IMG_EDR_2016239T041154_V01.IMG
JM0002	150	2016-08-26T04:15:11.343 2016-08-26T05:31:44.856	JIR_IMG_EDR_2016239T041529_V01.IMG JIR_IMG_EDR_2016239T053147_V01.IMG
JM0002	150	2016-08-26T05:35:04.483 2016-08-26T06:51:37.988	JIR_IMG_EDR_2016239T053522_V01.IMG JIR_IMG_EDR_2016239T065140_V01.IMG
JM0002	150	2016-08-26T06:54:57.620 2016-08-26T08:11:31.118	JIR_IMG_EDR_2016239T065515_V01.IMG JIR_IMG_EDR_2016239T081133_V01.IMG
JM0002	150	2016-08-26T08:14:50.757 2016-08-26T09:31:24.245	JIR_IMG_EDR_2016239T081509_V01.IMG JIR_IMG_EDR_2016239T093126_V01.IMG
JM0003	6	2016-08-26T12:04:46.371 2016-08-26T12:07:35.360	JIR_IMG_EDR_2016239T120504_V01.IMG JIR_IMG_EDR_2016239T120738_V01.IMG
JM0003	17	2016-08-26T12:09:07.664 2016-08-26T16:22:36.677	JIR_IMG_EDR_2016239T120912_V01.IMG JIR_IMG_EDR_2016239T162241_V01.IMG
JM0003	11	2016-08-26T16:24:39.577 2016-08-26T16:29:46.881	JIR_IMG_EDR_2016239T162442_V01.IMG JIR_IMG_EDR_2016239T162949_V01.IMG
JM0003	40	2016-08-26T16:32:51.075 2016-08-26T16:52:49.454	JIR_IMG_EDR_2016239T163255_V01.IMG JIR_IMG_EDR_2016239T165254_V01.IMG
JM0003	11	2016-08-26T16:54:21.630 2016-08-26T16:59:28.935	JIR_IMG_EDR_2016239T165424_V01.IMG JIR_IMG_EDR_2016239T165931_V01.IMG
JM0003	40	2016-08-26T17:02:33.126 2016-08-26T17:22:31.506	JIR_IMG_EDR_2016239T170237_V01.IMG JIR_IMG_EDR_2016239T172236_V01.IMG
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JM0003	11	2016-08-26T17:54:16.463 2016-08-26T17:59:23.767	JIR_IMG_EDR_2016239T175419_V01.IMG JIR_IMG_EDR_2016239T175926_V01.IMG
JM0003	40	2016-08-26T18:02:27.956 2016-08-26T18:22:26.335	JIR_IMG_EDR_2016239T180232_V01.IMG JIR_IMG_EDR_2016239T182231_V01.IMG
JM0003	11	2016-08-26T18:24:29.242 2016-08-26T18:29:36.549	JIR_IMG_EDR_2016239T182432_V01.IMG JIR_IMG_EDR_2016239T182939_V01.IMG
JM0003	40	2016-08-26T18:32:40.733 2016-08-26T18:52:39.113	JIR_IMG_EDR_2016239T183245_V01.IMG JIR_IMG_EDR_2016239T185243_V01.IMG
JM0003	11	2016-08-26T18:54:42.022 2016-08-26T18:59:49.328	JIR_IMG_EDR_2016239T185445_V01.IMG JIR_IMG_EDR_2016239T185952_V01.IMG
JM0003	30	2016-08-26T19:02:22.786 2016-08-26T19:22:21.175	JIR_IMG_EDR_2016239T190227_V01.IMG JIR_IMG_EDR_2016239T192226_V01.IMG
JM0003	11	2016-08-26T19:24:24.077 2016-08-26T19:29:31.382	JIR_IMG_EDR_2016239T192427_V01.IMG JIR_IMG_EDR_2016239T192934_V01.IMG
JM0003	40	2016-08-26T19:32:35.562 2016-08-26T19:52:33.952	JIR_IMG_EDR_2016239T193240_V01.IMG JIR_IMG_EDR_2016239T195238_V01.IMG
JM0003	11	2016-08-26T19:54:36.855 2016-08-26T19:59:44.163	JIR_IMG_EDR_2016239T195439_V01.IMG JIR_IMG_EDR_2016239T195947_V01.IMG
JM0003	40	2016-08-26T20:02:17.613 2016-08-26T20:22:16.001	JIR_IMG_EDR_2016239T200222_V01.IMG JIR_IMG_EDR_2016239T202220_V01.IMG
JM0003	11	2016-08-26T20:24:18.907 2016-08-26T20:29:26.216	JIR_IMG_EDR_2016239T202421_V01.IMG JIR_IMG_EDR_2016239T202929_V01.IMG
JM0003	40	2016-08-26T20:32:30.387 2016-08-26T20:52:28.776	JIR_IMG_EDR_2016239T203235_V01.IMG JIR_IMG_EDR_2016239T205233_V01.IMG
JM0003	11	2016-08-26T20:54:31.684 2016-08-26T20:59:38.992	JIR_IMG_EDR_2016239T205434_V01.IMG JIR_IMG_EDR_2016239T205942_V01.IMG
JM0003	40	2016-08-26T21:02:12.437 2016-08-26T21:22:10.824	JIR_IMG_EDR_2016239T210217_V01.IMG JIR_IMG_EDR_2016239T212215_V01.IMG
JM0003	11	2016-08-26T21:24:13.735 2016-08-26T21:29:21.048	JIR_IMG_EDR_2016239T212416_V01.IMG JIR_IMG_EDR_2016239T212924_V01.IMG
JM0003	37	2016-08-26T21:32:25.209 2016-08-26T21:50:51.423	JIR_IMG_EDR_2016239T213230_V01.IMG JIR_IMG_EDR_2016239T215056_V01.IMG
JM0003	103	2016-08-26T21:55:27.470 2016-08-26T22:52:18.254	JIR_IMG_EDR_2016239T215530_V01.IMG JIR_IMG_EDR_2016239T225221_V01.IMG
JM0003	109	2016-08-26T22:54:20.814 2016-08-26T23:49:39.439	JIR_IMG_EDR_2016239T225423_V01.IMG JIR_IMG_EDR_2016239T234942_V01.IMG
JM0003	110	2016-08-26T23:53:44.870 2016-08-27T00:49:34.211	JIR_IMG_EDR_2016239T235347_V01.IMG JIR_IMG_EDR_2016240T004937_V01.IMG
JM0003	110	2016-08-27T00:53:39.637 2016-08-27T01:49:28.998	JIR_IMG_EDR_2016240T005342_V01.IMG JIR_IMG_EDR_2016240T014932_V01.IMG

JM0003	74	2016-08-27T01:54:05.115 2016-08-27T02:31:28.239	JIR_IMG_EDR_2016240T015408_V01.IMG JIR_IMG_EDR_2016240T023131_V01.IMG
JM0003	74	2016-08-27T02:34:01.608 2016-08-27T03:11:24.746	JIR_IMG_EDR_2016240T023404_V01.IMG JIR_IMG_EDR_2016240T031127_V01.IMG
JM0003	74	2016-08-27T03:13:58.091 2016-08-27T03:51:21.220	JIR_IMG_EDR_2016240T031401_V01.IMG JIR_IMG_EDR_2016240T035124_V01.IMG
JM0003	74	2016-08-27T03:53:54.565 2016-08-27T04:31:17.686	JIR_IMG_EDR_2016240T035357_V01.IMG JIR_IMG_EDR_2016240T043120_V01.IMG
JM0003	74	2016-08-27T04:33:51.028 2016-08-27T05:11:14.140	JIR_IMG_EDR_2016240T043354_V01.IMG JIR_IMG_EDR_2016240T051117_V01.IMG
JM0003	74	2016-08-27T05:13:47.470 2016-08-27T05:51:10.590	JIR_IMG_EDR_2016240T051350_V01.IMG JIR_IMG_EDR_2016240T055113_V01.IMG
JM0003	74	2016-08-27T05:53:43.900 2016-08-27T06:31:07.004	JIR_IMG_EDR_2016240T055346_V01.IMG JIR_IMG_EDR_2016240T063110_V01.IMG
JM0003	74	2016-08-27T06:33:40.301 2016-08-27T07:11:03.404	JIR_IMG_EDR_2016240T063343_V01.IMG JIR_IMG_EDR_2016240T071106_V01.IMG
JM0003	74	2016-08-27T07:13:36.673 2016-08-27T07:50:59.749	JIR_IMG_EDR_2016240T071339_V01.IMG JIR_IMG_EDR_2016240T075102_V01.IMG
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JM0003	25	2016-08-27T08:39:07.953 2016-08-27T08:51:25.910	JIR_IMG_EDR_2016240T083912_V01.IMG JIR_IMG_EDR_2016240T085130_V01.IMG
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JM0003	25	2016-08-27T09:24:11.373 2016-08-27T09:36:29.441	JIR_IMG_EDR_2016240T092415_V01.IMG JIR_IMG_EDR_2016240T093633_V01.IMG
JM0003	25	2016-08-27T09:39:02.233 2016-08-27T09:51:20.358	JIR_IMG_EDR_2016240T093906_V01.IMG JIR_IMG_EDR_2016240T095124_V01.IMG
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JM0003	25	2016-08-27T10:38:56.041 2016-08-27T10:51:14.447	JIR_IMG_EDR_2016240T103900_V01.IMG JIR_IMG_EDR_2016240T105118_V01.IMG

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JM0003	25	2016-08-27T16:29:28.846 2016-08-27T16:41:46.827	JIR_IMG_EDR_2016240T162931_V01.IMG JIR_IMG_EDR_2016240T164149_V01.IMG
JM0003	25	2016-08-27T16:44:20.136 2016-08-27T16:56:38.120	JIR_IMG_EDR_2016240T164424_V01.IMG JIR_IMG_EDR_2016240T165642_V01.IMG
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JM0003	26	2016-08-27T18:09:21.472 2016-08-27T18:22:10.274	JIR_IMG_EDR_2016240T180926_V01.IMG JIR_IMG_EDR_2016240T182215_V01.IMG
JM0003	26	2016-08-27T18:24:43.616 2016-08-27T18:37:32.408	JIR_IMG_EDR_2016240T182448_V01.IMG JIR_IMG_EDR_2016240T183737_V01.IMG

JM0003	26	2016-08-27T18:40:36.501 2016-08-27T18:53:25.292	JIR_IMG_EDR_2016240T184041_V01.IMG JIR_IMG_EDR_2016240T185330_V01.IMG
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JM0003	26	2016-08-27T19:11:20.804 2016-08-27T19:24:09.574	JIR_IMG_EDR_2016240T191125_V01.IMG JIR_IMG_EDR_2016240T192414_V01.IMG
JM0003	26	2016-08-27T19:26:42.959 2016-08-27T19:39:31.723	JIR_IMG_EDR_2016240T192647_V01.IMG JIR_IMG_EDR_2016240T193936_V01.IMG
JM0003	20	2016-08-27T19:41:34.375 2016-08-27T19:51:18.702	JIR_IMG_EDR_2016240T194139_V01.IMG JIR_IMG_EDR_2016240T195123_V01.IMG
JM0003	112	2016-08-27T20:55:51.914 2016-08-27T21:52:44.331	JIR_IMG_EDR_2016240T205554_V01.IMG JIR_IMG_EDR_2016240T215247_V01.IMG
JM0003	114	2016-08-27T21:54:46.837 2016-08-27T22:52:40.727	JIR_IMG_EDR_2016240T215449_V01.IMG JIR_IMG_EDR_2016240T225243_V01.IMG
JM0003	114	2016-08-27T22:54:43.253 2016-08-27T23:52:37.127	JIR_IMG_EDR_2016240T225446_V01.IMG JIR_IMG_EDR_2016240T235240_V01.IMG
JM0003	112	2016-08-27T23:55:41.171 2016-08-28T00:52:33.573	JIR_IMG_EDR_2016240T235544_V01.IMG JIR_IMG_EDR_2016241T005236_V01.IMG
JM0003	111	2016-08-28T00:56:08.358 2016-08-28T01:52:29.968	JIR_IMG_EDR_2016241T005611_V01.IMG JIR_IMG_EDR_2016241T015232_V01.IMG
JM0003	112	2016-08-28T01:55:34.074 2016-08-28T02:52:26.434	JIR_IMG_EDR_2016241T015537_V01.IMG JIR_IMG_EDR_2016241T025229_V01.IMG
JM0003	111	2016-08-28T02:56:01.280 2016-08-28T03:52:22.873	JIR_IMG_EDR_2016241T025604_V01.IMG JIR_IMG_EDR_2016241T035225_V01.IMG
JM0003	112	2016-08-28T03:55:27.011 2016-08-28T04:52:19.353	JIR_IMG_EDR_2016241T035530_V01.IMG JIR_IMG_EDR_2016241T045222_V01.IMG
JM0003	112	2016-08-28T04:55:23.488 2016-08-28T05:52:15.803	JIR_IMG_EDR_2016241T045526_V01.IMG JIR_IMG_EDR_2016241T055218_V01.IMG
JM0003	111	2016-08-28T05:55:50.713 2016-08-28T06:52:12.290	JIR_IMG_EDR_2016241T055553_V01.IMG JIR_IMG_EDR_2016241T065215_V01.IMG
JM0003	112	2016-08-28T06:55:16.458 2016-08-28T07:52:08.780	JIR_IMG_EDR_2016241T065519_V01.IMG JIR_IMG_EDR_2016241T075211_V01.IMG
JM0003	112	2016-08-28T07:55:43.688 2016-08-28T08:52:35.983	JIR_IMG_EDR_2016241T075546_V01.IMG JIR_IMG_EDR_2016241T085239_V01.IMG
JM0003	6	2016-08-28T08:54:23.422 2016-08-28T08:57:12.487	JIR_IMG_EDR_2016241T085441_V01.IMG JIR_IMG_EDR_2016241T085715_V01.IMG

Table 2: Atmospheric Data Overview .

The map is provided as a TIFF file with the following convention.

Values are unsigned-int16 (0 to 65535), to be multiplied by 1E-5 to obtain the radiance in W m^{-2} sr^{-1}, so that the maximum (46407) corresponds to 0.46407 W m^{-2} sr^{-1}. As mentioned, the M-band gives an integrated radiance from 4.5 microns to 5-µm. The map goes from -180° to 180° in longitude, and from 90S to 90N in latitude. Center is 0°W, longitudes are East, latitudes are planetocentric. Dimensions are 1588 by 2560 pixels (latitude/longitude), so that the resolution is 0.1134 and 0.1406 degree/pixel (latitude/longitude, respectively). Hence, the map results to be isometric at approximately 35 degrees latitude.
Because of the fast movement of the GRS, the longitude of this map only makes sense on that date (~26 Aug 2016), when the GRS was at ~-40W.
When stacking the images, the latest one is always on top of the others.

4 MAPPING CONVENTION

Mapping (geo-referencing) has been done by using the SPICE software (Acton, 1996) available at https://naif.jpl.nasa.gov/naif/toolkit.html. The latest metakernel for JIRAM, which includes also files for latest orbit, not necessary for the production of this dataset, is reported at the end of this section.

```
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   PATH_SYMBOLS    = ('KERNELS')
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Table 3: Metakernel used for Maps.

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