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&language=english&cntry_code=us

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Disclaimer

FedEx has not validated the authenticity of any email address.

From: "HESS, DAVID C. (DAVE) (JSC-ZR) (NASA)" <david.c.hess@nasa.gov>
To: "'White Richard W Jr. Col SMC Det 12/ST'"
<Richard.White@kirtland.af.mil>,
"'McCann, Lt Col Jeffrey'"
<jeffrey.mccann@maui.afmc.af.mil>
Cc: "CARD, MIKE (JSC-REMOTE)" <mcard@hq.nasa.gov>,
Good Earl Civ AFRL/DE
<earl.good@kirtland.af.mil>,
Bednarz Eugene J Civ AFRL/DEFP
<eugene.bednarz@kirtland.af.mil>,
Baker William L Civ AFRL/DE
<william.baker@kirtland.af.mil>,
Fugate Robert Q Civ AFRL/DES
<Bob.Fugate@kirtland.af.mil>,
Stephen Mark D Col AFRL/DE
<Mark.Stephen@kirtland.af.mil>,
Giuliano Concetto R Civ AFRL/DEB
<concetto.giuliano@kirtland.af.mil>,
Dinwiddie David L Civ AFRL/DEB
<david.dinwiddie@kirtland.af.mil>,
Skarupa Valerie B Civ AFRL/DEBI
<Valerie.Skarupa@kirtland.af.mil>,
"Kress John C Lt Col AFSPC/DOOM (E-mail)" <John.C.Kress@PETERSON.af.mil>
Subject: RE: AMOS data sent via Fed-Ex to NASA
Date: Mon, 10 Feb 2003 16:18:46 -0600
Importance: high
X-Mailer: Internet Mail Service (5.5.2653.19)

Gentlemen,

I have been directed by the folks at US Strategic Command and Air Force Space Command (email from Lt Col John Kress, AFSPC/DOO excerpted below) to forward ALL data to them for distribution and release. This is in conjunction with the DoD Columbia Investigation Support Team (DCIST). Here is the email excerpt that directs this:

Mr Hess - Per our discussion, I telephoned Col Roberts and asked for direction with regards to where you should send data. She reiterated her direction yesterday and directed me to inform you to send the data here. The DoD Columbia Investigation Support Team (DCIST) is the official collector of any data from DoD sources; it will release information as quickly as possible in assisting in the recovery of debris and will work closely with NASA for the analysis required of DoD data for the on-going investigation. There is no effort to withhold or slow down the release of information, but we have quick access to expert analysis that might reveal crucial information from the data itself, or can be effectively merged with other DoD data to produce something of use, so we need to get the data here. In addition, it is important to observe proper management of any classified

data.

Should you be contacted by DoD agencies that feel they have relevant information, data, or analysis, please direct them to the DCIST. The DCIST includes Maj Gen Hamel, Col Roberts, Lt Col Cindy Visel (USSTRATCOM-West, Maj Paul Pease (USSTRATCOM-West, , Maj Eric Olson (HQ AFSPC some folks at Vandenberg AFB, and myself I have given you the phone numbers of those here in Colo Sprgs since the official collection and storage will be here. Also, if you have questions or need to direct someone to the DCIST, these numbers may expedite the process.

Based on this hardcore direction I am obligated, until directed otherwise, to forward the AMOS data up to them at AFSPC so they can review and determine where it should go from there. If this direction should change before I get the FedEx on Wednesday, then naturally I will get the data to the right folks here at JSC.

For Jeff McCann: Jeff, I noticed the FTP AMOS data showed up on the logs briefed to Mr Dittemore, so obviously they got to the folks here at JSC

I truly apologize if this causes any delays. I had thought the Maui data was sent last Friday (before I got this direction) and had I know it wasn't going out till today, I would have had it redirected. I'm starting to feel caught between several rocks and even sharper rocks (the "hard spot" went by the wayside a long time ago).

Salutin' and steppin' off smartly here!

David C. Hess
David C. Hess, DAF
Director, DoD Human Space Flight Payloads
DoD Space Test Program
NASA JSC Houston, TX
Voice: 281.483.3498
Fax: 281.483.4651

-----Original Message-----
From: White Richard W Jr. Col SMC Det 12/ST
[mailto:Richard.White@kirtland.af.mil
<mailto:Richard.White@kirtland.af.mil>]
Sent: Monday, February 10, 2003 3:13 PM
To: 'McCann, Lt Col Jeffrey'; HESS, DAVID C. (DAVE) (JSC-ZR) (NASA)
Cc: CARD, MIKE (JSC-REMOTE); Good Earl Civ AFRL/DE; Bednarz Eugene J Civ AFRL/DEFP; Baker William L Civ AFRL/DE; Fugate Robert Q Civ AFRL/DES; Stephen Mark D Col AFRL/DE; Giuliano Concetto R Civ AFRL/DEB; Dinwiddie

David L Civ AFRL/DEB; Skarupa Valerie B Civ AFRL/DEBI
Subject: RE: AMOS data sent via Fed-Ex to NASA

Jeff,
Many thanks for this. In view of the fact that Eglin AFB radar tracked an object moving away from the Shuttle on 17 Jan, photos of Columbia taken before re-entry take on increased importance.
http://www.cnn.com/2003/TECH/space/02/10/sprj.colu.investigation/index.html
<http://www.cnn.com/2003/TECH/space/02/10/sprj.colu.investigation/index.html>
Rich

Richard W. White Jr., Col, USAF
Director, DoD Space Test Program
SMC Det 12, Kirtland AFB, NM

-----Original Message-----
From: McCann, Lt Col Jeffrey [mailto:jeffrey.mccann@maui.afmc.af.mil
<mailto:jeffrey.mccann@maui.afmc.af.mil>]
Sent: Monday, February 10, 2003 1:42 PM
To: David Hess(NASA) (E-mail)
Cc: Mike Card (HQ NASA) (E-mail); Good (E-mail); Gene Bednarz (E-mail); Baker (E-mail); Bob Fugate (E-mail); Col Rich White (E-mail); Col Stephen (E-mail); Connie Giuliano (E-mail); Dinwiddie (E-mail); Skarupa, Valerie
Subject: AMOS data sent via Fed-Ex to NASA

Dave,

A CD of the AMOS data was sent this morning...should arrive on Wednesday. Below you will find the tracking number and link to the Fed-Ex site if you should need it.

Attached to this e-mail is a file describing all AMOS data and status of such.

On Friday afternoon (Hawaii time) we FTP'd two of the movies since they were too large over normal e-mail...did you receive them?

Please let me know if you have any questions,
Jeff

Jeffrey McCann, Lt Col, USAF

]
Sent: Monday, February 10, 2003 9:40 AM

Subject: FedEx shipment 792188638869

L. A. MARTIN of BOEING LTS, INC sent David Hess of NASA Johnson Space Center a Priority Overnight FedEx Envelope.

This shipment is scheduled to be sent on 10FEB03.

The tracking number(s) are: 792188638869

To track this shipment online click on the following link:
http://www.fedex.com/cgi-bin/tracking?tracknumbers=792188638869
<http://www.fedex.com/cgi-bin/tracking?tracknumbers=792188638869&action=track> &action=track
&language=english&cntry_code=us

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<https://www.fedex.com/cgi-bin/ship_it/interNetShip?us>

Disclaimer

FedEx has not validated the authenticity of any email address.

From: "BECK, KELLY B. (JSC-DA8) (NASA)" <kelly.b.beck@nasa.gov>
To: "OLIVER, GREGORY T. (GREG) (JSC-DM4) (NASA)"
<gregory.t.oliver@nasa.gov>,
"BYRNE, GREGORY J., PHD (JSC-SX) (NASA)"
<gregory.j.byrne@nasa.gov>,
"LIDDLE, DONN A. (JSC-SX) (LM)"
<donn.a.liddle1@jsc.nasa.gov>,
DL ESAT <DL-ESAT@ems.jsc.nasa.gov>,
"SPENCER, JAMES R. (RON) (JSC-DM) (NASA)" <james.r.spencer@nasa.gov>
Subject: FW: Still Frames From Las Vegas, NV
Date: Sat, 8 Feb 2003 22:03:40 -0600
X-Mailer: Internet Mail Service (5.5.2653.19)

Here is a sneak preview of what we should be getting from Paul Porto. I'm at home now on my dial-up connection so I haven't looked at them yet - just trying to get them out as soon as I can since this is painfully slow!!

> -----Original Message-----
> From: Paul Porto, Jr. [SMTP
> Sent: Saturday, February 08, 2003 7:19 PM
> To: BECK, KELLY B. (JSC-DA8) (NASA); NASA MIT IMAGES
> Subject: Still Frames From Las Vegas, NV
>
> Kelly,
>
> Per our phone conversation today, I am sending some of the information
> that you should be receiving in the mail Monday. Again, my data was mailed
> Thursday night 6 Feb at about 1830 PST, First Class USPS.
>
> 1. First is Observer.doc which tells about me, the product I sent in, date
> time and location, weather, equipment, camera settings, azimuth/elevation
> and a summary of the video frames.
>
> 2. Frame 284 is one of the earliest containing the shuttle. Time was 15
> seconds from start of collection, or 0554:50 PST.
>
> 3. Frame 491 from 0555:00 PST is representative of 19 consecutive video
> frames containing the shuttle. (19 frames are almost one full second at
> 20fps.)
>
> 4. Frame 853 from 0555:18 PST is representative of many frames between 687
> and 1319 -- 32 seconds. Aspect angle difference from the earlier frames
> probably accounts for the strange shape.
>
> I'll send two more emails after this one. I think you will find them a
> little more interesting!
>
> Paul <<OBSERVER.doc>> <<0284.bmp>> <<0491.bmp>> <<0853.bmp>>

 OBSERVER.doc

 0284.bmp

 0491.bmp

 0853.bmp

OBSERVER:
Paul Porto, Jr
MSgt, USAF

PRODUCT:
Disc 1 CDROM containing: 1) A folder containing a zipped 1.36GB AVI video captured on a laptop connected to a webcam, mated to a telescope. 2) This Observer.doc description of the data. 3) A spreadsheet breaking down the frames by the second.
Disc 2 CDROM containing: (1) A folder called "Most Frames Extracted 240-1800" containing frames 240 to 1800, as I do not see the shuttle before or after in the AVI. 2) This Observer.doc description of the data. 3) A spreadsheet breaking down the frames by the second.

DATE AND TIME:
1 Feb 03, 0554:35 PST to 0557:06 PST
I have confirmed Windows XP file properties are accurate to the (1) second in reporting both when the video capture began and when it ended. I have also made corrections to the above time to reflect my laptop being 4 seconds fast on 1 Feb. Thus, I am pretty confident that frame #1 in the video was taken within about 1 second of the above time, 0554:35; and the last frame, #3002, was at the above end time of 0557:35 PST. At 20 frames per second, it is easy to calculate the exact time of every frame in the video. For example, frames 1-100 all occurred within the first 5 seconds of the video start time; frame #1000 was captured 50 seconds from start, etc.

LOCATION:

WEATHER: Mostly clear, some thin cloud cover in the northern sky, but not thick enough to hide the shuttle. Sky was dark to the west and brightening in the east.

EQUIPMENT:
Meade 114EQ-DH4 Reflecting Telescope, 114mm Primary mirror/F8.
Philips Toucam Pro PCVC740K CCD Webcam, mated to the telescope with no eyepiece in use (prime focus). Effective zoom: in the area of 250X.

CAMERA SETTINGS:
20 frames per second, Shutter speed 1/250

TRACKING METHOD:

I have an equatorial mounted telescope that I move by hand. I use a zero-zoom Telrad aiming device. It provides a heads-up type display of three concentric LED rings. However, because the camera's field of view in so small, even the inner ring of the Telrad is larger than what the camera will see. Therefore, I typically aim just in front of the passing satellite/ISS or STS (leading it) and allow the target to traverse the center ring at varying points. This ensures at least some frames will contain the target. It also minimizes vibration-induced distortion in the video frames. The downside is a typical video containing no more than 15% frames with the target in them. In the case of Columbia STS107, it was about 8% -- 259 of 3000 frames contain the shuttle. The lower than usual percentage is explained in the next paragraph.

The manual hand tracking can cause some smearing of the frames. This is especially noticeable in the very first frame containing the shuttle, #248. In addition, movement of the target between consecutive frames is a function of both the target moving across the sky and possible movement of the telescope by me. This can make it difficult to tell the direction of the shuttle.

AZIMUTH/ELEVATION:
This is most difficult, as I must go from memory. My best estimate is that I began the video with the shuttle in the NNW sky, say 330 degrees, at an elevation of about 20 degrees. The shuttle quickly proceeded to the east, probably never reaching an elevation higher than 40 degrees. I stopped tracking at about 70 degrees azimuth (NE), and 20 degrees elevation due to the house next door being in the way. The video ran about 45 seconds more before I remembered to stop it. This explains the lack of any frames containing the shuttle over the last 1200+ frames.

CONTENT SUMMARY:
1. Columbia appears present in 259 frames between frame #248 and frame #1786.
2. I see nothing outstanding until frame #511. From there until 663, things are odd looking, some blurriness.
3. Frames through show possible break-up. Many show two distinct bright sections.
4. 687- 1500 show blue fuzziness around the shuttle.
5. Frames 1670-1686 clearly show an object trailing the shuttle.
Frames clearly show something detached from the STS and following it.

Please contact me if you require any additional information, and good luck in your investigation.

Paul Porto, Jr.

To:
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: FW: Image Data
Cc:
Bcc:
Attached: C:\Documents and Settings\mcard\My Documents\Data\attach\65712_256.txt;C:\Documents and Settings\mcard\My Documents\Data\attach\pow3.jpg;

Ivar, this might be of interest. Mike
From: "HILL, PAUL S. (JSC-DA8) (NASA)" <paul.s.hill@nasa.gov>
To: DL ESAT <DL-ESAT@ems.jsc.nasa.gov>
Subject: FW: Image Data
Date: Wed, 19 Feb 2003 07:06:02 -0600
X-Mailer: Internet Mail Service (5.5.2653.19)

Greg Byrne -
I meant to send you this yesterday. This is the electronic version of the hardcopy I handed you.

Everyone else -
Don't misinterpret the picture. It isn't IR, it's simply a display of the raw pixel value. Consider this FYI, but don't do anything with it. Doug White has a team that is working this.

PSH

-----Original Message-----
From: Bob Fugate [mailto:bob.fugate@kirtland.af.mil]
Sent: Tuesday, February 18, 2003 8:37 AM
To: HILL, PAUL S. (JSC-DA8) (NASA); White, Doug; Roberts Katherine E Col USSTRATWEST/J3V; Michael.Caylor@wpafb.af.mil; Earl Good; Stephen Mark D Col AFRL/DE; Baker William L Civ AFRL/DE; Fugate Robert Q Civ AFRL/DES; Robert Johnson; Cleis Richard A Contr AFRL/DES
Subject: Image Data

17 February 2003

Paul and Doug,
I have attached two files, a JPEG image made by displaying the square root of the raw data (the color bar shows corresponding actual value) from the file 6.57.12.tif, and a text file with the raw 16 bit pixel values for a 256x256 region selected from the entire image. I have verified that all other pixels in the image have a value of zero.

The JPEG image clearly shows an illuminated pixel behind the longer part of the plume, suggesting glowing material shed from the orbiter (or maybe structure in the plume?). I have tried to set the saturated pixels to white in this rendering, to get some idea of the outline of the orbiter. I am still working on algorithms to deconvolve our best estimate of the point spread function from this image (that may make the edges crisper), but this is proving difficult since

From: "Svendsen, Ivar A. "
To: "'HESS, DAVID C. (DAVE) (JSC-ZR) (NASA)'" <david.c.hess@nasa.gov>
Cc: "'mcard@hq.nasa.gov'" <mcard@hq.nasa.gov>,
"'bburns@hq.nasa.gov'"
<bburns@hq.nasa.gov>,
"Knittle, James C "
Subject: RE: Request for SOR image and USAF Maui MSSS images of Columbia
Date: Tue, 11 Feb 2003 19:54:49 -0500
X-Mailer: Internet Mail Service (5.5.2653.19)

David,

Thanks much for your reply. Just so you're aware, we've already done some analysis of open-domain STS-107 launch video shown in the media (released by NASA). We've derived some preliminary, yet quite interesting results. We would have liked to have used the DoD ground optical data (SOR/Maui) in a complementary-source fashion.

At present, what we'd like most is a closer-to-original copy of a certain NASA/KSC launch video we downloaded from the internet and analyzed/measured, in much the same manner as we did in 1986 with the Challenger optical tracking photography that was deliverd by NASA to NPIC in support of the analysis that we then completed and which is cited in the Rogers Commission report appendix.

Thanks again and let us know if we can be of any assistance to this investigation.

Regards, Ivar Svendsen

-----Original Message-----
From: HESS, DAVID C. (DAVE) (JSC-ZR) (NASA)
[mailto:david.c.hess@nasa.gov]
Sent: Monday, February 10, 2003 9:42 AM
To: 'Svendsen, Ivar A. '
Cc: CARD, MIKE (JSC-REMOTE); 'White Richard W Jr Col (Det 12/ST)';
MCGRATH, STEPHEN F. (STEVE) (JSC-ZR1) (USAF)
Subject: RE: Request for SOR image and USAF Maui MSSS images of Columbia

Ivar,

Just a slight glitch to all of this. I have been directed by the folks at US Strategic Command and Air Force Space Command to forward ALL data to them for distribution and release. This is in conjunction with the DoD Columbia Investigation Support Team (DCIST). Here is the email excerpt that directs this:

Mr Hess - Per our discussion, I telephoned Col Roberts and asked for direction with regards to where you should send data. She reiterated her direction yesterday and directed me to inform you to send the data here. The DoD Columbia Investigation Support Team (DCIST) is the official collector of any data from DoD sources; it will release information as quickly as possible in assisting in the recovery of debris and will work closely with NASA for the analysis required of DoD data for the on-going investigation. There is no effort to withhold or slow down the release of information, but we have quick access to expert analysis that might reveal crucial information from the data itself, or can be effectively merged with other DoD data to produce something of use, so we need to get the data here. In addition, it is important to observe proper management of any classified data.

Should you be contacted by DoD agencies that feel they have relevant information, data, or analysis, please direct them to the DCIST. The DCIST includes Maj Gen Hamel, Col Roberts, Lt Col Cindy Visel (USSTRATCOM-West, , Maj Paul Pease (USSTRATCOM-West, Maj Eric Olson (HQ AFSPC, some folks at Vandenberg AFB, and myself I have given you the phone numbers of those here in Colo Sprgs since the official collection and storage will be here. Also, if you have questions or need to direct someone to the DCIST, these numbers may expedite the process.

You may wish to contact Mr Bob Fugate at the SOR directly. He can be reached at

It is my understanding the Maui data have been sent directly to NASA's ftp website. The POC for those images is Lt Col Jeff McCann, who can be reached at

David C. Hess
David C. Hess, DAF
Director, DoD Human Space Flight Payloads
DoD Space Test Program
email: david.c.hess1@jsc.nasa.gov
voice: 281.483.3498
fax: 281.483.4651

-----Original Message-----
From: Svendsen, Ivar A.
Sent: Monday, February 10, 2003 8:31 AM
To: HESS, DAVID C. (DAVE) (JSC-ZR) (NASA)
Cc: CARD, MIKE (JSC-REMOTE)
Subject: Request for SOR image and USAF Maui MSSS images of Columbia

David,

Hi; thanks for your call to my office on Friday, 2/7, regarding the SOR image of Columbia during reentry. We would appreciate your forwarding the image back to my

Mike Card/NASA HQ (202-358-4481) has authorized our receipt of that image to support NASA's investigation. We did similar work during the Challenger accident investigation and our analysis (NPIC at the time) was used then in an appendix to the Rogers Commission report.

I understand that additional images may have also been taken by the Air Force's Maui Space Surveillance Site (MSSS) during Columbia's mission and we would very much appreciate being forwarded those images as well.

Thanks for your help; it's appreciated.

Regards, Ivar Svendsen

To: alan.l.briscoe1@jsc.nasa.gov, boconnor@hq.nasa.gov
From: Michael Card <mcard@hq.nasa.gov>
Subject: Maui and Albuquerque Photos
Cc:
Bcc:
Attached:

Am sending three separate files, unclassified for your use. Please confirm receipt. Some of this data may have been sent to the EOC at JSC, but I will try to get the complete package as it is developed. Need guidance on where you would like me to send these. Mike

To: fgregory@hq.nasa.gov
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: STS-107 images from Air Force Maui Optical & Supercomputing (AMOS) Site
Cc:
Bcc:
Attached: C:\Documents and Settings\mcard\My Documents\Data\attach\STS-107 images from AMOS(28Jan03).ppt;

Have not yet seen these, mike
From: "McCann, Lt Col Jeffrey"
To: "'mcard@hq.nasa.gov'" <mcard@hq.nasa.gov>,
"'David Hess(NASA) (E-mail)'" <david.c.hess@nasa.gov>,
"'nasamitimages@ems.jsc.nasa.gov'" <nasamitimages@ems.jsc.nasa.gov>
Cc: "'Good (E-mail)'" <earl.good@kirtland.af.mil>,
"'Baker (E-mail)'"
<william.baker@kirtland.af.mil>,
"'Col Stephen (E-mail)'"
<mark.stephen@kirtland.af.mil>,
"'Col Rich White (E-mail)'"
<Richard.White@kirtland.af.mil>,
"'Col DeLorenzo (E-mail)'"
<Michael.DeLorenzo2@wpafb.af.mil>,
"'MajGen Paul Nielsen (E-mail)'"
<Paul.Nielsen@wpafb.af.mil>,
"'Bob Fugate (E-mail)'"
<robert.fugate@kirtland.af.mil>,
"Skarupa, Valerie"
<valerie.skarupa@kirtland.af.mil>
Subject: STS-107 images from Air Force Maui Optical & Supercomputing (AMOS) Site
Date: Mon, 3 Feb 2003 18:28:44 -1000
X-Mailer: Internet Mail Service (5.5.2653.19)

All...

Attached is a partial set of images (still frames) collected on 28 Jan 03 from the Air Force Research Laboratory's AMOS site on Maui. Important facts regarding the images:

- This is a partial set of the total data collected by AMOS
- For research purposes, we routinely image the shuttle on a non-interference basis with our other operational and research requirements
- These images were post-processed by an algorithm called multi-frame blind deconvolution...then compressed. The raw and uncompressed data is available upon request.
- Movies (i.e., the total set of frames for each of the 4 passes collected) will be complete by COB Tuesday (Hawaii time). I will send them as they

become available.

<<STS-107 images from AMOS(28Jan03).ppt>>

Please advise if you need additional information or clarification. We have a substantial set of data for your use in a variety of formats.

Regards,

Jeffrey McCann, Lt Col, USAF

To: fgregory@hq.nasa.gov
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: Data from Maui
Cc:
Bcc:
Attached:

Have not yet seen these, mike
From: "Beveridge, Capt Brian"
To: "'mcard@hq.nasa.gov'" <mcard@hq.nasa.gov>
Cc: "McCann, Lt Col Jeffrey"
Subject: Data from Maui
Date: Tue, 4 Feb 2003 00:06:48 -1000
X-Mailer: Internet Mail Service (5.5.2653.19)

Mike,
My commander, Lt Col Jeff McCann, should have sent you some data this evening. I'm not sure if he told you that we are preparing a comprehensive data package of everything we collected on STS-107 in addition to the quick look he sent out tonight. We had worked on some of the data over the weekend and today, but we had several people doing several different things. We'd like to spend the next day or so pulling together the best data we can and packaging it so that it is useful to you all. We'll have folks post-processing data to pull out the highest resolution imagery, adding time stamps and other header information, etc. We'll also add information on the sensors and telescopes used to collect the data.

I also contacted our sister site, the Starfire Optical Range (SOR) in Albuquerque, NM. Dr. Robert Fugate, the SOR chief scientist, said he would send you their data.

This task is our top priority. Please let me know if we can do anything else to help.

v/r,
Brian

Capt Brian J. Beveridge

To: boconnor@hq.nasa.gov, alan.l.briscoe1@jsc.nasa.gov
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: Data from Maui
Cc:
Bcc:
Attached:

From: "Beveridge, Capt Brian"
To: "'mcard@hq.nasa.gov'" <mcard@hq.nasa.gov>
Cc: "McCann, Lt Col Jeffrey"
Subject: Data from Maui
Date: Tue, 4 Feb 2003 00:06:48 -1000
X-Mailer: Internet Mail Service (5.5.2653.19)

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v/r,
Brian

Capt Brian J. Beveridge

To: boconnor@hq.nasa.gov, alan.l.briscoe1@jsc.nasa.gov
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: STS-107 images from Air Force Maui Optical & Supercomputing (AMOS) Site
Cc:
Bcc:
Attached: C:\Documents and Settings\mcard\My Documents\Data\attach\STS-107 images from AMOS(28Jan03).ppt;

From: "McCann, Lt Col Jeffrey"
To: "'mcard@hq.nasa.gov'" <mcard@hq.nasa.gov>,
"'David Hess(NASA) (E-mail)'" <david.c.hess@nasa.gov>,
"'nasamitimages@ems.jsc.nasa.gov'" <nasamitimages@ems.jsc.nasa.gov>
Cc: "'Good (E-mail)'" <earl.good@kirtland.af.mil>,
"'Baker (E-mail)'"
<william.baker@kirtland.af.mil>,
"'Col Stephen (E-mail)'"
<mark.stephen@kirtland.af.mil>,
"'Col Rich White (E-mail)'"
<Richard.White@kirtland.af.mil>,
"'Col DeLorenzo (E-mail)'"
<Michael.DeLorenzo2@wpafb.af.mil>,
"'MajGen Paul Nielsen (E-mail)'"
<Paul.Nielsen@wpafb.af.mil>,
"'Bob Fugate (E-mail)'"
<robert.fugate@kirtland.af.mil>,
"Skarupa, Valerie"
<valerie.skarupa@kirtland.af.mil>
Subject: STS-107 images from Air Force Maui Optical & Supercomputing (AMOS) Site
Date: Mon, 3 Feb 2003 18:28:44 -1000
X-Mailer: Internet Mail Service (5.5.2653.19)

All...

Attached is a partial set of images (still frames) collected on 28 Jan 03 from the Air Force Research Laboratory's AMOS site on Maui. Important facts regarding the images:

- This is a partial set of the total data collected by AMOS
- For research purposes, we routinely image the shuttle on a non-interference basis with our other operational and research requirements
- These images were post-processed by an algorithm called multi-frame blind deconvolution...then compressed. The raw and uncompressed data is available upon request.
- Movies (i.e., the total set of frames for each of the 4 passes collected) will be complete by COB Tuesday (Hawaii time). I will send them as they

become available.

<<STS-107 images from AMOS(28Jan03).ppt>>

Please advise if you need additional information or clarification. We have a substantial set of data for your use in a variety of formats.

Regards,

Jeffrey McCann, Lt Col, USAF

To: boconnor@hq.nasa.gov, alan.l.briscoe1@jsc.nasa.gov
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: SOR image of Columbia
Cc:
Bcc:
Attached: C:\Documents and Settings\mcard\My Documents\Data\attach\Columbia65712.pdf;

User-Agent: Microsoft-Entourage/10.1.0.2006
Date: Mon, 03 Feb 2003 17:09:52 -0700
Subject: SOR image of Columbia
X-Sybari-Space: 00000000 00000000 00000000 00000000
From: Bob Fugate <bob.fugate@kirtland.af.mil>
To: <mcard@hq.nasa.gov>

Sir,
It was suggested by LtC Jeff McCann at Maui that I send the attached photo of Columbia. Please note that we have been directed not to release this to the public or news groups. However, also note that we directed locally on Saturday 1 Feb 2003 to email the raw TIFF image (without notes) to the columbiaimages@nasa.gov web site before higher authorities requested no public release.
Please confirm that you have received and are able to open the attached file.
Thank you.
Bob Fugate

To: bburns@hq.nasa.gov, rturner1@hq.nasa.gov
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: Data from Maui
Cc:
Bcc:
Attached:

As promised, total of 3 messages. mike

From: "Beveridge, Capt Brian"
To: "'mcard@hq.nasa.gov'" <mcard@hq.nasa.gov>
Cc: "McCann, Lt Col Jeffrey"
Subject: Data from Maui
Date: Tue, 4 Feb 2003 00:06:48 -1000
X-Mailer: Internet Mail Service (5.5.2653.19)

Mike,
My commander, Lt Col Jeff McCann, should have sent you some data this evening. I'm not sure if he told you that we are preparing a comprehensive data package of everything we collected on STS-107 in addition to the quick look he sent out tonight. We had worked on some of the data over the weekend and today, but we had several people doing several different things. We'd like to spend the next day or so pulling together the best data we can and packaging it so that it is useful to you all. We'll have folks post-processing data to pull out the highest resolution imagery, adding time stamps and other header information, etc. We'll also add information on the sensors and telescopes used to collect the data.

I also contacted our sister site, the Starfire Optical Range (SOR) in Albuquerque, NM. Dr. Robert Fugate, the SOR chief scientist, said he would send you their data.

This task is our top priority. Please let me know if we can do anything else to help.

v/r,
Brian

Capt Brian J. Beveridge

To: bburns@hq.nasa.gov, rturner1@hq.nasa.gov
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: STS-107 images from Air Force Maui Optical & Supercomputing (AMOS) Site
Cc:
Bcc:
Attached: C:\Documents and Settings\mcard\My Documents\Data\attach\STS-107 images from AMOS(28Jan03).ppt;

From: "McCann, Lt Col Jeffrey"
To: '"mcard@hq.nasa.gov"' <mcard@hq.nasa.gov>,
'"David Hess(NASA) (E-mail)"' <david.c.hess@nasa.gov>,
'"nasamitimages@ems.jsc.nasa.gov"' <nasamitimages@ems.jsc.nasa.gov>
Cc: '"Good (E-mail)"' <earl.good@kirtland.af.mil>,
'"Baker (E-mail)"'
<william.baker@kirtland.af.mil>,
'"Col Stephen (E-mail)"'
<mark.stephen@kirtland.af.mil>,
'"Col Rich White (E-mail)"'
<Richard.White@kirtland.af.mil>,
'"Col DeLorenzo (E-mail)"'
<Michael.DeLorenzo2@wpafb.af.mil>,
'"MajGen Paul Nielsen (E-mail)"'
<Paul.Nielsen@wpafb.af.mil>,
'"Bob Fugate (E-mail)"'
<robert.fugate@kirtland.af.mil>,
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<<STS-107 images from AMOS(28Jan03).ppt>>

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Regards,

Jeffrey McCann, Lt Col, USAF

To: James Lloyd <jlloyd@hq.nasa.gov>
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: Data from Maui
Cc:
Bcc:
Attached:

FYI, am forwarding 3 messages with Maui pictures, also sent to Lee Briscoe, Bryan, Fred, and Code X.

From: "Beveridge, Capt Brian"
To: "'mcard@hq.nasa.gov'" <mcard@hq.nasa.gov>
Cc: "McCann, Lt Col Jeffrey'
Subject: Data from Maui
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Cc:
Bcc:
Attached: C:\Documents and Settings\mcard\My Documents\Data\attach\STS-107 images from AMOS(28Jan03).ppt;

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To: "'mcard@hq.nasa.gov'" <mcard@hq.nasa.gov>,
"'David Hess(NASA) (E-mail)'" <david.c.hess@nasa.gov>,
"'nasamitimages@ems.jsc.nasa.gov'" <nasamitimages@ems.jsc.nasa.gov>
Cc: "'Good (E-mail)'" <earl.good@kirtland.af.mil>,
"'Baker (E-mail)'"
<william.baker@kirtland.af.mil>,
"'Col Stephen (E-mail)'"
<mark.stephen@kirtland.af.mil>,
"'Col Rich White (E-mail)'"
<Richard.White@kirtland.af.mil>,
"'Col DeLorenzo (E-mail)'"
<Michael.DeLorenzo2@wpafb.af.mil>,
"'MajGen Paul Nielsen (E-mail)'"
<Paul.Nielsen@wpafb.af.mil>,
"'Bob Fugate (E-mail)'"
<robert.fugate@kirtland.af.mil>,
"Skarupa, Valerie"
<valerie.skarupa@kirtland.af.mil>
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Regards,

Jeffrey McCann, Lt Col, USAF

X-Sender: jlloyd@mail.hq.nasa.gov
X-Mailer: QUALCOMM Windows Eudora Version 4.3.2
Date: Tue, 04 Feb 2003 10:45:16 -0500
To: hcat@hq.nasa.gov
From: James Lloyd <jlloyd@hq.nasa.gov>
Subject: Fwd: STS-107 images from Air Force Maui Optical &
Supercomputing (AMOS) Site
Cc: mcard@hq.nasa.gov, prutledg@hq.nasa.gov, prichard@hq.nasa.gov

These contain USAF processed images from compressed data that have been also forwarded to others in NASA at JSC. For your awareness. Other pictures/videos are being "developed."

X-Sender: mcard@mail.hq.nasa.gov
X-Mailer: QUALCOMM Windows Eudora Version 4.3.2
Date: Tue, 04 Feb 2003 10:06:07 -0500
To: James Lloyd <jlloyd@hq.nasa.gov>
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: STS-107 images from Air Force Maui Optical &
Supercomputing (AMOS) Site

From: "McCann, Lt Col Jeffrey'
To: "'mcard@hq.nasa.gov'" <mcard@hq.nasa.gov>,
"'David Hess(NASA) (E-mail)'" <david.c.hess@nasa.gov>,
"'nasamitimages@ems.jsc.nasa.gov'" <nasamitimages@ems.jsc.nasa.gov>
Cc: "'Good (E-mail)'" <earl.good@kirtland.af.mil>,
"'Baker (E-mail)'"
<william.baker@kirtland.af.mil>,
"'Col Stephen (E-mail)'"
<mark.stephen@kirtland.af.mil>,
"'Col Rich White (E-mail)'"
<Richard.White@kirtland.af.mil>,
"'Col DeLorenzo (E-mail)'"
<Michael.DeLorenzo2@wpafb.af.mil>,
"'MajGen Paul Nielsen (E-mail)'"
<Paul.Nielsen@wpafb.af.mil>,
"'Bob Fugate (E-mail)'"
<robert.fugate@kirtland.af.mil>,
"Skarupa, Valerie"
<valerie.skarupa@kirtland.af.mil>
Subject: STS-107 images from Air Force Maui Optical & Supercomputing (AMOS
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<<STS-107 images from AMOS(28Jan03).ppt>>

Please advise if you need additional information or clarification. We have a substantial set of data for your use in a variety of formats.

Regards,

Jeffrey McCann, Lt Col, USAF

STS-107 images from AMOS(28Jan03).ppt

Jim

From: "HESS, DAVID C. (DAVE) (JSC-ZR) (NASA)" <david.c.hess@nasa.gov>
To: "'shari.r.feinberg@nasa.gov'" <shari.r.feinberg@nasa.gov>
Subject: FW: Columbia (STS-107) Imagery
Date: Thu, 14 Aug 2003 16:14:22 -0500
X-Mailer: Internet Mail Service (5.5.2653.19)

As requested. In my opinion, once these folks sent the imagery and photos to the NASA website, it became NASA's call on how to disposition.

David C. Hess
David C. Hess, DAF
Director, DoD Human Space Flight Payloads
DoD Space Test Program
email: david.c.hess@nasa.gov
voice: 281.483.3498
fax: 281.483.4651

-----Original Message-----
From: Stephen Mark D Col AFRL/DE [mailto:Mark.Stephen@kirtland.af.mil]
Sent: Monday, February 03, 2003 10:40 AM
To: HESS, DAVID C. (DAVE) (JSC-ZR) (NASA)
Cc: White Richard W Jr. Col SMC Det 12/ST; Fugate Robert Q Civ AFRL/DES; McCann Jeffrey M LtCol AFRL/DEBI
Subject: RE: Columbia (STS-107) Imagery

They sent the images and videos to:

columbiaimages@jfc.nasa.gov

Or

columbiaimages@nasa.gov

I can't remember which, but one of the addresses didn't work

Mark D. Stephen, Colonel, USAF
Deputy Director, Directed Energy

-----Original Message-----
From: HESS, DAVID C. (DAVE) (JSC-ZR) (NASA) <david.c.hess@nasa.gov>
To: 'Stephen Mark D Col AFRL/DE' <Mark.Stephen@kirtland.af.mil>
CC: White Richard W Jr. Col SMC Det 12/ST <Richard.White@kirtland.af.mil>; Fugate Robert Q Civ AFRL/DES <Bob.Fugate@kirtland.af.mil>; McCann Jeffrey M LtCol AFRL/DEBI <jeffrey.mccann@maui.afmc.af.mil>
Sent: Mon Feb 03 09:26:06 2003
Subject: RE: Columbia (STS-107) Imagery

Can they be sent to me via email?

David C. Hess
David C. Hess, DAF
Director, DoD Human Space Flight Payloads
DoD Space Test Program
email: david.c.hess1@jsc.nasa.gov
voice: 281.483.3498
fax: 281.483.4651

-----Original Message-----
From: Stephen Mark D Col AFRL/DE [mailto:Mark.Stephen@kirtland.af.mil]
Sent: Monday, February 03, 2003 10:15 AM
To: HESS, DAVID C. (DAVE) (JSC-ZR) (NASA); Stephen Mark D Col AFRL/DE
Cc: White Richard W Jr. Col SMC Det 12/ST; Fugate Robert Q Civ AFRL/DES; McCann Jeffrey M LtCol AFRL/DEBI
Subject: Re: Columbia (STS-107) Imagery
Importance: High

Both Maui and Starfire have images. They transmitted them (or tried to) to NASA on Saturday and Sunday. POCs are Dr. Bob Fugate and Lt Col Jeff McCann.

Mark D. Stephen, Colonel, USAF
Deputy Director, Directed Energy

-----Original Message-----
From: HESS, DAVID C. (DAVE) (JSC-ZR) (NASA) <david.c.hess@nasa.gov>
To: 'mark.stephen@kirtland.af.mil' <Mark.Stephen@kirtland.af.mil>
CC: 'White Richard W Jr Col (Det 12/ST)' <Richard.White@kirtland.af.mil>
Sent: Mon Feb 03 06:15:13 2003
Subject: Columbia (STS-107) Imagery

I am sitting here with Col Rich White who suggested I fire you an email.

I am looking for any imagery of the Orbiter Columbia that may have been taken any time during the mission, and would be especially interested in any imagery taken during the descent phase. Would STARFIRE or the Maui site happen to have any of these? If so, I would like to get those images ASAP.

David C. Hess
David C. Hess, DAF
Director, DoD Human Space Flight Payloads
DoD Space Test Program
email: david.c.hess1@jsc.nasa.gov
voice: 281.483.3498
fax: 281.483.4651

X-Sender: jlloyd@mail.hq.nasa.gov
X-Mailer: QUALCOMM Windows Eudora Version 4.3.2
Date: Sun, 02 Feb 2003 18:27:50 -0500
To: mcard@hq.nasa.gov
From: James Lloyd <jlloyd@hq.nasa.gov>
Subject: Commit to Paper

Mike,

I would suggest that you take your understanding about the request to use resources for assessment of Columbia and write it down for use when you are interviewed.

Jim

From: "BRISCOE, ALAN L. (LEE) (JSC-DA) (NASA)" <alan.l.briscoe@nasa.gov>
To: "CARD, MIKE (JSC-REMOTE)" <mcard@hq.nasa.gov>
Subject: PRELIMINARY DISTANCES
Date: Thu, 13 Feb 2003 11:59:29 -0600
X-Mailer: Internet Mail Service (5.5.2653.19)

SEE ATTACHED. SEE YA, LEE

Message-ID: <1848CABD3587A84DAC6B3F82FE01D9FC08A7A469@jsc-mail08.jsc.nasa.gov>
From: "DOREMUS, ROBERT C. (JSC-DF52) (NASA)" <robert.c.doremus@nasa.gov>
To: "BRISCOE, ALAN L. (LEE) (JSC-DA) (NASA)" <alan.l.briscoe@nasa.gov>
Cc: "FITTS, RICHARD N. (JSC-DF) (NASA)" <richard.n.fitts@nasa.gov>,
"FRIANT, MELVIN E. (JSC-DF511) (NASA)" <melvin.e.friant@nasa.gov>,
"RAINWATER, SUSAN B. (JSC-DF51) (NASA)" <susan.b.rainwater@nasa.gov>,
"SCHAEFER, STANLEY J. (JSC-DF111) (NASA)" <stanley.j.schaefer@nasa.gov>
Subject: FW: ET-Orbiter distance
Date: Thu, 13 Feb 2003 09:24:27 -0600
MIME-Version: 1.0
X-Mailer: Internet Mail Service (5.5.2653.19)
Content-Type: text/plain;
charset="iso-8859-1"

Lee:

Unfortunately these dimensions were not readily available. We are still digging and will get them for you. Here are some rough numbers.

Bob Doremus

> -----Original Message-----
> From: FRIANT, MELVIN E. (JSC-DF511) (NASA)
> Sent: Wednesday, February 12, 2003 5:23 PM
> To: Robert Doremus
> Subject: FW: ET-Orbiter distance
>
> Bob,
>
> Here are the first two data points from Booster resources. FWD Attach sep
> distance = 53.8 in. Aft Attach sep distance = 38.6 in. I'm still waiting
> on a call back from Engineering with more info.
>
> - Mel
>
> -----Original Message-----
> From: EYRE, ANTHONY J. (JSC-DF55) (USA)
> Sent: Wednesday, February 12, 2003 5:09 PM

> To: FRIANT, MELVIN E. (JSC-DF5[illegible]) (NASA)
> Subject: ET-Orbiter distance
>
>
> Boeing integration (Greg Holden) was only able to provide the same answer
> we came up with from the "Space Shuttle External Tank System Definition
> Handbook".
>
> The distance at the forward attach point is 53.8 inches. At the aft
> attach point the distance is 38.6 inches. These distances are from the
> nearest point on the ET skin to the "separation plane" (at the umbilical
> for aft, bolt sep plane for forward). I don't know (and maybe you can
> answer) the stand-off distance of the umbilical plane from the orbiter
> surface.
>
> -Tony
>
> Anthony J. Eyre
> DF55/Booster Systems
> USA Johnson Space Center

> Email: anthony.j.eyre1@jsc.nasa.gov
>
>

To: "BRISCOE, ALAN L. (LEE) (JSC-DA) (NASA)" <alan.l.briscoe@nasa.gov>
From: Michael Card <mcard@hq.nasa.gov>
Subject: Re: PRELIMINARY DISTANCES
Cc:
Bcc:
Attached:

Thanks, mike
At 12:59 PM 2/13/2003, you wrote:

SEE ATTACHED. SEE YA, LEE

Message-ID: <1848CABD3587A84DAC6B3F82FE01D9FC08A7A469@jsc-mail08.jsc.nasa.gov>
From: "DOREMUS, ROBERT C. (JSC-DF52) (NASA)" <robert.c.doremus@nasa.gov>
To: "BRISCOE, ALAN L. (LEE) (JSC-DA) (NASA)" <alan.l.briscoe@nasa.gov>
Cc: "FITTS, RICHARD N. (JSC-DF) (NASA)" <richard.n.fitts@nasa.gov>,
"FRIANT, MELVIN E. (JSC-DF511) (NASA)" <melvin.e.friant@nasa.gov>,
"RAINWATER, SUSAN B. (JSC-DF51) (NASA)" <susan.b.rainwater@nasa.gov>,
"SCHAEFER, STANLEY J. (JSC-DF111) (NASA)" <stanley.j.schaefer@nasa.gov>
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>
> Anthony J. Eyre
> DF55/Booster Systems
> USA Johnson Space Center
> 281.483.0617
> Email: anthony.j.eyre1@jsc.nasa.gov
>
>

To:
From: Michael Card <mcard@hq.nasa.gov>
Subject: Fwd: PRELIMINARY DISTANCES
Cc:
Bcc:
Attached:

Please see attached, maybe you could be more specific since the distances seem to change??
Mike
From: "BRISCOE, ALAN L. (LEE) (JSC-DA) (NASA)" <alan.l.briscoe@nasa.gov>
To: "CARD, MIKE (JSC-REMOTE)" <mcard@hq.nasa.gov>
Subject: PRELIMINARY DISTANCES
Date: Thu, 13 Feb 2003 11:59:29 -0600
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To: "BRISCOE, ALAN L. (LEE) (JSC-DA) (NASA)" <alan.l.briscoe@nasa.gov>
Cc: "FITTS, RICHARD N. (JSC-DF) (NASA)" <richard.n.fitts@nasa.gov>,
"FRIANT, MELVIN E. (JSC-DF511) (NASA)" <melvin.e.friant@nasa.gov>,
"RAINWATER, SUSAN B. (JSC-DF51) (NASA)" <susan.b.rainwater@nasa.gov>,
"SCHAEFER, STANLEY J. (JSC-DF111) (NASA)" <stanley.j.schaefer@nasa.gov>
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> From: EYRE, ANTHONY J. (JSC-DF55) (USA)
> Sent: Wednesday, February 12, 2003 5:09 PM
> To: FRIANT, MELVIN E. (JSC-DF511) (NASA)
> Subject: ET-Orbiter distance
>
>
> Boeing Integration (Greg Holden) was only able to provide the same answer
> we came up with from the "Space Shuttle External Tank System Definition
> Handbook".
>
> The distance at the forward attach point is 53.8 inches. At the aft
> attach point the distance is 38.6 inches. These distances are from the
> nearest point on the ET skin to the "separation plane" (at the umbilical
> for aft, bolt sep plane for forward). I don't know (and maybe you can
> answer) the stand-off distance of the umbilical plane from the orbiter
> surface.
>
> -Tony
>
> Anthony J. Eyre
> DF55/Booster Systems
> USA Johnson Space Center
> 281.483.0617
> Email: anthony.j.eyre1@jsc.nasa.gov
>
>

X-Authentication-Warning: spinoza.public.hq.nasa.gov: majordom set sender to owner-code-q using -f
X-Sender: prichard@mail.hq.nasa.gov
X-Mailer: QUALCOMM Windows Eudora Version 4.3.2
Date: Thu, 13 Feb 2003 10:24:47 -0500
To: code-q@lists.hq.nasa.gov
From: Pamela Richardson <prichard@hq.nasa.gov>
Subject: POC at LaRC for Columbia information requests
Sender: owner-code-q@lists.hq.nasa.gov

Recently, a friend of mine from LaRC called to offer information to our Columbia efforts on research done at LaRC in the early 80s regarding on-orbit tile repair for Shuttle. With Pete's help, I was able to obtain the information and it has been provided to Mark Kowaleski and Ron Moyer. Anyone is welcome to make a copy, it is in my office.

Through the effort, I did, in my thank yous to the people at LaRC, ask if LaRC has defined a POC for Columbia information requests. Del Freeman has named Mark P. Saunders, Deputy Director, Space Access and Exploration Program Office, as that person. (m.p.saunders@larc.nasa.gov). In my communications, I indicated that if LaRC could provide such a name, I would ask all of Code Q to work through that person.

Thanks, Pam

~~~~~~

Pamela F. Richardson
Aerospace Technology Mission Assurance Manager
Enterprise Safety and Mission Assurance Division, Code QE
Office of Safety and Mission Assurance, NASA Headquarters
300 E. Street, S. W., Washington, DC 20546
phone: 202-358-4631, fax: 202-358-2778

~~~~~~

"The meek can *have* the Earth. The rest of us are going to the stars." --- Robert Heinlein
"We have to learn to manage information and its flow. If we don't, it will all end up in turbulence." --- RADM Grace Hopper

~~~~~~
~~~~~~

From: "CONOVER, SHARON C. (JSC-OA) (NASA)" <sharon.c.conover@nasa.gov>
To: "GERSTENMAIER, WILLIAM H. (BILL) (JSC-OA) (NASA)"
<william.h.gerstenmaier@nasa.gov>,
"KELLY, ALBERT F. (AL) (JSC-DA) (NASA)" <albert.f.kelly@nasa.gov>
Cc: "DUCOTE, GORDON J. (JSC-OA) (NASA)" <gordon.j.ducote@nasa.gov>,
"CAPLAN, BETH D. (JSC-LE) (NASA)" <beth.d.caplan@nasa.gov>,
"KITMACHER, GARY H. (JSC-SM) (NASA)" <gary.h.kitmacher@nasa.gov>,
"KALLA, ELIZABETH M. (LIZ) (JSC-OC) (NASA)" <elizabeth.m.kalla@nasa.gov>
Subject: Web Link: NASA Mishap Status Reports (Daily)
Date: Fri, 14 Feb 2003 16:21:05 -0600
X-Mailer: Internet Mail Service (5.5.2653.19)

FYI - Columbia Investigation Daily Status reports web link:

http://spaceflight.nasa.gov/spacenews/reports/nmrs/index.html

Thanks,
Sharon C. Conover
NASA/FCO

281-244-8158 office
sharon.c.conover@nasa.gov

X-Authentication-Warning: spinoza.public.hq.nasa.gov: majordom set sender to owner-code-q using -f
X-Sender: mkowales@mail.hq.nasa.gov
X-Mailer: QUALCOMM Windows Eudora Version 4.3.2
Date: Fri, 14 Feb 2003 14:50:34 -0500
To: code-q@lists.hq.nasa.gov
From: Mark Kowaleski <mkowales@hq.nasa.gov>
Subject: Fwd: USA Today Depiction of Columbia Data
Sender: owner-code-q@lists.hq.nasa.gov

From: "ERMINGER, MARK D. (JSC-NC) (NASA)" <mark.d.erminger@nasa.gov>
To: "H - Kowaleski Mark (E-mail)" <mkowales@mail.hq.nasa.gov>,
"H - Bihner Bill (E-mail)" <wbihner@mail.hq.nasa.gov>,
"H - Hill Bill (E-mail)" <william.hill@hq.nasa.gov>
Subject: USA Today Depiction of Columbia Data
Date: Fri, 14 Feb 2003 13:19:58 -0600
X-Mailer: Internet Mail Service (5.5.2653.19)

> This is incredible
>
> http://www.usatoday.com/graphics/news/gra/gshuttle_disaster/flash.htm

From: BOConnor@hq.nasa.gov
Subject: Re: Maui and Albuquerque Photos
Date: Tue, 4 Feb 2003 11:52:02 -0500
To: mcard@hq.nasa.gov
X-MIMETrack: Serialize by Router on bes1/HQ/NASA(Release 5.0.11 |July 24, 2002) at 02/04/2003
11:52:03 AM

Mike,
Please send it all to the MRT to pass on to the appropriate working group.
Tx
O'C

X-Sender: bburns@mail.hq.nasa.gov
X-Mailer: QUALCOMM Windows Eudora Version 4.3.2
Date: Mon, 10 Feb 2003 09:29:02 -0500
To: mcard@hq.nasa.gov
From: "Bill R. Burns" <bburns@hq.nasa.gov>
Subject: Fwd: STS-107 Investigation updates

X-Sender: tmitchel@mail.hq.nasa.gov
X-Mailer: QUALCOMM Windows Eudora Version 4.3.2
Date: Mon, 10 Feb 2003 08:49:18 -0500
To: bburns@mail.hq.nasa.gov
From: Todd Mitchell <tmitchel@hq.nasa.gov>
Subject: STS-107 Investigation updates

Bill, thought you may be interested:

Again, this info is from Sweden Space Agency:

The search for debris from the Space Shuttle orbiter Columbia has been expanded to California and Arizona, as NASA continues to focus on the vehicle's left wing as the source of the failure. One object NASA is keen to recover is a high security communications device that handles encrypted messages from the orbiter to the ground.

NASA is still looking for the "missing link". The agency asserted that high resolution US Air Force ground cameras did not reveal damage to the underside of the left wing. However, Aviation Week and Space Technology's Craig Covault has reported that the cameras did reveal serious structural damage to the area of the leading edge of the left wing close to the mid fuselage 60s before the disintegration. A jagged edge of the left inboard wing structure was revealed while the orbiter's right yaw aft thrusters were seen trying to correct the vehicle's attitude. The damage reports Covault, indicates either a small structural breach, like a crack, that allowed the 2,500degF re-entry heat to erode the nearby structure, or that a small portion of the leading edge fell off at some point during the flight. The foam insulation that fell from the external tank during launch made a glancing blow just under and close to this region of the left wing leading edge. The area where the breach occured is in the boundary region between the bolted-on reinforced carbon-carbon and high temperature reusable surface insulation tiles fixed with adhesive.

Bill R. Burns
NASA CI Program Manager
Tel (202) 358-0720

CONOVER, SHARON C. (JSC-OA) (NASA), 01:46 PM 2/13/2003, CAIB restructured chart

From: "CONOVER, SHARON C. (JSC-OA) (NASA)" <sharon.c.conover@nasa.gov>
To: DL ESAT <DL-ESAT@ems.jsc.nasa.gov>,
"GERSTENMAIER, WILLIAM H. (BILL) (JSC-OA) (NASA)"
<william.h.gerstenmaier@nasa.gov>,
"KELLY, BRIAN K. (JSC-OA) (NASA)"
<brian.k.kelly@nasa.gov>
Subject: CAIB restructured chart
Date: Thu, 13 Feb 2003 11:46:01 -0600
X-Mailer: Internet Mail Service (5.5.2653.19)

Attached is a link to the revised CAIB charter reflective of Mr. O'Keefe's testimony to Congress yesterday.

Thanks,
Sharon C. Conover
Early Sighting Assessment Team (ESAT)

281-244-5304 MCC-CSR
sharon.c.conover@nasa.gov
-----Original Message-----
From: FITZGIBBONS, BARRY (JSC-MA) (NASA)
Sent: Thursday, February 13, 2003 9:11 AM
To: DL CAIB
Subject: Latest CAIB Charter

All,

Attached is a link to the latest version of the CAIB Charter . Changes included removing any requirement "real or perceived" for the Board to coordinate or await approval from NASA for any dimension of the Board's investigation. Also the 60 day time frame reference was removed and substituted with " "Provide a final written report for public release at such time and in such manner as the Board deems appropriate"

http://www.nasa.gov/columbia/board_documents.pdf

V/R
YNC(SS) Barry M. Fitzgibbons
Columbia Accident Investigation Board (CAIB)
Ph: (281) 283-7519

From: "HILL, PAUL S. (JSC-DA8) (NASA)" <paul.s.hill@nasa.gov>
To: DL ESAT <DL-ESAT@ems.jsc.nasa.gov>
Subject: Imagery analysis
Date: Sun, 9 Feb 2003 10:37:29 -0600
Importance: high
X-Mailer: Internet Mail Service (5.5.2653.19)

Greg Byrne -

I know we're getting many offers to help. I don't know if you already have someone involved with this kind of expertise. Please read and give me a call,

PSH

-----Original Message-----
From: Parsons, William W [mailto:William.W.Parsons@nasa.gov]
Sent: Saturday, February 08, 2003 12:49 PM
To: HILL, PAUL S. (JSC-DA8) (NASA)
Subject: Fw: SHUTTLE ACCIDENT

Paul.
Showed this email to Wayne Hale and he thought it merited fwd to you.

Bill Parsons

Sent from my BlackBerry Wireless Handheld

> [Original Message]
> From:
> To:
> Date: 2/8/03 10:29:40 AM
> Subject: SHUTTLE ACCIDENT
>
>
>
> I imagine that you and Bill are pretty busy
> with all the Columbia turmoil at NASA. I've
> been watching the investigation reports out of
> NASA and had an idea that Bill may (or may
> not) want to pass on to the investigation team.
> Obviously, I don't have details on what the
> investigation is doing but this analysis approach
> has never been mentioned in anything I've seen

> and it may have some merit.
>
> In essence, this technique might allow NASA
> to detect a TPS burn thru from low resolution
> images or video although it probably won't help
> to determine where the burn through occurred.
>
> Here is the brief tutorial:
>
> On normal reentry, the shuttle entry face is
> heated and the air at and near the surface
> is ionized and emits light. This plasma will
> emit light across a range of wavelengths that
> are characteristic of the temperature (black
> body radiation) and the composition of the
> plasma (emission lines) which in a normal
> reentry is from oxygen, nitrogen, and possibly
> some carbon, silicon, etc from the TPS.
>
> In a burn through event, metal from the
> structure (aluminum alloy) will be added to
> the plasma. Even in very small amounts
> (parts per million) the emission lines from
> the plasma should be substantially different
> than from a normal reentry.
> (You can see this effect if you drop a pinch
> of salt into a gas flame; the flame turns bright
> yellow orange from the sodium in the salt)
> As larger amounts of aluminum are heated,
> the aluminim will react with the oxygen in the
> air and "burn" probably resulting in a higher
> temperature locally. The net result of all this
> is that the spectrum of the emited light on a
> reentry with burn through should be shifted,
> probably toward shorter wavelengths.
>
> Granted, there were probably no spectrometers
> pointed at the shuttle during reetnry but color
> cameras do record some gross spectral information
> which can be recovered by analysis.
>
> Since there are certainly variations in spectral
> response from camera to camera , the images
> would need to be normalized and a relative
> comparison of color made. This normalization
> could probably be accomplished by using the sky
> background and sunlight reflected from the
> trail in each frame as color references.

>
> By comparing the color of the brightest part
> of the shuttle image from frame to frame or
> from images of a normal shuttle reentry, it might
> be possible to determine when a burn thru occurred.
>
> This approach should work in principle but
> I do not know if it has ever been tried. Camera
> sensitivity and "noise" from reflected sunlight
> might tend to mask the information you're trying
> to find.
>
> Whoever is doing the image analysis should
> have the capability to measure precise image
> color values and should be able to give it a
> try. The quick way would be to comapare
> images from the post breakup phase of
> Columbia with a normal reentry. If the
> technique works it should be evident in
> the color comparison.
>
> If you do pass this on and if anyone wants to
> contact me they can use this email address
> or
>
> Perdix Corporation

>
> I'm doing a lot of travel for Solar-B
> so the EMAIL is probably most reliable.
>
>

X-Authentication-Warning: spinoza.public.hq.nasa.gov: majordom set sender to owner-code-q using -f
X-Sender: dmoore@mail.hq.nasa.gov
X-Mailer: QUALCOMM Windows Eudora Version 4.3.2
Date: Wed, 05 Feb 2003 06:36:14 -0500
To: code-q@lists.hq.nasa.gov
From: Dale Moore <dmoore@hq.nasa.gov>
Subject: Fwd: Overtime related to loss of Columbia
Sender: owner-code-q@lists.hq.nasa.gov

X-Sender: jpieritz@mail.hq.nasa.gov

From: Joyce Pieritz <jpieritz@hq.nasa.gov>
Subject: Overtime related to loss of Columbia
Cc: AL Castillo <acastill@hq.nasa.gov>

We are aware that many of our employees are working overtime since the loss of Columbia. We are providing the following information on overtime, compensatory time and night pay as a guide. Feel free to share this information as needed with your Officials in Charge and others within your organization. My staff and I are available to provide additional assistance as needed during this difficult time.

General Information

Overtime is paid for work in excess of 8 hours in 1 day or 40 hours in a workweek except for employees working CWS (5-4/9) who are paid overtime for work in excess of their scheduled workday or work week.

For overtime pay purposes, rate of basic pay means the rate of pay fixed by law (including special rates) and any applicable locality pay.

The law bars members of the Senior Executive Service from earning either overtime or compensatory time (other than religious compensatory time).

Overtime Rates of Pay

For employees with rates of basic pay equal to or less than the rate of basic pay for GS-10, step 1, the overtime rate is the employee's hourly rate of basic pay multiplied by 1.5.

For employees with rates of basic pay greater than the basic pay for GS-10, step 1, the overtime hourly rate is the hourly rate for GS-10, step 1, multiplied by 1.5. In the Washington, D.C, locality that rate is currently $31.34 per hour. This limitation does not apply to wage employees or to FLSA covered overtime pay.

Limitations on Overtime Pay

Normally overtime is limited on a bi-weekly basis, so that the sum of basic pay and premium pay for the pay period can not exceed the greater of the biweekly rate for (1) GS-15, step 10 (including any applicable locality rate or special salary rate), or (2) level V of the Executive Schedule.

In emergency situations, such as the loss of Columbia, the bi-weekly pay limitation may be waived by the Center Director. Tim Sullivan Acting Director, HQ Operations Office, has delegated the authority to waive the bi-weekly limit for headquarters employees to the Headquarters Officials in Charge.

Even if the bi-weekly limit is waived, however, there is still an annual pay limitation, which limits the total of basic pay and premium pay to the greater of the annual rate for (1) GS-15, step 10 (including any applicable special salary rate or locality rate of pay), or (2) Level V of the Executive Schedule. The annual rate for Level V of the Executive Schedule for this year is $125,400; since this is higher than the annual rate for GS-15, step 10, it is the annual limit for basic and premium pay for our employees.

Codes are responsible for providing the payroll office with the names of those employees who will be working overtime under the annual pay limitation; they must also notify payroll when that coverage ends, i.e., when the employees stop working overtime related to Columbia

Compensatory Time

Compensatory time is subject to the same restrictions as overtime. An employee may only work compensatory time to the extent that he/she would be eligible to be paid overtime for the hours worked.

These limitations do not apply to wage employees or to FLSA overtime pay.

Night Pay

Some offices have scheduled employees to work on shifts. Please be aware that there is a requirement to pay night pay for regularly scheduled work performed at night. Night pay is a 10 percent differential, paid for regularly scheduled work performed at night. This generally means work scheduled to take place between the hours 6 P.M.. and 6 A.M. This includes night work under a compressed work schedule.

Generally night pay is paid for work scheduled at or before the beginning of the administrative workweek. However, night pay is also paid for night work on a temporary assignment to a different daily tour of duty during the administrative workweek.

Night pay is paid in addition to overtime, Sunday, or holiday premium pay.

Joyce D. Pieritz
Deputy Director, HQ Human Resources Management Division
202-358-1149
jpieritz@hq.nasa.gov

From: "CURRY, JOHN M. (JSC-DA8) (NASA)" <john.m.curry@nasa.gov>
To: DL ESAT <DL-ESAT@ems.jsc.nasa.gov>
Subject: F
Date: Sun, 9 Feb 2003 00:05:02 -0600
X-Mailer: Internet Mail Service (5.5.2653.19)

Just FYI - I pulled this off the web while working console Saturday night/Sunday morning. His video in route to NASA is part of EOC#2-1-2264 which again captures the debris coming off at 13:54:34 GMT. Here is his link with video/stills attached:

http://www.moonglow.net/ccd/pictures/other/index.html
<http://www.moonglow.net/ccd/pictures/other/index.html>

http://www.moonglow.net/ccd/index.html
<http://www.moonglow.net/ccd/index.html>

John M. Curry
Flight Director, JSC-DA8
Work: 281-244-1029;
john.m.curry1@jsc.nasa.gov

From: "CURRY, JOHN M. (JSC-DA8) (NASA)" <john.m.curry@nasa.gov>
To: "CURRY, JOHN M. (JSC-DA8) (NASA)" <john.m.curry@nasa.gov>,
DL ESAT
<DL-ESAT@ems.jsc.nasa.gov>
Subject: RE: Fairfield, CA video/website
Date: Sun, 9 Feb 2003 01:42:39 -0600
X-Mailer: Internet Mail Service (5.5.2653.19)

I found another report which states the videographers name as Lionel Machado
http://www.freerepublic.com/focus/news/837525/posts
<http://www.freerepublic.com/focus/news/837525/posts>

John M. Curry
Flight Director, JSC-DA8
Work: 281-244-1029;
john.m.curry1@jsc.nasa.gov

-----Original Message-----
From: CURRY, JOHN M. (JSC-DA8) (NASA)
Sent: Sunday, February 09, 2003 12:44 AM
To: DL ESAT
Subject: Fairfield, CA video/website

Here is a very interesting piece of video from Fairfield, CA (a town located just south of the Columbia ground-track between San Francisco and Sacremento). The newsclip says it was taken by a gentleman named I can't find a tracking number for this guy or this video, so unless somebody knows about it already, I will contact the TV station (KRON Channel 4).

If this video turns out to be time synced properly, this could be the earliest evidence of shuttle tile shedding (possibly verification of the Bissinger tile shedding event at around 135336 GMT. The time stamp on the tape says 1351, but I assume that is off since 1351 is still well out over the water.....we'll need to time sync that to UTC). Anyway, we need to get Spencer and Co. to look at it.

http://www.kron.com/Global/story.asp?S=1118087&nav=5D7iDpYK
<http://www.kron.com/Global/story.asp?S=1118087&nav=5D7iDpYK>

Note: Fairfield, CA (Zip = 94534 or 94533), LAT=38.3 N, LON= 122W

http://www.mapquest.com/maps/map.adp?latlongtype=decimal&latitude=38.3&longitude=-122
<http://www.mapquest.com/maps/map.adp?latlongtype=decimal&latitude=38.3&longitude=-122>