

Wide-field Infrared Survey Explorer (WISE)

WSDC Ingest Analysis Results for Mission Scenario Test 2

Version 1.0

19-November-2008

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California Institute of Technology**

WSDC D-T004

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Revision History

Date	Version	Author	Description
Nov. 19, 2008	1.0	CRG	Initial Draft

1 INTRODUCTION

This document describes the role of the WSDC at IPAC during the End-to-End Mission Scenario Test #2 and summarizes the final products. The WSDC's role during the test is to receive the data files from White Sands via FastCopy, which is done with an automated daemon that waits for incoming data files and copies them to a WSDC machine for processing. Upon receipt of the files and ensuring that they are the expected sizes, we run them through the ingest pipeline. The ingest pipeline reads in the telemetry files (one for each WISE channel) from the White Sands HRP and attempts to reconstruct images from these files. Packets with errors or corrupted data are skipped over so as not to shut down the entire pipeline. All packets that are free from errors are compiled into distinct FITS frames. Without the ancillary data files from MOS (not done for this test), the resulting FITS frames have only basic header information related to the HRP (raw frames).

This document is meant as a high-level summary only and a detailed quality assurance analysis was not performed. Section 2 provides a summary of the files delivered to the WSDC via FastCopy; Section 3 gives a summary of the ingest pipeline; Section 4 shows examples of the raw FITS images created during the ingest process.

1.1 Acronyms

FITS: Flexible Image Transport System
HRP: High Rate Processor
IPAC: Infrared Processing and Analysis Center
MST: Mission Scenario Test
WSDC: WISE Science Data Center

2 SUMMARY OF DELIVERED FILES

The binary files used during the MST were delivered to IPAC via FastCopy on 17 November 2008. The transfer worked as expected with the daemon watch script allowing the file copies when the files were sent by White Sands. The following tables summarize the files that were received and the times when the transfers were finalized.

Table 1: Summary of Files Delivered by FastCopy

File	Size	File Creation Time (PST)	Pass [1,2,3]
WIS_HRP_PKT_FE1A_2008_322_17_31_43.bin	984558120	15:03	1
WIS_HRP_PKT_FE1B_2008_322_17_31_43.bin	1026983412	15:12	1
WIS_HRP_PKT_FE1C_2008_322_17_31_43.bin	1206502752	15:49	1
WIS_HRP_PKT_FE1D_2008_322_17_31_43.bin	281920548	11:41	1
WIS_HRP_PKT_VC10_2008_322_17_31_43.bin	7457268	10:41	1
WIS_HRP_PKT_VC12_2008_322_17_31_43.bin	183456	10:40	1
WIS_HRP_SUM_2008_322_17_31_43.txt	313	10:40	1
WIS_HRP_PKT_FE1A_2008_322_18_00_43.bin	984558120	14:51	2
WIS_HRP_PKT_FE1C_2008_322_18_00_43.bin	1026983412	14:57	2
WIS_HRP_PKT_FE1B_2008_322_18_00_43.bin	1206502752	15:34	2
WIS_HRP_PKT_FE1D_2008_322_18_00_43.bin	281920548	11:24	2
WIS_HRP_PKT_VC10_2008_322_18_00_43.bin	7455721	10:27	2
WIS_HRP_PKT_VC12_2008_322_18_00_43.bin	183456	10:26	2
WIS_HRP_SUM_2008_322_18_00_43.txt	313	10:25	2
WIS_HRP_PKT_FE1A_2008_322_21_03_25.bin	25299456	14:10	3

WIS_HRP_PKT_FE1B_2008_322_21_03_25.bin	48128808	14:16	3
WIS_HRP_PKT_FE1C_2008_322_21_03_25.bin	82830384	14:24	3
WIS_HRP_PKT_FE1D_2008_322_21_03_25.bin	19395012	14:09	3
WIS_HRP_PKT_FE2A_2008_322_21_03_25.bin	1982654856	14:12	3
WIS_HRP_PKT_FE2B_2008_322_21_03_25.bin	1980968808	16:46	3
WIS_HRP_PKT_FE2C_2008_322_21_03_25.bin	1980529824	18:58	3
WIS_HRP_PKT_FE2D_2008_322_21_03_25.bin	495641328	15:19	3
WIS_HRP_PKT_VC10_2008_322_21_03_25.bin	8412436	14:05	3
WIS_HRP_SUM_2008_322_21_03_25.txt	460	14:03	3

Each file delivered was the size expected from the WIS_HRP_SUM*.txt files for each pass. No problems were discovered during the FastCopy file transfer.

3 INGEST PIPELINE SUMMARY

Each Pass of science data were run through the WSDC ingest pipeline. The purpose of the ingest pipeline is to create basic FITS frames (aka raw frames) from the data in the binary data files. The test did not reveal any obvious problems with the ingest pipeline.

We evaluate success based on whether packets with a particular VTC (“expected” frames) produced an image. For the Pass 1 and Pass 2 datasets, we were able to create 689 FITS frames for channels 1,2, & 4, and 690 frames for channel 3. For the Pass 3 dataset, we were able to create 62 FITS frames for channel 1, 64 for channel 2, 65 for channel 3, and 67 for channel 4. Passes 1 and 2 were relatively free from data dropouts (1 gap each). Out of the 2758 expected frames for each pass, only 1 (in channel 4) produced a decompression error (99.96% success rate for completed images). On the other hand, Pass 3 had a much higher rate of corrupted frames, as well as more gaps in the packet times. Channel 1 had 4 frames with errors (out of an expected 66 VTCs), channel 2 had 2 out of 66, channel 3 had 3 out of 68, and channel 4 had 0 errors out of 67 expected frames. VTCs of those images which were successfully decoded and which contained errors can be found in the logs from the ingest pipeline below.

Pass 1: 2008-322/17:31:43

----- File ./WIS_HRP_PKT_FE1D_2008_322_17_31_43.bin, band 4 -----

First,last packet VTC = 3070.847872, 11256.290816
 First,last image VTC = 3070.847872, 11245.28672
 Would naively expect about 745 images between VTC's = 3070.847872, 11256.290816 .
 Encountered 690 distinct packet VTC's.
 Assembled 690 complete (compressed) images.
 Produced 689 decompressed images.
 Processed 689 images.
 Missed about 0 interior images in 1 gaps.
 Had no leading/trailing missing images.

VTCs of orphaned image fragments:

VTCs of images with decompression errors:
 11256.2908

VTCs bordering a gap:
 9110.9093-9716.0205

10827.2130 10838.2171 10849.2171 10860.2212 10871.2212 10882.2253 10893.2253 10904.2253 10915.2294 10926.2294
10937.2335 10948.2335 10959.2376 10970.2376 10981.2417 10992.2417 11003.2458 11014.2458 11025.2499 11036.2499
11047.2540 11058.2540 11069.2580 11080.2580 11091.2621 11102.2621 11113.2621 11124.2662 11135.2662 11146.2703
11157.2703 11168.2744 11179.2744 11190.2785 11201.2785 11212.2826 11223.2826 11234.2867 11245.2867 >

Writing 1 stderr messages to file '/wise/data/tim/hrptests/mst2/2008_322_17_31_43/stderr-w4.txt' ...

Reaped worker 32023 for tlm file './WIS_HRP_PKT_FE1A_2008_322_17_31_43.bin' received status 0.

Beginning processing of file './WIS_HRP_PKT_FE1A_2008_322_17_31_43.bin' ...

EOF reached processing file './WIS_HRP_PKT_FE1A_2008_322_17_31_43.bin'.

----- File ./WIS_HRP_PKT_FE1A_2008_322_17_31_43.bin, band 1 -----

First,last packet VTC = 3070.847872, 11256.290816
First,last image VTC = 3070.847872, 11256.290816
Would naively expect about 745 images between VTC's = 3070.847872, 11256.290816 .
Encountered 689 distinct packet VTC's.
Assembled 689 complete (compressed) images.
Produced 689 decompressed images.
Processed 689 images.
Missed about 0 interior images in 1 gaps.
Had no leading/trailing missing images.

VTCs of orphaned image fragments:

VTCs of images with decompression errors:

VTCs bordering a gap:
9099.9093-9716.0205

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):

3070.8479	3081.8520	3092.8520	3103.8561	3114.8561	3125.8561	3136.8602	3147.8602	3158.8643	3169.8643
3180.8684	3191.8684	3202.8724	3213.8724	3224.8765	3235.8765	3246.8806	3257.8806	3268.8847	3279.8847
3290.8888	3301.8888	3312.8929	3323.8929	3334.8970	3345.8970	3356.8970	3367.9011	3378.9011	3389.9052
3400.9052	3411.9093	3422.9093	3433.9134	3444.9134	3455.9175	3466.9175	3477.9216	3488.9216	3499.9257
3510.9257	3521.9298	3532.9298	3543.9339	3554.9339	3565.9380	3576.9380	3587.9380	3598.9421	3609.9421
3620.9462	3631.9462	3642.9503	3653.9503	3664.9544	3675.9544	3686.9585	3697.9585	3708.9626	3719.9626
3730.9667	3741.9667	3752.9708	3763.9708	3774.9748	3785.9748	3796.9789	3807.9789	3818.9789	3829.9830
3840.9830	3851.9871	3862.9871	3873.9912	3884.9912	3895.9953	3906.9953	3918.0000	3929.0000	3940.0041
3951.0041	3962.0082	3973.0082	3984.0082	3995.0123	4006.0123	4017.0164	4028.0164	4039.0205	4050.0205
4061.0246	4072.0246	4083.0287	4094.0287	4105.0328	4116.0328	4127.0369	4138.0369	4149.0410	4160.0410
4171.0451	4182.0451	4193.0492	4204.0492	4215.0492	4226.0532	4237.0532	4248.0573	4259.0573	4270.0614
4281.0614	4292.0655	4303.0655	4314.0696	4325.0696	4336.0737	4347.0737	4358.0778	4369.0778	4380.0819
4391.0819	4402.0860	4413.0860	4424.0860	4435.0901	4446.0901	4457.0942	4468.0942	4479.0983	4490.0983
4501.1024	4512.1024	4523.1065	4534.1065	4545.1106	4556.1106	4567.1147	4578.1147	4589.1188	4600.1188
4611.1229	4622.1229	4633.1270	4644.1270	4655.1270	4666.1311	4677.1311	4688.1352	4699.1352	4710.1393
4721.1393	4732.1434	4743.1434	4754.1475	4765.1475	4776.1516	4787.1516	4798.1556	4809.1556	4820.1597
4831.1597	4842.1638	4853.1638	4864.1638	4875.1679	4886.1679	4897.1720	4908.1720	4919.1761	4930.1761
4941.1802	4952.1802	4963.1843	4974.1843	4985.1884	4996.1884	5007.1925	5018.1925	5029.1966	5040.1966
5051.2007	5062.2007	5073.2007	5084.2048	5095.2048	5106.2089	5117.2089	5128.2130	5139.2130	5150.2171
5161.2171	5172.2212	5183.2212	5194.2253	5205.2253	5216.2294	5227.2294	5238.2335	5249.2335	5260.2376
5271.2376	5282.2417	5293.2417	5304.2417	5315.2458	5326.2458	5337.2499	5348.2499	5359.2540	5370.2540
5381.2580	5392.2580	5403.2621	5414.2621	5425.2662	5436.2662	5447.2703	5458.2703	5469.2744	5480.2744
5491.2785	5502.2785	5513.2785	5524.2826	5535.2826	5546.2867	5557.2867	5568.2908	5579.2908	5590.2949
5601.2949	5612.2990	5623.2990	5634.3031	5645.3031	5656.3072	5667.3072	5678.3113	5689.3113	5700.3154
5711.3154	5722.3154	5733.3195	5744.3195	5755.3236	5766.3236	5777.3277	5788.3277	5799.3318	5810.3318
5821.3359	5832.3359	5843.3400	5854.3400	5865.3441	5876.3441	5887.3482	5898.3482	5909.3482	5920.3523
5931.3523	5942.3564	5953.3564	5964.3604	5975.3604	5986.3645	5997.3645	6008.3686	6019.3686	6030.3727
6041.3727	6052.3768	6063.3768	6074.3809	6085.3809	6096.3850	6107.3850	6118.3850	6129.3891	6140.3891
6151.3932	6162.3932	6173.3973	6184.3973	6195.4014	6206.4014	6217.4055	6228.4055	6239.4096	6250.4096
6261.4137	6272.4137	6283.4178	6294.4178	6305.4219	6316.4219	6327.4219	6338.4260	6349.4260	6360.4301
6371.4301	6382.4342	6393.4342	6404.4383	6415.4383	6426.4424	6437.4424	6448.4465	6459.4465	6470.4506

6481.4506	6492.4547	6503.4547	6514.4588	6525.4588	6536.4588	6547.4628	6558.4628	6569.4669	6580.4669
6591.4710	6602.4710	6613.4751	6624.4751	6635.4792	6646.4792	6657.4833	6668.4833	6679.4874	6690.4874
6701.4915	6712.4915	6723.4915	6734.4956	6745.4956	6756.4997	6767.4997	6778.5038	6789.5038	6800.5079
6811.5079	6822.5120	6833.5120	6844.5161	6855.5161	6866.5202	6877.5202	6888.5243	6899.5243	6910.5284
6921.5284	6932.5284	6943.5325	6954.5325	6965.5366	6976.5366	6987.5407	6998.5407	7009.5448	7020.5448
7031.5489	7042.5489	7053.5530	7064.5530	7075.5571	7086.5571	7097.5612	7108.5612	7119.5612	7130.5652
7141.5652	7152.5693	7163.5693	7174.5734	7185.5734	7196.5775	7207.5775	7218.5816	7229.5816	7240.5857
7251.5857	7262.5898	7273.5898	7284.5939	7295.5939	7306.5939	7317.5980	7328.5980	7339.6021	7350.6021
7361.6062	7372.6062	7383.6103	7394.6103	7405.6144	7416.6144	7427.6185	7438.6185	7449.6226	7460.6226
7471.6267	7482.6267	7493.6308	7504.6308	7515.6308	7526.6349	7537.6349	7548.6390	7559.6390	7570.6431
7581.6431	7592.6472	7603.6472	7614.6513	7625.6513	7636.6554	7647.6554	7658.6595	7669.6595	7680.6636
7691.6636	7702.6636	7713.6676	7724.6676	7735.6717	7746.6717	7757.6758	7768.6758	7779.6799	7790.6799
7801.6840	7812.6840	7823.6881	7834.6881	7845.6922	7856.6922	7867.6963	7878.6963	7889.6963	7900.7004
7911.7004	7922.7045	7933.7045	7944.7086	7955.7086	7966.7127	7977.7127	7988.7168	7999.7168	8010.7209
8021.7209	8032.7250	8043.7250	8054.7291	8065.7291	8076.7332	8087.7332	8098.7332	8109.7373	8120.7373
8131.7414	8142.7414	8153.7455	8164.7455	8175.7496	8186.7496	8197.7537	8208.7537	8219.7578	8230.7578
8241.7619	8252.7619	8263.7660	8274.7660	8285.7660	8296.7700	8307.7700	8318.7741	8329.7741	8340.7782
8351.7782	8362.7823	8373.7823	8384.7864	8395.7864	8406.7905	8417.7905	8428.7946	8439.7946	8450.7987
8461.7987	8472.7987	8483.8028	8494.8028	8505.8069	8516.8069	8527.8110	8538.8110	8549.8151	8560.8151
8571.8192	8582.8192	8593.8233	8604.8233	8615.8274	8626.8274	8637.8315	8648.8315	8659.8315	8670.8356
8681.8356	8692.8397	8703.8397	8714.8438	8725.8438	8736.8479	8747.8479	8758.8520	8769.8520	8780.8561
8791.8561	8802.8602	8813.8602	8824.8643	8835.8643	8846.8684	8857.8684	8868.8684	8879.8724	8890.8724
8901.8765	8912.8765	8923.8806	8934.8806	8945.8847	8956.8847	8967.8888	8978.8888	8989.8929	9000.8929
9011.8970	9022.8970	9033.9011	9044.9011	9055.9011	9066.9052	9077.9052	9088.9093	*9716.0205	9727.0205
9738.0246	9749.0246	9760.0246	9771.0287	9782.0287	9793.0328	9804.0328	9815.0369	9826.0369	9837.0410
9848.0410	9859.0451	9870.0451	9881.0492	9892.0492	9903.0532	9914.0532	9925.0573	9936.0573	9947.0573
9958.0614	9969.0614	9980.0655	9991.0655	10002.0696	10013.0696	10024.0737	10035.0737	10046.0778	10057.0778
10068.0819	10079.0819	10090.0860	10101.0860	10112.0901	10123.0901	10134.0942	10145.0942	10156.0942	10167.0983
10178.0983	10189.1024	10200.1024	10211.1065	10222.1065	10233.1106	10244.1106	10255.1147	10266.1147	10277.1188
10288.1188	10299.1229	10310.1229	10321.1270	10332.1270	10343.1270	10354.1311	10365.1311	10376.1352	10387.1352
10398.1393	10409.1393	10420.1434	10431.1434	10442.1475	10453.1475	10464.1516	10475.1516	10486.1556	10497.1556
10508.1597	10519.1597	10530.1597	10541.1638	10552.1638	10563.1679	10574.1679	10585.1720	10596.1720	10607.1761
10618.1761	10629.1802	10640.1802	10651.1843	10662.1843	10673.1884	10684.1884	10695.1925	10706.1925	10717.1925
10728.1966	10739.1966	10750.2007	10761.2007	10772.2048	10783.2048	10794.2089	10805.2089	10816.2130	10827.2130
10838.2171	10849.2171	10860.2212	10871.2212	10882.2253	10893.2253	10904.2253	10915.2294	10926.2294	10937.2335
10948.2335	10959.2376	10970.2376	10981.2417	10992.2417	11003.2458	11014.2458	11025.2499	11036.2499	11047.2540
11058.2540	11069.2580	11080.2580	11091.2621	11102.2621	11113.2621	11124.2662	11135.2662	11146.2703	11157.2703
11168.2744	11179.2744	11190.2785	11201.2785	11212.2826	11223.2826	11234.2867	11245.2867	11256.2908	

Reaped worker 32024 for tlm file './WIS_HRP_PKT_FE1B_2008_322_17_31_43.bin' received status 0.

Beginning processing of file './WIS_HRP_PKT_FE1B_2008_322_17_31_43.bin' ...

EOF reached processing file './WIS_HRP_PKT_FE1B_2008_322_17_31_43.bin'.

----- File ./WIS_HRP_PKT_FE1B_2008_322_17_31_43.bin, band 2 -----

First,last packet VTC = 3070.847872, 11256.290816
 First,last image VTC = 3070.847872, 11256.290816
 Would naively expect about 745 images between VTC's = 3070.847872, 11256.290816 .
 Encountered 689 distinct packet VTC's.
 Assembled 689 complete (compressed) images.
 Produced 689 decompressed images.
 Processed 689 images.
 Missed about 0 interior images in 1 gaps.
 Had no leading/trailing missing images.

VTCs of orphaned image fragments:

VTCs of images with decompression errors:

VTCs bordering a gap:
 9099.9093-9716.0205

10838.2171 10849.2171 10860.2212 10871.2212 10882.2253 10893.2253 10904.2253 10915.2294 10926.2294 10937.2335
10948.2335 10959.2376 10970.2376 10981.2417 10992.2417 11003.2458 11014.2458 11025.2499 11036.2499 11047.2540
11058.2540 11069.2580 11080.2580 11091.2621 11102.2621 11113.2621 11124.2662 11135.2662 11146.2703 11157.2703
11168.2744 11179.2744 11190.2785 11201.2785 11212.2826 11223.2826 11234.2867 11245.2867 11256.2908

Reaped worker 32025 for tlm file './WIS_HRP_PKT_FE1C_2008_322_17_31_43.bin' received status 0.

Beginning processing of file './WIS_HRP_PKT_FE1C_2008_322_17_31_43.bin'...

EOF reached processing file './WIS_HRP_PKT_FE1C_2008_322_17_31_43.bin'.

----- File ./WIS_HRP_PKT_FE1C_2008_322_17_31_43.bin, band 3 -----

First,last packet VTC = 3070.847872, 11256.290816
First,last image VTC = 3070.847872, 11256.290816
Would naively expect about 745 images between VTC's = 3070.847872, 11256.290816 .
Encountered 690 distinct packet VTC's.
Assembled 690 complete (compressed) images.
Produced 690 decompressed images.
Processed 690 images.
Missed about 0 interior images in 1 gaps.
Had no leading/trailing missing images.

VTCs of orphaned image fragments:

VTCs of images with decompression errors:

VTCs bordering a gap:
9110.9093-9716.0205

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):

3070.8479 3081.8520 3092.8520 3103.8561 3114.8561 3125.8561 3136.8602 3147.8602 3158.8643 3169.8643
3180.8684 3191.8684 3202.8724 3213.8724 3224.8765 3235.8765 3246.8806 3257.8806 3268.8847 3279.8847
3290.8888 3301.8888 3312.8929 3323.8929 3334.8970 3345.8970 3356.8970 3367.9011 3378.9011 3389.9052
3400.9052 3411.9093 3422.9093 3433.9134 3444.9134 3455.9175 3466.9175 3477.9216 3488.9216 3499.9257
3510.9257 3521.9298 3532.9298 3543.9339 3554.9339 3565.9380 3576.9380 3587.9380 3598.9421 3609.9421
3620.9462 3631.9462 3642.9503 3653.9503 3664.9544 3675.9544 3686.9585 3697.9585 3708.9626 3719.9626
3730.9667 3741.9667 3752.9708 3763.9708 3774.9748 3785.9748 3796.9789 3807.9789 3818.9789 3829.9830
3840.9830 3851.9871 3862.9871 3873.9912 3884.9912 3895.9953 3906.9953 3918.0000 3929.0000 3940.0041
3951.0041 3962.0082 3973.0082 3984.0082 3995.0123 4006.0123 4017.0164 4028.0164 4039.0205 4050.0205
4061.0246 4072.0246 4083.0287 4094.0287 4105.0328 4116.0328 4127.0369 4138.0369 4149.0410 4160.0410
4171.0451 4182.0451 4193.0492 4204.0492 4215.0492 4226.0532 4237.0532 4248.0573 4259.0573 4270.0614
4281.0614 4292.0655 4303.0655 4314.0696 4325.0696 4336.0737 4347.0737 4358.0778 4369.0778 4380.0819
4391.0819 4402.0860 4413.0860 4424.0860 4435.0901 4446.0901 4457.0942 4468.0942 4479.0983 4490.0983
4501.1024 4512.1024 4523.1065 4534.1065 4545.1106 4556.1106 4567.1147 4578.1147 4589.1188 4600.1188
4611.1229 4622.1229 4633.1270 4644.1270 4655.1270 4666.1311 4677.1311 4688.1352 4699.1352 4710.1393
4721.1393 4732.1434 4743.1434 4754.1475 4765.1475 4776.1516 4787.1516 4798.1556 4809.1556 4820.1597
4831.1597 4842.1638 4853.1638 4864.1638 4875.1679 4886.1679 4897.1720 4908.1720 4919.1761 4930.1761
4941.1802 4952.1802 4963.1843 4974.1843 4985.1884 4996.1884 5007.1925 5018.1925 5029.1966 5040.1966
5051.2007 5062.2007 5073.2007 5084.2048 5095.2048 5106.2089 5117.2089 5128.2130 5139.2130 5150.2171
5161.2171 5172.2212 5183.2212 5194.2253 5205.2253 5216.2294 5227.2294 5238.2335 5249.2335 5260.2376
5271.2376 5282.2417 5293.2417 5304.2417 5315.2458 5326.2458 5337.2499 5348.2499 5359.2540 5370.2540
5381.2580 5392.2580 5403.2621 5414.2621 5425.2662 5436.2662 5447.2703 5458.2703 5469.2744 5480.2744
5491.2785 5502.2785 5513.2785 5524.2826 5535.2826 5546.2867 5557.2867 5568.2908 5579.2908 5590.2949
5601.2949 5612.2990 5623.2990 5634.3031 5645.3031 5656.3072 5667.3072 5678.3113 5689.3113 5700.3154
5711.3154 5722.3154 5733.3195 5744.3195 5755.3236 5766.3236 5777.3277 5788.3277 5799.3318 5810.3318
5821.3359 5832.3359 5843.3400 5854.3400 5865.3441 5876.3441 5887.3482 5898.3482 5909.3482 5920.3523
5931.3523 5942.3564 5953.3564 5964.3604 5975.3604 5986.3645 5997.3645 6008.3686 6019.3686 6030.3727
6041.3727 6052.3768 6063.3768 6074.3809 6085.3809 6096.3850 6107.3850 6118.3850 6129.3891 6140.3891
6151.3932 6162.3932 6173.3973 6184.3973 6195.4014 6206.4014 6217.4055 6228.4055 6239.4096 6250.4096
6261.4137 6272.4137 6283.4178 6294.4178 6305.4219 6316.4219 6327.4219 6338.4260 6349.4260 6360.4301
6371.4301 6382.4342 6393.4342 6404.4383 6415.4383 6426.4424 6437.4424 6448.4465 6459.4465 6470.4506
6481.4506 6492.4547 6503.4547 6514.4588 6525.4588 6536.4588 6547.4628 6558.4628 6569.4669 6580.4669

6591.4710	6602.4710	6613.4751	6624.4751	6635.4792	6646.4792	6657.4833	6668.4833	6679.4874	6690.4874
6701.4915	6712.4915	6723.4915	6734.4956	6745.4956	6756.4997	6767.4997	6778.5038	6789.5038	6800.5079
6811.5079	6822.5120	6833.5120	6844.5161	6855.5161	6866.5202	6877.5202	6888.5243	6899.5243	6910.5284
6921.5284	6932.5284	6943.5325	6954.5325	6965.5366	6976.5366	6987.5407	6998.5407	7009.5448	7020.5448
7031.5489	7042.5489	7053.5530	7064.5530	7075.5571	7086.5571	7097.5612	7108.5612	7119.5612	7130.5652
7141.5652	7152.5693	7163.5693	7174.5734	7185.5734	7196.5775	7207.5775	7218.5816	7229.5816	7240.5857
7251.5857	7262.5898	7273.5898	7284.5939	7295.5939	7306.5939	7317.5980	7328.5980	7339.6021	7350.6021
7361.6062	7372.6062	7383.6103	7394.6103	7405.6144	7416.6144	7427.6185	7438.6185	7449.6226	7460.6226
7471.6267	7482.6267	7493.6308	7504.6308	7515.6308	7526.6349	7537.6349	7548.6390	7559.6390	7570.6431
7581.6431	7592.6472	7603.6472	7614.6513	7625.6513	7636.6554	7647.6554	7658.6595	7669.6595	7680.6636
7691.6636	7702.6636	7713.6676	7724.6676	7735.6717	7746.6717	7757.6758	7768.6758	7779.6799	7790.6799
7801.6840	7812.6840	7823.6881	7834.6881	7845.6922	7856.6922	7867.6963	7878.6963	7889.6963	7900.7004
7911.7004	7922.7045	7933.7045	7944.7086	7955.7086	7966.7127	7977.7127	7988.7168	7999.7168	8010.7209
8021.7209	8032.7250	8043.7250	8054.7291	8065.7291	8076.7332	8087.7332	8098.7332	8109.7373	8120.7373
8131.7414	8142.7414	8153.7455	8164.7455	8175.7496	8186.7496	8197.7537	8208.7537	8219.7578	8230.7578
8241.7619	8252.7619	8263.7660	8274.7660	8285.7660	8296.7700	8307.7700	8318.7741	8329.7741	8340.7782
8351.7782	8362.7823	8373.7823	8384.7864	8395.7864	8406.7905	8417.7905	8428.7946	8439.7946	8450.7987
8461.7987	8472.7987	8483.8028	8494.8028	8505.8069	8516.8069	8527.8110	8538.8110	8549.8151	8560.8151
8571.8192	8582.8192	8593.8233	8604.8233	8615.8274	8626.8274	8637.8315	8648.8315	8659.8315	8670.8356
8681.8356	8692.8397	8703.8397	8714.8438	8725.8438	8736.8479	8747.8479	8758.8520	8769.8520	8780.8561
8791.8561	8802.8602	8813.8602	8824.8643	8835.8643	8846.8684	8857.8684	8868.8684	8879.8724	8890.8724
8901.8765	8912.8765	8923.8806	8934.8806	8945.8847	8956.8847	8967.8888	8978.8888	8989.8929	9000.8929
9011.8970	9022.8970	9033.9011	9044.9011	9055.9011	9066.9052	9077.9052	9088.9093	9099.9093	*9716.0205
9727.0205	9738.0246	9749.0246	9760.0246	9771.0287	9782.0287	9793.0328	9804.0328	9815.0369	9826.0369
9837.0410	9848.0410	9859.0451	9870.0451	9881.0492	9892.0492	9903.0532	9914.0532	9925.0573	9936.0573
9947.0573	9958.0614	9969.0614	9980.0655	9991.0655	10002.0696	10013.0696	10024.0737	10035.0737	10046.0778
10057.0778	10068.0819	10079.0819	10090.0860	10101.0860	10112.0901	10123.0901	10134.0942	10145.0942	10156.0942
10167.0983	10178.0983	10189.1024	10200.1024	10211.1065	10222.1065	10233.1106	10244.1106	10255.1147	10266.1147
10277.1188	10288.1188	10299.1229	10310.1229	10321.1270	10332.1270	10343.1270	10354.1311	10365.1311	10376.1352
10387.1352	10398.1393	10409.1393	10420.1434	10431.1434	10442.1475	10453.1475	10464.1516	10475.1516	10486.1556
10497.1556	10508.1597	10519.1597	10530.1597	10541.1638	10552.1638	10563.1679	10574.1679	10585.1720	10596.1720
10607.1761	10618.1761	10629.1802	10640.1802	10651.1843	10662.1843	10673.1884	10684.1884	10695.1925	10706.1925
10717.1925	10728.1966	10739.1966	10750.2007	10761.2007	10772.2048	10783.2048	10794.2089	10805.2089	10816.2130
10827.2130	10838.2171	10849.2171	10860.2212	10871.2212	10882.2253	10893.2253	10904.2253	10915.2294	10926.2294
10937.2335	10948.2335	10959.2376	10970.2376	10981.2417	10992.2417	11003.2458	11014.2458	11025.2499	11036.2499
11047.2540	11058.2540	11069.2580	11080.2580	11091.2621	11102.2621	11113.2621	11124.2662	11135.2662	11146.2703
11157.2703	11168.2744	11179.2744	11190.2785	11201.2785	11212.2826	11223.2826	11234.2867	11245.2867	11256.2908

Done. Encountered 0 errors.

Pass 2: 2008-322/18:00:43

----- File ./WIS_HRP_PKT_FE1D_2008_322_18_00_43.bin, band 4 -----

First,last packet VTC = 3070.847872, 11256.290816
 First,last image VTC = 3070.847872, 11245.28672
 Would naively expect about 745 images between VTC's = 3070.847872, 11256.290816 .
 Encountered 690 distinct packet VTC's.
 Assembled 690 complete (compressed) images.
 Produced 689 decompressed images.
 Processed 689 images.
 Missed about 0 interior images in 1 gaps.
 Had no leading/trailing missing images.

VTCs of orphaned image fragments:

VTCs of images with decompression errors:
 11256.2908

VTCs bordering a gap:
 9110.9093-9716.0205

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):
 3070.8479 3081.8520 3092.8520 3103.8561 3114.8561 3125.8561 3136.8602 3147.8602 3158.8643 3169.8643

11157.2703 11168.2744 11179.2744 11190.2785 11201.2785 11212.2826 11223.2826 11234.2867 11245.2867 >

Writing 1 stderr messages to file '/wise/data/tim/hrptests/mst2/2008_322_18_00_43/stderr-w4.txt' ...

Reaped worker 8872 for tlm file './WIS_HRP_PKT_FE1A_2008_322_18_00_43.bin' received status 0.

Beginning processing of file './WIS_HRP_PKT_FE1A_2008_322_18_00_43.bin' ...

EOF reached processing file './WIS_HRP_PKT_FE1A_2008_322_18_00_43.bin'.

----- File ./WIS_HRP_PKT_FE1A_2008_322_18_00_43.bin, band 1 -----

First,last packet VTC = 3070.847872, 11256.290816
First,last image VTC = 3070.847872, 11256.290816
Would naively expect about 745 images between VTC's = 3070.847872, 11256.290816 .
Encountered 689 distinct packet VTC's.
Assembled 689 complete (compressed) images.
Produced 689 decompressed images.
Processed 689 images.
Missed about 0 interior images in 1 gaps.
Had no leading/trailing missing images.

VTCs of orphaned image fragments:

VTCs of images with decompression errors:

VTCs bordering a gap:
9099.9093-9716.0205

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):

3070.8479	3081.8520	3092.8520	3103.8561	3114.8561	3125.8561	3136.8602	3147.8602	3158.8643	3169.8643
3180.8684	3191.8684	3202.8724	3213.8724	3224.8765	3235.8765	3246.8806	3257.8806	3268.8847	3279.8847
3290.8888	3301.8888	3312.8929	3323.8929	3334.8970	3345.8970	3356.8970	3367.9011	3378.9011	3389.9052
3400.9052	3411.9093	3422.9093	3433.9134	3444.9134	3455.9175	3466.9175	3477.9216	3488.9216	3499.9257
3510.9257	3521.9298	3532.9298	3543.9339	3554.9339	3565.9380	3576.9380	3587.9380	3598.9421	3609.9421
3620.9462	3631.9462	3642.9503	3653.9503	3664.9544	3675.9544	3686.9585	3697.9585	3708.9626	3719.9626
3730.9667	3741.9667	3752.9708	3763.9708	3774.9748	3785.9748	3796.9789	3807.9789	3818.9789	3829.9830
3840.9830	3851.9871	3862.9871	3873.9912	3884.9912	3895.9953	3906.9953	3918.0000	3929.0000	3940.0041
3951.0041	3962.0082	3973.0082	3984.0082	3995.0123	4006.0123	4017.0164	4028.0164	4039.0205	4050.0205
4061.0246	4072.0246	4083.0287	4094.0287	4105.0328	4116.0328	4127.0369	4138.0369	4149.0410	4160.0410
4171.0451	4182.0451	4193.0492	4204.0492	4215.0492	4226.0532	4237.0532	4248.0573	4259.0573	4270.0614
4281.0614	4292.0655	4303.0655	4314.0696	4325.0696	4336.0737	4347.0737	4358.0778	4369.0778	4380.0819
4391.0819	4402.0860	4413.0860	4424.0860	4435.0901	4446.0901	4457.0942	4468.0942	4479.0983	4490.0983
4501.1024	4512.1024	4523.1065	4534.1065	4545.1106	4556.1106	4567.1147	4578.1147	4589.1188	4600.1188
4611.1229	4622.1229	4633.1270	4644.1270	4655.1270	4666.1311	4677.1311	4688.1352	4699.1352	4710.1393
4721.1393	4732.1434	4743.1434	4754.1475	4765.1475	4776.1516	4787.1516	4798.1556	4809.1556	4820.1597
4831.1597	4842.1638	4853.1638	4864.1638	4875.1679	4886.1679	4897.1720	4908.1720	4919.1761	4930.1761
4941.1802	4952.1802	4963.1843	4974.1843	4985.1884	4996.1884	5007.1925	5018.1925	5029.1966	5040.1966
5051.2007	5062.2007	5073.2007	5084.2048	5095.2048	5106.2089	5117.2089	5128.2130	5139.2130	5150.2171
5161.2171	5172.2212	5183.2212	5194.2253	5205.2253	5216.2294	5227.2294	5238.2335	5249.2335	5260.2376
5271.2376	5282.2417	5293.2417	5304.2417	5315.2458	5326.2458	5337.2499	5348.2499	5359.2540	5370.2540
5381.2580	5392.2580	5403.2621	5414.2621	5425.2662	5436.2662	5447.2703	5458.2703	5469.2744	5480.2744
5491.2785	5502.2785	5513.2785	5524.2826	5535.2826	5546.2867	5557.2867	5568.2908	5579.2908	5590.2949
5601.2949	5612.2990	5623.2990	5634.3031	5645.3031	5656.3072	5667.3072	5678.3113	5689.3113	5700.3154
5711.3154	5722.3154	5733.3195	5744.3195	5755.3236	5766.3236	5777.3277	5788.3277	5799.3318	5810.3318
5821.3359	5832.3359	5843.3400	5854.3400	5865.3441	5876.3441	5887.3482	5898.3482	5909.3482	5920.3523
5931.3523	5942.3564	5953.3564	5964.3604	5975.3604	5986.3645	5997.3645	6008.3686	6019.3686	6030.3727
6041.3727	6052.3768	6063.3768	6074.3809	6085.3809	6096.3850	6107.3850	6118.3850	6129.3891	6140.3891
6151.3932	6162.3932	6173.3973	6184.3973	6195.4014	6206.4014	6217.4055	6228.4055	6239.4096	6250.4096
6261.4137	6272.4137	6283.4178	6294.4178	6305.4219	6316.4219	6327.4219	6338.4260	6349.4260	6360.4301
6371.4301	6382.4342	6393.4342	6404.4383	6415.4383	6426.4424	6437.4424	6448.4465	6459.4465	6470.4506
6481.4506	6492.4547	6503.4547	6514.4588	6525.4588	6536.4588	6547.4628	6558.4628	6569.4669	6580.4669
6591.4710	6602.4710	6613.4751	6624.4751	6635.4792	6646.4792	6657.4833	6668.4833	6679.4874	6690.4874
6701.4915	6712.4915	6723.4915	6734.4956	6745.4956	6756.4997	6767.4997	6778.5038	6789.5038	6800.5079

6811.5079	6822.5120	6833.5120	6844.5161	6855.5161	6866.5202	6877.5202	6888.5243	6899.5243	6910.5284
6921.5284	6932.5284	6943.5325	6954.5325	6965.5366	6976.5366	6987.5407	6998.5407	7009.5448	7020.5448
7031.5489	7042.5489	7053.5530	7064.5530	7075.5571	7086.5571	7097.5612	7108.5612	7119.5612	7130.5652
7141.5652	7152.5693	7163.5693	7174.5734	7185.5734	7196.5775	7207.5775	7218.5816	7229.5816	7240.5857
7251.5857	7262.5898	7273.5898	7284.5939	7295.5939	7306.5939	7317.5980	7328.5980	7339.6021	7350.6021
7361.6062	7372.6062	7383.6103	7394.6103	7405.6144	7416.6144	7427.6185	7438.6185	7449.6226	7460.6226
7471.6267	7482.6267	7493.6308	7504.6308	7515.6308	7526.6349	7537.6349	7548.6390	7559.6390	7570.6431
7581.6431	7592.6472	7603.6472	7614.6513	7625.6513	7636.6554	7647.6554	7658.6595	7669.6595	7680.6636
7691.6636	7702.6636	7713.6676	7724.6676	7735.6717	7746.6717	7757.6758	7768.6758	7779.6799	7790.6799
7801.6840	7812.6840	7823.6881	7834.6881	7845.6922	7856.6922	7867.6963	7878.6963	7889.6963	7900.7004
7911.7004	7922.7045	7933.7045	7944.7086	7955.7086	7966.7127	7977.7127	7988.7168	7999.7168	8010.7209
8021.7209	8032.7250	8043.7250	8054.7291	8065.7291	8076.7332	8087.7332	8098.7332	8109.7373	8120.7373
8131.7414	8142.7414	8153.7455	8164.7455	8175.7496	8186.7496	8197.7537	8208.7537	8219.7578	8230.7578
8241.7619	8252.7619	8263.7660	8274.7660	8285.7660	8296.7700	8307.7700	8318.7741	8329.7741	8340.7782
8351.7782	8362.7823	8373.7823	8384.7864	8395.7864	8406.7905	8417.7905	8428.7946	8439.7946	8450.7987
8461.7987	8472.7987	8483.8028	8494.8028	8505.8069	8516.8069	8527.8110	8538.8110	8549.8151	8560.8151
8571.8192	8582.8192	8593.8233	8604.8233	8615.8274	8626.8274	8637.8315	8648.8315	8659.8315	8670.8356
8681.8356	8692.8397	8703.8397	8714.8438	8725.8438	8736.8479	8747.8479	8758.8520	8769.8520	8780.8561
8791.8561	8802.8602	8813.8602	8824.8643	8835.8643	8846.8684	8857.8684	8868.8684	8879.8724	8890.8724
8901.8765	8912.8765	8923.8806	8934.8806	8945.8847	8956.8847	8967.8888	8978.8888	8989.8929	9000.8929
9011.8970	9022.8970	9033.9011	9044.9011	9055.9011	9066.9052	9077.9052	9088.9093	*9716.0205	9727.0205
9738.0246	9749.0246	9760.0246	9771.0287	9782.0287	9793.0328	9804.0328	9815.0369	9826.0369	9837.0410
9848.0410	9859.0451	9870.0451	9881.0492	9892.0492	9903.0532	9914.0532	9925.0573	9936.0573	9947.0573
9958.0614	9969.0614	9980.0655	9991.0655	10002.0696	10013.0696	10024.0737	10035.0737	10046.0778	10057.0778
10068.0819	10079.0819	10090.0860	10101.0860	10112.0901	10123.0901	10134.0942	10145.0942	10156.0942	10167.0983
10178.0983	10189.1024	10200.1024	10211.1065	10222.1065	10233.1106	10244.1106	10255.1147	10266.1147	10277.1188
10288.1188	10299.1229	10310.1229	10321.1270	10332.1270	10343.1270	10354.1311	10365.1311	10376.1352	10387.1352
10398.1393	10409.1393	10420.1434	10431.1434	10442.1475	10453.1475	10464.1516	10475.1516	10486.1556	10497.1556
10508.1597	10519.1597	10530.1597	10541.1638	10552.1638	10563.1679	10574.1679	10585.1720	10596.1720	10607.1761
10618.1761	10629.1802	10640.1802	10651.1843	10662.1843	10673.1884	10684.1884	10695.1925	10706.1925	10717.1925
10728.1966	10739.1966	10750.2007	10761.2007	10772.2048	10783.2048	10794.2089	10805.2089	10816.2130	10827.2130
10838.2171	10849.2171	10860.2212	10871.2212	10882.2253	10893.2253	10904.2253	10915.2294	10926.2294	10937.2335
10948.2335	10959.2376	10970.2376	10981.2417	10992.2417	11003.2458	11014.2458	11025.2499	11036.2499	11047.2540
11058.2540	11069.2580	11080.2580	11091.2621	11102.2621	11113.2621	11124.2662	11135.2662	11146.2703	11157.2703
11168.2744	11179.2744	11190.2785	11201.2785	11212.2826	11223.2826	11234.2867	11245.2867	11256.2908	

Reaped worker 8873 for tlm file '/WIS_HRP_PKT_FE1B_2008_322_18_00_43.bin' received status 0.

Beginning processing of file '/WIS_HRP_PKT_FE1B_2008_322_18_00_43.bin' ...

EOF reached processing file '/WIS_HRP_PKT_FE1B_2008_322_18_00_43.bin'.

----- File /WIS_HRP_PKT_FE1B_2008_322_18_00_43.bin, band 2 -----

First,last packet VTC = 3070.847872, 11256.290816
 First,last image VTC = 3070.847872, 11256.290816
 Would naively expect about 745 images between VTC's = 3070.847872, 11256.290816 .
 Encountered 689 distinct packet VTC's.
 Assembled 689 complete (compressed) images.
 Produced 689 decompressed images.
 Processed 689 images.
 Missed about 0 interior images in 1 gaps.
 Had no leading/trailing missing images.

VTCs of orphaned image fragments:

VTCs of images with decompression errors:

VTCs bordering a gap:
 9099.9093-9716.0205

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):
 3070.8479 3081.8520 3092.8520 3103.8561 3114.8561 3125.8561 3136.8602 3147.8602 3158.8643 3169.8643

11168.2744 11179.2744 11190.2785 11201.2785 11212.2826 11223.2826 11234.2867 11245.2867 11256.2908

Reaped worker 8874 for tlm file '/WIS_HRP_PKT_FE1C_2008_322_18_00_43.bin' received status 0.

Beginning processing of file '/WIS_HRP_PKT_FE1C_2008_322_18_00_43.bin' ...

EOF reached processing file '/WIS_HRP_PKT_FE1C_2008_322_18_00_43.bin'.

----- File /WIS_HRP_PKT_FE1C_2008_322_18_00_43.bin, band 3 -----

First,last packet VTC = 3070.847872, 11256.290816
First,last image VTC = 3070.847872, 11256.290816
Would naively expect about 745 images between VTC's = 3070.847872, 11256.290816 .
Encountered 690 distinct packet VTC's.
Assembled 690 complete (compressed) images.
Produced 690 decompressed images.
Processed 690 images.
Missed about 0 interior images in 1 gaps.
Had no leading/trailing missing images.

VTCs of orphaned image fragments:

VTCs of images with decompression errors:

VTCs bordering a gap:
9110.9093-9716.0205

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):

3070.8479	3081.8520	3092.8520	3103.8561	3114.8561	3125.8561	3136.8602	3147.8602	3158.8643	3169.8643
3180.8684	3191.8684	3202.8724	3213.8724	3224.8765	3235.8765	3246.8806	3257.8806	3268.8847	3279.8847
3290.8888	3301.8888	3312.8929	3323.8929	3334.8970	3345.8970	3356.8970	3367.9011	3378.9011	3389.9052
3400.9052	3411.9093	3422.9093	3433.9134	3444.9134	3455.9175	3466.9175	3477.9216	3488.9216	3499.9257
3510.9257	3521.9298	3532.9298	3543.9339	3554.9339	3565.9380	3576.9380	3587.9380	3598.9421	3609.9421
3620.9462	3631.9462	3642.9503	3653.9503	3664.9544	3675.9544	3686.9585	3697.9585	3708.9626	3719.9626
3730.9667	3741.9667	3752.9708	3763.9708	3774.9748	3785.9748	3796.9789	3807.9789	3818.9789	3829.9830
3840.9830	3851.9871	3862.9871	3873.9912	3884.9912	3895.9953	3906.9953	3918.0000	3929.0000	3940.0041
3951.0041	3962.0082	3973.0082	3984.0082	3995.0123	4006.0123	4017.0164	4028.0164	4039.0205	4050.0205
4061.0246	4072.0246	4083.0287	4094.0287	4105.0328	4116.0328	4127.0369	4138.0369	4149.0410	4160.0410
4171.0451	4182.0451	4193.0492	4204.0492	4215.0492	4226.0532	4237.0532	4248.0573	4259.0573	4270.0614
4281.0614	4292.0655	4303.0655	4314.0696	4325.0696	4336.0737	4347.0737	4358.0778	4369.0778	4380.0819
4391.0819	4402.0860	4413.0860	4424.0860	4435.0901	4446.0901	4457.0942	4468.0942	4479.0983	4490.0983
4501.1024	4512.1024	4523.1065	4534.1065	4545.1106	4556.1106	4567.1147	4578.1147	4589.1188	4600.1188
4611.1229	4622.1229	4633.1270	4644.1270	4655.1270	4666.1311	4677.1311	4688.1352	4699.1352	4710.1393
4721.1393	4732.1434	4743.1434	4754.1475	4765.1475	4776.1516	4787.1516	4798.1556	4809.1556	4820.1597
4831.1597	4842.1638	4853.1638	4864.1638	4875.1679	4886.1679	4897.1720	4908.1720	4919.1761	4930.1761
4941.1802	4952.1802	4963.1843	4974.1843	4985.1884	4996.1884	5007.1925	5018.1925	5029.1966	5040.1966
5051.2007	5062.2007	5073.2007	5084.2048	5095.2048	5106.2089	5117.2089	5128.2130	5139.2130	5150.2171
5161.2171	5172.2212	5183.2212	5194.2253	5205.2253	5216.2294	5227.2294	5238.2335	5249.2335	5260.2376
5271.2376	5282.2417	5293.2417	5304.2417	5315.2458	5326.2458	5337.2499	5348.2499	5359.2540	5370.2540
5381.2580	5392.2580	5403.2621	5414.2621	5425.2662	5436.2662	5447.2703	5458.2703	5469.2744	5480.2744
5491.2785	5502.2785	5513.2785	5524.2826	5535.2826	5546.2867	5557.2867	5568.2908	5579.2908	5590.2949
5601.2949	5612.2990	5623.2990	5634.3031	5645.3031	5656.3072	5667.3072	5678.3113	5689.3113	5700.3154
5711.3154	5722.3154	5733.3195	5744.3195	5755.3236	5766.3236	5777.3277	5788.3277	5799.3318	5810.3318
5821.3359	5832.3359	5843.3400	5854.3400	5865.3441	5876.3441	5887.3482	5898.3482	5909.3482	5920.3523
5931.3523	5942.3564	5953.3564	5964.3604	5975.3604	5986.3645	5997.3645	6008.3686	6019.3686	6030.3727
6041.3727	6052.3768	6063.3768	6074.3809	6085.3809	6096.3850	6107.3850	6118.3850	6129.3891	6140.3891
6151.3932	6162.3932	6173.3973	6184.3973	6195.4014	6206.4014	6217.4055	6228.4055	6239.4096	6250.4096
6261.4137	6272.4137	6283.4178	6294.4178	6305.4219	6316.4219	6327.4219	6338.4260	6349.4260	6360.4301
6371.4301	6382.4342	6393.4342	6404.4383	6415.4383	6426.4424	6437.4424	6448.4465	6459.4465	6470.4506
6481.4506	6492.4547	6503.4547	6514.4588	6525.4588	6536.4588	6547.4628	6558.4628	6569.4669	6580.4669
6591.4710	6602.4710	6613.4751	6624.4751	6635.4792	6646.4792	6657.4833	6668.4833	6679.4874	6690.4874
6701.4915	6712.4915	6723.4915	6734.4956	6745.4956	6756.4997	6767.4997	6778.5038	6789.5038	6800.5079
6811.5079	6822.5120	6833.5120	6844.5161	6855.5161	6866.5202	6877.5202	6888.5243	6899.5243	6910.5284

6921.5284	6932.5284	6943.5325	6954.5325	6965.5366	6976.5366	6987.5407	6998.5407	7009.5448	7020.5448
7031.5489	7042.5489	7053.5530	7064.5530	7075.5571	7086.5571	7097.5612	7108.5612	7119.5612	7130.5652
7141.5652	7152.5693	7163.5693	7174.5734	7185.5734	7196.5775	7207.5775	7218.5816	7229.5816	7240.5857
7251.5857	7262.5898	7273.5898	7284.5939	7295.5939	7306.5939	7317.5980	7328.5980	7339.6021	7350.6021
7361.6062	7372.6062	7383.6103	7394.6103	7405.6144	7416.6144	7427.6185	7438.6185	7449.6226	7460.6226
7471.6267	7482.6267	7493.6308	7504.6308	7515.6308	7526.6349	7537.6349	7548.6390	7559.6390	7570.6431
7581.6431	7592.6472	7603.6472	7614.6513	7625.6513	7636.6554	7647.6554	7658.6595	7669.6595	7680.6636
7691.6636	7702.6636	7713.6676	7724.6676	7735.6717	7746.6717	7757.6758	7768.6758	7779.6799	7790.6799
7801.6840	7812.6840	7823.6881	7834.6881	7845.6922	7856.6922	7867.6963	7878.6963	7889.6963	7900.7004
7911.7004	7922.7045	7933.7045	7944.7086	7955.7086	7966.7127	7977.7127	7988.7168	7999.7168	8010.7209
8021.7209	8032.7250	8043.7250	8054.7291	8065.7291	8076.7332	8087.7332	8098.7332	8109.7373	8120.7373
8131.7414	8142.7414	8153.7455	8164.7455	8175.7496	8186.7496	8197.7537	8208.7537	8219.7578	8230.7578
8241.7619	8252.7619	8263.7660	8274.7660	8285.7660	8296.7700	8307.7700	8318.7741	8329.7741	8340.7782
8351.7782	8362.7823	8373.7823	8384.7864	8395.7864	8406.7905	8417.7905	8428.7946	8439.7946	8450.7987
8461.7987	8472.7987	8483.8028	8494.8028	8505.8069	8516.8069	8527.8110	8538.8110	8549.8151	8560.8151
8571.8192	8582.8192	8593.8233	8604.8233	8615.8274	8626.8274	8637.8315	8648.8315	8659.8315	8670.8356
8681.8356	8692.8397	8703.8397	8714.8438	8725.8438	8736.8479	8747.8479	8758.8520	8769.8520	8780.8561
8791.8561	8802.8602	8813.8602	8824.8643	8835.8643	8846.8684	8857.8684	8868.8684	8879.8724	8890.8724
8901.8765	8912.8765	8923.8806	8934.8806	8945.8847	8956.8847	8967.8888	8978.8888	8989.8929	9000.8929
9011.8970	9022.8970	9033.9011	9044.9011	9055.9011	9066.9052	9077.9052	9088.9093	9099.9093	*9716.0205
9727.0205	9738.0246	9749.0246	9760.0246	9771.0287	9782.0287	9793.0328	9804.0328	9815.0369	9826.0369
9837.0410	9848.0410	9859.0451	9870.0451	9881.0492	9892.0492	9903.0532	9914.0532	9925.0573	9936.0573
9947.0573	9958.0614	9969.0614	9980.0655	9991.0655	10002.0696	10013.0696	10024.0737	10035.0737	10046.0778
10057.0778	10068.0819	10079.0819	10090.0860	10101.0860	10112.0901	10123.0901	10134.0942	10145.0942	10156.0942
10167.0983	10178.0983	10189.1024	10200.1024	10211.1065	10222.1065	10233.1106	10244.1106	10255.1147	10266.1147
10277.1188	10288.1188	10299.1229	10310.1229	10321.1270	10332.1270	10343.1270	10354.1311	10365.1311	10376.1352
10387.1352	10398.1393	10409.1393	10420.1434	10431.1434	10442.1475	10453.1475	10464.1516	10475.1516	10486.1556
10497.1556	10508.1597	10519.1597	10530.1597	10541.1638	10552.1638	10563.1679	10574.1679	10585.1720	10596.1720
10607.1761	10618.1761	10629.1802	10640.1802	10651.1843	10662.1843	10673.1884	10684.1884	10695.1925	10706.1925
10717.1925	10728.1966	10739.1966	10750.2007	10761.2007	10772.2048	10783.2048	10794.2089	10805.2089	10816.2130
10827.2130	10838.2171	10849.2171	10860.2212	10871.2212	10882.2253	10893.2253	10904.2253	10915.2294	10926.2294
10937.2335	10948.2335	10959.2376	10970.2376	10981.2417	10992.2417	11003.2458	11014.2458	11025.2499	11036.2499
11047.2540	11058.2540	11069.2580	11080.2580	11091.2621	11102.2621	11113.2621	11124.2662	11135.2662	11146.2703
11157.2703	11168.2744	11179.2744	11190.2785	11201.2785	11212.2826	11223.2826	11234.2867	11245.2867	11256.2908

Done. Encountered 0 errors.

Pass 3: 2008-322/21:03:25

----- File ./WIS_HRP_PKT_FE1D_2008_322_21_03_25.bin, band 4 -----

First,last packet VTC = 3125.856064, 12829.565248
 First,last image VTC = 3125.856064, 12829.565248
 Would naively expect about 883 images between VTC's = 3125.856064, 12829.565248 .
 Encountered 67 distinct packet VTC's.
 Assembled 67 complete (compressed) images.
 Produced 67 decompressed images.
 Processed 67 images.
 Missed about 0 interior images in 4 gaps.
 Had no leading/trailing missing images.

VTCs of orphaned image fragments:

VTCs of images with decompression errors:

VTCs bordering a gap:
 3158.8602-3290.8888 3334.8929-3466.9175 3532.9298-11223.2826 11410.3154-12433.4956

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):
 3125.8561 3136.8602 3147.8602 *3290.8888 3301.8888 3312.8929 3323.8929 *3466.9175 3477.9216 3488.9216
 3499.9257 3510.9257 3521.9298 *11223.2826 11234.2867 11245.2867 11256.2908 11267.2908 11278.2949 11289.2949
 11300.2949 11311.2990 11322.2990 11333.3031 11344.3031 11355.3072 11366.3072 11377.3113 11388.3113 11399.3154

*12433.4956 12444.4956 12455.4997 12466.4997 12477.5038 12488.5038 12499.5079 12510.5079 12521.5120 12532.5120
12543.5161 12554.5161 12565.5202 12576.5202 12587.5243 12598.5243 12609.5284 12620.5284 12631.5284 12642.5325
12653.5325 12664.5366 12675.5366 12686.5407 12697.5407 12708.5448 12719.5448 12730.5489 12741.5489 12752.5530
12763.5530 12774.5571 12785.5571 12796.5612 12807.5612 12818.5612 12829.5652

Reaped worker 14652 for tlm file './WIS_HRP_PKT_FE1A_2008_322_21_03_25.bin' received status 0.

Beginning processing of file './WIS_HRP_PKT_FE1A_2008_322_21_03_25.bin' ...

EOF reached processing file './WIS_HRP_PKT_FE1A_2008_322_21_03_25.bin'.

----- File ./WIS_HRP_PKT_FE1A_2008_322_21_03_25.bin, band 1 -----

First,last packet VTC = 3136.86016, 12829.565248
First,last image VTC = 3136.86016, 12829.565248
Would naively expect about 882 images between VTC's = 3136.86016, 12829.565248 .
Encountered 66 distinct packet VTC's.
Assembled 64 complete (compressed) images.
Produced 62 decompressed images.
Processed 62 images.
Missed about 28 interior images in 4 gaps.
Had no leading/trailing missing images.

VTCs of orphaned image fragments:
3301.8888 3477.9216

VTCs of images with decompression errors:
3158.8643 3334.8970

VTCs bordering a gap:
3158.8602-3312.8929 3334.8929-3488.9216 3543.9298-11234.2867 11410.3154-12433.4956

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):
3136.8602 3147.8602 *3312.8929 3323.8929 *3488.9216 3499.9257 3510.9257 3521.9298 3532.9298 *11234.2867
11245.2867 11256.2908 11267.2908 11278.2949 11289.2949 11300.2949 11311.2990 11322.2990 11333.3031 11344.3031
11355.3072 11366.3072 11377.3113 11388.3113 11399.3154 *12433.4956 12444.4956 12455.4997 12466.4997 12477.5038
12488.5038 12499.5079 12510.5079 12521.5120 12532.5120 12543.5161 12554.5161 12565.5202 12576.5202 12587.5243
12598.5243 12609.5284 12620.5284 12631.5284 12642.5325 12653.5325 12664.5366 12675.5366 12686.5407 12697.5407
12708.5448 12719.5448 12730.5489 12741.5489 12752.5530 12763.5530 12774.5571 12785.5571 12796.5612 12807.5612
12818.5612 12829.5652

Writing 9 stderr messages to file './wise/data/tim/hrptests/mst2/2008_322_21_03_25/stderr-w1.txt' ...

Reaped worker 14653 for tlm file './WIS_HRP_PKT_FE1B_2008_322_21_03_25.bin' received status 0.

Beginning processing of file './WIS_HRP_PKT_FE1B_2008_322_21_03_25.bin' ...

EOF reached processing file './WIS_HRP_PKT_FE1B_2008_322_21_03_25.bin'.

----- File ./WIS_HRP_PKT_FE1B_2008_322_21_03_25.bin, band 2 -----

First,last packet VTC = 3136.86016, 12829.565248
First,last image VTC = 3136.86016, 12829.565248
Would naively expect about 882 images between VTC's = 3136.86016, 12829.565248 .
Encountered 66 distinct packet VTC's.
Assembled 64 complete (compressed) images.
Produced 64 decompressed images.
Processed 64 images.
Missed about 26 interior images in 4 gaps.
Had no leading/trailing missing images.

VTCs of orphaned image fragments:
3290.8888 3466.9175

VTCs of images with decompression errors:

VTCs bordering a gap:

3158.8602-3301.8888 3334.8929-3477.9216 3543.9298-11234.2867 11410.3154-12433.4956

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):

3136.8602 3147.8602 *3301.8888 3312.8929 3323.8929 *3477.9216 3488.9216 3499.9257 3510.9257 3521.9298
3532.9298 *11234.2867 11245.2867 11256.2908 11267.2908 11278.2949 11289.2949 11300.2949 11311.2990 11322.2990
11333.3031 11344.3031 11355.3072 11366.3072 11377.3113 11388.3113 11399.3154 *12433.4956 12444.4956 12455.4997
12466.4997 12477.5038 12488.5038 12499.5079 12510.5079 12521.5120 12532.5120 12543.5161 12554.5161 12565.5202
12576.5202 12587.5243 12598.5243 12609.5284 12620.5284 12631.5284 12642.5325 12653.5325 12664.5366 12675.5366
12686.5407 12697.5407 12708.5448 12719.5448 12730.5489 12741.5489 12752.5530 12763.5530 12774.5571 12785.5571
12796.5612 12807.5612 12818.5612 12829.5652

Writing 9 stderr messages to file '/wise/data/tim/hrptests/mst2/2008_322_21_03_25/stderr-w2.txt' ...

Reaped worker 14654 for tlm file '/WIS_HRP_PKT_FE1C_2008_322_21_03_25.bin' received status 0.

Beginning processing of file '/WIS_HRP_PKT_FE1C_2008_322_21_03_25.bin' ...

EOF reached processing file '/WIS_HRP_PKT_FE1C_2008_322_21_03_25.bin'.

----- File /WIS_HRP_PKT_FE1C_2008_322_21_03_25.bin, band 3 -----

First,last packet VTC = 3125.856064, 12829.565248
First,last image VTC = 3136.86016, 12829.565248
Would naively expect about 883 images between VTC's = 3125.856064, 12829.565248 .
Encountered 68 distinct packet VTC's.
Assembled 66 complete (compressed) images.
Produced 65 decompressed images.
Processed 65 images.
Missed about 700 interior images in 4 gaps.
Had an unknown number of leading/trailing missing images.

VTCs of orphaned image fragments:

3125.8561 11223.2826

VTCs of images with decompression errors:

3532.9298

VTCs bordering a gap:

3158.8602-3290.8888 3334.8929-3466.9175 3532.9298-11234.2867 11410.3154-12433.4956

VTCs of successfully decoded images (*,<,>=gap, !=bad vtc):

<3136.8602 3147.8602 *3290.8888 3301.8888 3312.8929 3323.8929 *3466.9175 3477.9216 3488.9216 3499.9257
3510.9257 3521.9298 *11234.2867 11245.2867 11256.2908 11267.2908 11278.2949 11289.2949 11300.2949 11311.2990
11322.2990 11333.3031 11344.3031 11355.3072 11366.3072 11377.3113 11388.3113 11399.3154 *12433.4956 12444.4956
12455.4997 12466.4997 12477.5038 12488.5038 12499.5079 12510.5079 12521.5120 12532.5120 12543.5161 12554.5161
12565.5202 12576.5202 12587.5243 12598.5243 12609.5284 12620.5284 12631.5284 12642.5325 12653.5325 12664.5366
12675.5366 12686.5407 12697.5407 12708.5448 12719.5448 12730.5489 12741.5489 12752.5530 12763.5530 12774.5571
12785.5571 12796.5612 12807.5612 12818.5612 12829.5652

Writing 10 stderr messages to file '/wise/data/tim/hrptests/mst2/2008_322_21_03_25/stderr-w3.txt' ...

Done. Encountered 0 errors.

3 VISUAL CHECKS OF RAW FRAMES

There appear to be 4 different frame sets (groups of images from all 4 channels) that were generated by the ingest pipeline (Labeled A, B, C, and D below). Figures 1-4 show

examples of each of these 4 different frame sets and Table 2 summarizes the distribution of image numbers as a function of Raw frame type. Image Examples A and B have image numbers in Passes 1 and 2 that are consistent with those that were identified as having a byte swap problem during the start of testing. It would appear that byte swapping was also present at the start of the Pass 3 data flow. Random noise can be seen by examining all frames of a given type (eg., A) and channel. There also appears to be some banding noise in channels 1 and 2 for image examples B and C. The source of the banding is not known, but the structure is consistent from one frame to the next (though the level does change slightly), which would indicate that the banding was present in the source images.

Table 2: Distribution of Image Numbers for Each Frame Type

Image Example	Image # in Pass 1	Image # in Pass 2	Image # in Pass 3
A	0-546 (even)	0-546 (even)	0-8 (even)
B	1-547 (odd)	1-547 (odd)	1-9 (odd)
C	548-688 (even)	548-688 (even)	11-23 (odd), 26-66 (even) ^a
D	549-687 (odd)	549-687 (odd)	10-24 (even), 25-65 (odd) ^a

^a not all Channels are available for image numbers >61. See Section 3 for a summary of how many images were generated for each Channel in Pass 3.

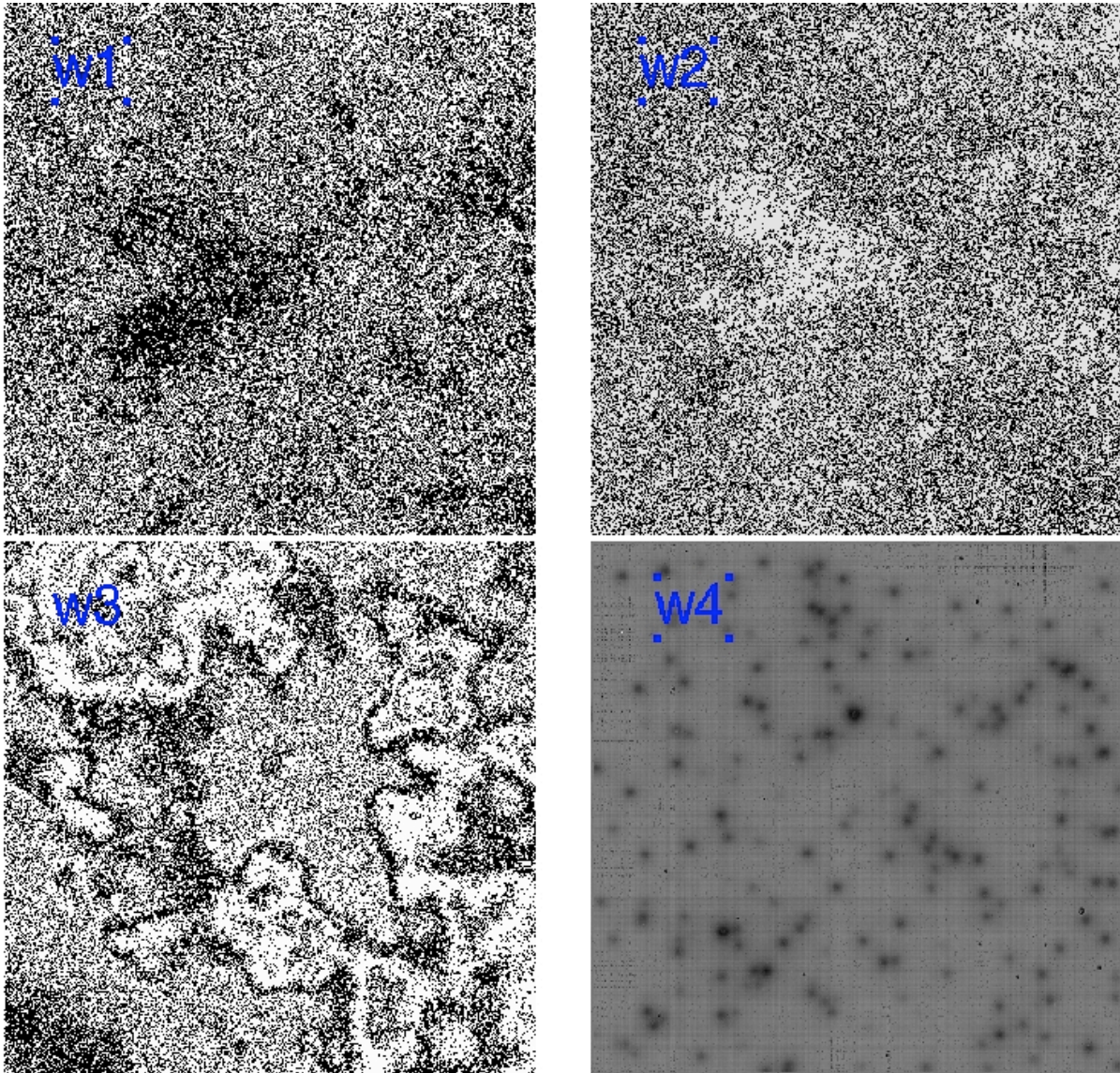


Figure 1: Example A of the FITS frames generated by the ingest pipeline. Starting from the upper left corner and moving clockwise, the frames are of the Channel 1, 2, 4, and 3 data.

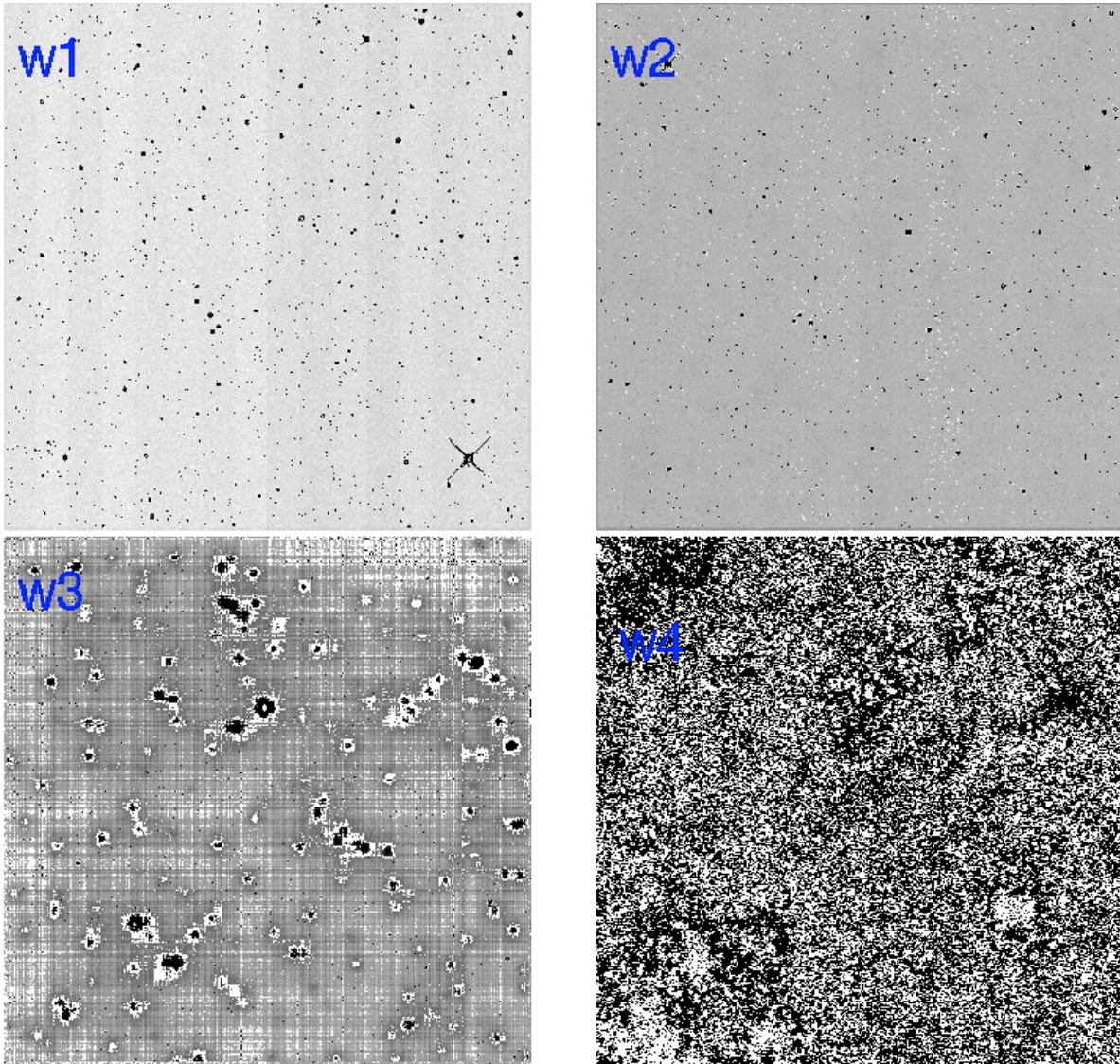


Figure 2: Example B of the FITS frames generated by the ingest Pipeline. The frame layout is the same as in Figure 1.

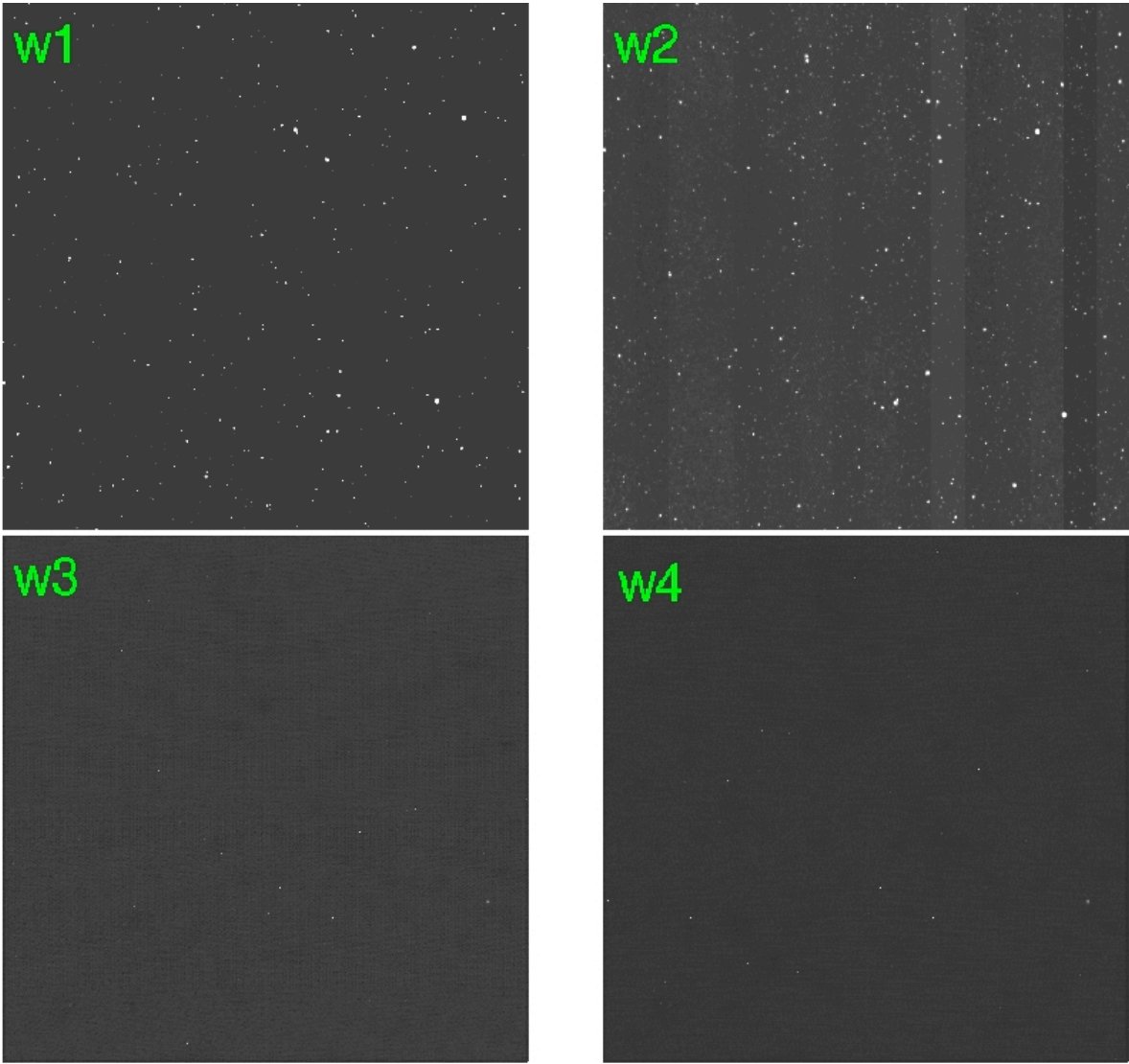


Figure 3: Example C of the FITS frames generated by the ingest Pipeline. The frame layout is the same as in Figure 1.

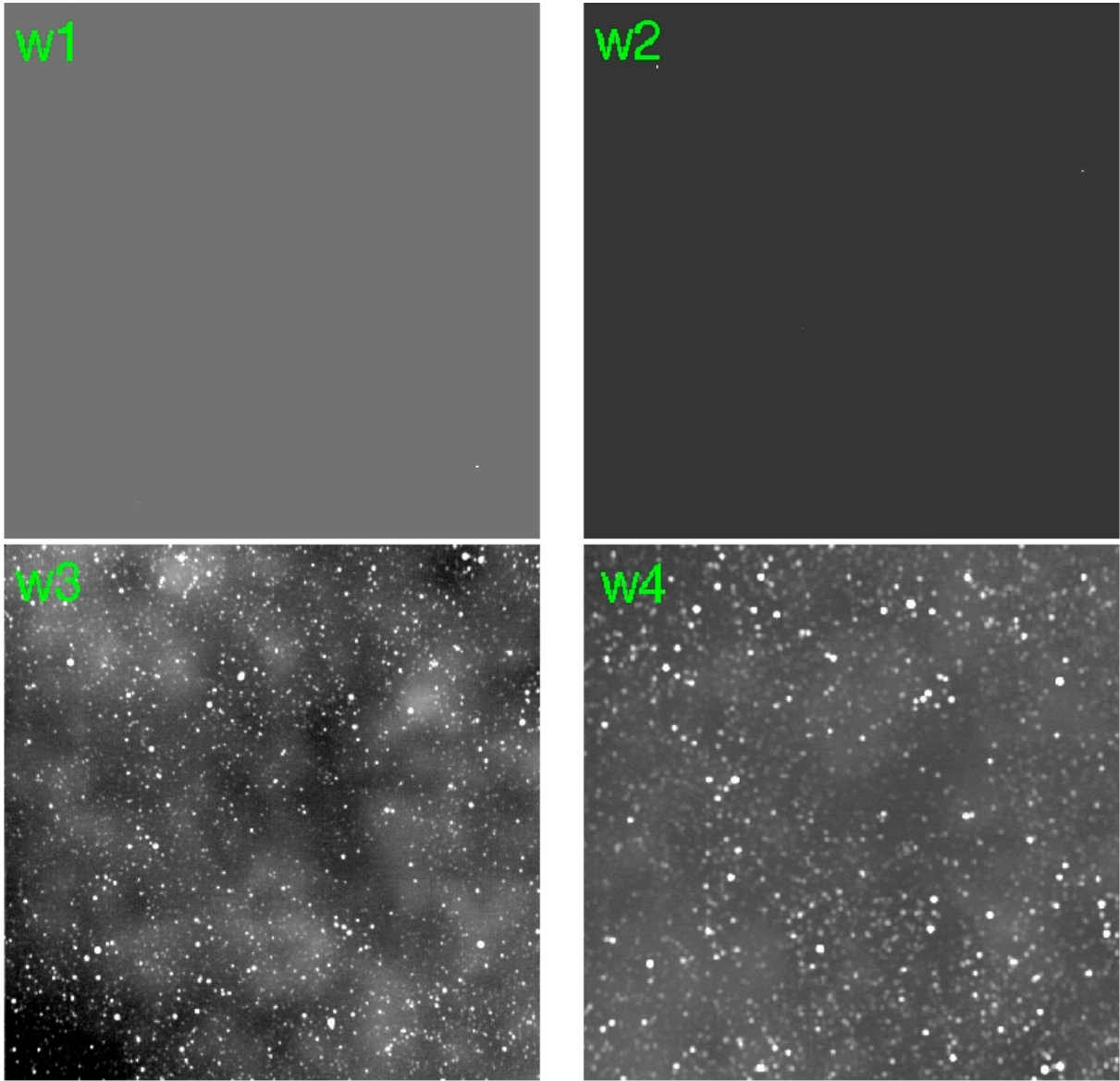


Figure 4: Example D of the FITS frames generated by the ingest Pipeline. The frame layout is the same as in Figure 1.