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X-Sender: boconnor@mail.hq.nasa.gov
Date: Sat, 01 Feb 2003 20:12:23 -0500
To: Karen Evans <k.w.evans@larc.nasa.gov>
From: boconnor <boconnor@hq.nasa.gov>
Subject: Re: LaRC Available to Help

Karen,

Thanks. We may need their help. I'll stay in touch as the Board begins their work.

Best Regards,

At 05:02 PM 2/1/2003 -0500, you wrote:

Mr. O'Connor, Mr. Freeman asked me to send you this e-mail

Bryan,

I wanted to contact you and offer any help that we could provide. I have experts in the areas of aerothermodynamics, aerodynamics, and structures and materials that could support your efforts. The following people I think could be possible expert consultants:

-Vince Zoby - Experience in Shuttle aerodynamic heating.....major P.I. during the Orbiter Experiments Program.

-Dick Powell - Significant experience on Shuttle and other entry vehicle trajectory, aeroheating, and flight mechanics analysis.

-Charles Miller - Significant experience working entry and hypersonic aerodynamics.

- Mark Shuart - Head of our structures and materials competency with experts in structures and materials, including aluminum and composite structures and TPS designs. He is also responsible for the landing loads facility with expertise in landing gear and tire design.

If we can be of help, let me know. I will be available either at home or by pager and cell phone.

Home phone: [REDACTED]

Cell phone: [REDACTED]

Pager: [REDACTED]

Del

--

EVANS, KAREN W

K.W.EVANS@LaRC.NASA.GOV

Mail Stop 106
11 Langley Boulevard
NASA Langley Research Center
Hampton, VA 23681-2199

Office of Director
Building 1219, Room 212
Phone +1 757 864-6108

O'C

Bryan O'Connor
Associate Administrator
Office of Safety and Mission Assurance

To: d.s.miller@larc.nasa.gov
From: Karen Evans <k.w.evans@pop.larc.nasa.gov>
Subject: Fwd: Tile Damage Update
Cc:
Bcc:

X-Attachments:

Offering Help (OH) Dave, this is, again, another one that Delma & Doug told me to forward to Suzanne Hilding at HQ in Code M.

Date: Tue, 4 Feb 2003 15:59:16 -0500
To: shilding@mail.hq.nasa.gov
From: Karen Evans <k.w.evans@pop.larc.nasa.gov>
Subject: Fwd: Tile Damage Update
Cc:
Bcc:
X-Attachments:

More info from Mr. Freeman's office.

X-Sender: d.l.dwoyer@express.larc.nasa.gov
Date: Tue, 4 Feb 2003 11:42:24 -0500
To: k.w.evans@larc.nasa.gov
From: Doug Dwoyer <d.l.dwoyer@larc.nasa.gov>
Subject: Fwd: Tile Damage Update

Date: Thu, 30 Jan 2003 08:15:38 -0500
To: d.l.dwoyer@larc.nasa.gov, r.m.martin@larc.nasa.gov
From: "Mark J. Shuart" <m.j.shuart@larc.nasa.gov>
Subject: Fwd: Tile Damage Update

| Doug, Ruth,

The latest info on the Shuttle is below. It will be interesting to see the extent of the damage after landing on Saturday.....Mark

Date: Wed, 29 Jan 2003 15:51:28 -0500
To: "SHUART, MARK J" <M.J.SHUART@larc.nasa.gov>
From: "Robert H. Daugherty" <r.h.daugherty@larc.nasa.gov>
Subject: Tile Damage Update
Cc: H.M.ADELMAN@larc.nasa.gov

Hi Mark,

Nothing terribly new but a few things talked about today with some folks at the Ames VMS. Apparently the current "official" estimate of damage is 7 inches by 30 inches by half the depth of the tiles down to the densified level. One of the bigger concerns is that the "gouge" may cross the main gear door thermal barrier and permit a breach there. No way to know of course. A JSC colleague and I talked to the sim guys and are urging them to simulate a landing with two tires flat prior to touchdown...it is as simple as hitting a software button and simply doing it...but since no Orbiter Program Management is "directing" the sim community to do this it might need to get done "at night". An anecdote they told us is that this was already done by mistake this week and the commander lost control of the vehicle during our load-persistence simulations. It seems that if Mission Operations were to see both tire pressure indicators go to zero during entry, they would sure as hell want to know whether they should land gear up, try to deploy the gear, or go bailout...we can't imagine why getting information is being treated like the plague. Apparently the thermal folks have used words like they think things are "survivable", but "marginal".

I imagine this is the last we will hear of this.

Take care,

Bob

--

Doug Dwoyer

Associate Director for Research and Technology Competencies

Mail Stop 103

Director

Office of

11 langley Boulevard
Building 1219, Room 133
NASA Langley Research Center
Phone: 757 864 6114
Hampton, VA 23681-2199
864 8915

FAX: 757

X-Sender: m.pitts@express.larc.nasa.gov
 Date: Sat, 1 Feb 2003 14:02:28 -0500
 To: K.W.EVANS@larc.nasa.gov
 From: Margarette Pitts <m.pitts@larc.nasa.gov>
 Subject: Fwd: NASA PRESS CONFERENCE ANNOUNCED

X-Authentication-Warning: spinoza.public.hq.nasa.gov: majordom set sender to owner-press-release using -f
 Date: Sat, 1 Feb 2003 13:31:39 -0500 (EST)
 From: NASANews@hq.nasa.gov
 Subject: NASA PRESS CONFERENCE ANNOUNCED
 Sender: owner-press-release@lists.hq.nasa.gov
 To:

Robert Mirelson
 Headquarters, Washington Feb. 1, 2003
 (Phone: 202/358-1600) 1:15 p.m. EST

RELEASE: 03-031

NASA PRESS CONFERENCE ANNOUNCED

A press conference by Space Shuttle Program Manager Ron Dittmore and Chief Flight Director Milt Heflin will take place from NASA's Johnson Space Center, Houston, beginning at 3 p.m. EST today. The briefing will be carried on NASA TV with two-way question and answer capability from other agency centers.

A Space Shuttle contingency was declared earlier this morning in Mission Control when communication was lost with the Space Shuttle Columbia during its return to Earth following a 16-day mission.

Communication and tracking of the shuttle was lost at 9 a.m.

at an altitude of about 203,000 feet above north central Texas while traveling approximately 12,500 miles per hour (Mach 18). No communication and tracking information was received in Mission Control after that time.

Flight controllers in Mission Control immediately began the process of securing all information, notes and data pertinent to today's reentry and landing.

NASA TV is on AMC-2, Transponder 9C, vertical polarization at 85 degrees West longitude, 3880 MHz, with audio at 6.8 MHz.

More information will be released as it becomes available. NASA information is available on the Internet at:

www.nasa.gov

-end-

* * *

NASA press releases and other information are available automatically by sending an Internet electronic mail message to domo@hq.nasa.gov. In the body of the message (not the subject line) users should type the words "subscribe press-release" (no quotes). The system will reply with a confirmation via E-mail of each subscription. A second automatic message will include additional information on the service. NASA releases also are available via CompuServe using the command GO NASA. To unsubscribe from this mailing list, address an E-mail message to domo@hq.nasa.gov, leave the subject blank, and type only "unsubscribe press-release" (no quotes) in the body of the message.

Margarette Pitts
Office of External Affairs
Building 1219, Room 304
Mail Stop 115
NASA Langley Research Center
Hampton, VA 23681-2199
757-864-6124 - Phone
757-864-6333 - Fax

X-Sender: m.m.skora@express.larc.nasa.gov
Date: Sun, 2 Feb 2003 13:24:18 -0500
To: d.c.freeman@larc.nasa.gov
From: Marny Skora <m.m.skora@larc.nasa.gov>
Subject: Suggested words of condolence
Cc: m.p.finneran@larc.nasa.gov

Del--

Consider the following as a message to the directors of JSC and KSC:

The Langley family mourns the loss of our brothers and sisters -- your colleagues. Saturday's events have tragically affected all of NASA. Please know that we at Langley are prepared to help you in any way we can. In the meantime, our thoughts and prayers are with you as you grieve with the families of those lost.

You may wish to email them immediately and follow up with a hand-written note of the same message.

Suggested words for the @LaRC banner:

The Langley family mourns with our colleagues across the Agency and the families of those lost aboard Columbia.

--

Marny Skora
Head, Office of Public Affairs
NASA Langley Research Center
Mail Stop 115, Bldg 1219, Rm 303
11 Langley Blvd.
Hampton, VA 23681
(757) 864-6121

Officer, Ho.

X-Sender: a.h.phillips@pop.larc.nasa.gov
Date: Sun, 2 Feb 2003 14:26:34 -0500
To: J Newman <snewman@mail.hq.nasa.gov>
From: "Alan H. Phillips" <a.h.phillips@larc.nasa.gov>
Subject: LaRC Offer of Assistance from D. Freeman to B. O'Connor
Cc: Dr Peter Rutledge <prutledg@mail.hq.nasa.gov>

Steve/Pete:

Here is the listing of people that Del wanted to make sure got offered up (with supporting analysis teams) that could perhaps be of assistance. Pls post or forward in whatever manner you think will be of most value to the Agency.

Alan

 LaRCHelp.pdf

--

Alan H. Phillips
Director, Office of Safety and Mission Assurance
NASA Langley Research Center
5A Hunsaker Loop
Building 1162, Room 112C
Mail Stop 421
Hampton, VA 23681

(757)864-3361 Voice

(757)864-6327 Fax

00-6

Brian,

I wanted to contact you and offer any help that we could provide. I have experts in the areas of aerothermodynamics, aerodynamics, and structures and materials that could support your efforts. The following people I think could be possible expert consultants:

-**Vince Zoby** – Experience in Shuttle aerodynamic ^{heating} trajectory Major P.I. during the Orbiter Experiments Program.

-**Dick Powell** – ^{significant} Long experience on Shuttle and other entry vehicle trajectory, aeroheating, and flight mechanics analysis.

-**Charles Miller** – ^{significant} Long experience working entry and hypersonic aerodynamics.

- **Mark Shuart** - Head of our structures and materials competency with experts in structures and materials, including aluminum and composite structures and TPS designs. He is also responsible for the landing loads facility with expertise in landing gear and tire design.

If we can be of help, let me know. I will be available either at home or by pager and cell phone.

Home phone: [REDACTED]

Cell phone: [REDACTED]

Pager: [REDACTED]

Del

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

X-Priority: 1 (Highest)

Date: Sun, 02 Feb 2003 16:56:26 -0500

To: shubbard@mail.arc.nasa.gov, kevin.petersen@mail.dfrc.nasa.gov, donald.campbell@lerc.nasa.gov, avdiaz@pop100.gsfc.nasa.gov, Charles.Elachi@jpl.nasa.gov, roy.bridges@ksc.nasa.gov, jcreedon@mail.hq.nasa.gov, arthur.stephenson@msfc.nasa.gov, jefferson.d.howell1@jsc.nasa.gov, D.C.Freeman@larc.nasa.gov, William.Parsons@ssc.nasa.gov, fgregory@hq.nasa.gov, mgreenfi@hq.nasa.gov, jjenning@mail.hq.nasa.gov, cstadd@hq.nasa.gov, wreaddy@hq.nasa.gov, eweiler@hq.nasa.gov, mkicza@hq.nasa.gov, gasrar@hq.nasa.gov, jcreedon@hq.nasa.gov, aloston@hq.nasa.gov, ppastore@hq.nasa.gov, boconnor@hq.nasa.gov, shilding@hq.nasa.gov, space@hq.nasa.gov, chorner@mail.hq.nasa.gov, gmahone@mail.hq.nasa.gov, Mary Kerwin <mkerwin@hq.nasa.gov>, Gwen.Young@mail.dfrc.nasa.gov

From: Richard Beck <rbeck@hq.nasa.gov>

Subject: Budget Briefings Postponed But Materials Will Still Be Released

Cc: afalk@hq.nasa.gov, mkieffer@hq.nasa.gov, rirving@hq.nasa.gov, sblack@hq.nasa.gov, pcarrawa@hq.nasa.gov, bhaworth@hq.nasa.gov, mmedsker@hq.nasa.gov, chood@hq.nasa.gov, dlacy@mail.arc.nasa.gov, Darlene.H.Mayo@nasa.gov, lisa.a.navy1@jsc.nasa.gov, K.W.Evans@larc.nasa.gov, Jane.Kleinschmidt-1@nasa.gov, Patsy.H.Fuller@nasa.gov, Carmen.Arevalo-1@nasa.gov, Janet.Austill@ssc.nasa.gov, ggaukler@hq.nasa.gov, rmaizel@hq.nasa.gov, gfuller@hq.nasa.gov, amcgee@hq.nasa.gov, rkeegan@hq.nasa.gov, kerickso@hq.nasa.gov, lbraxton@mail.arc.nasa.gov, margaret.ashworth@dfrc.nasa.gov, NAbell@pop100.gsfc.nasa.gov, dbridge@hq.nasa.gov, Napoleon.Carroll-1@ksc.nasa.gov, Richard.Cota-1@kmail.ksc.nasa.gov, david.bates@msfc.nasa.gov, jbevis@ssc.nasa.gov, Robert.E.Fails@grc.nasa.gov, john.h.beall1@jsc.nasa.gov, k.j.winter@larc.nasa.gov, Fred.McNutt@jpl.nasa.gov, dwatson@hq.nasa.gov

| Robert Mirelson/Sarah Keegan

Headquarters, Washington February 2, 2003
(Phone: 202/358-1600)

RELEASE: 03-035

FY 2004 BUDGET PRESS BRIEFING POSTPONED

As a result of the events involving the tragic loss of the Space Shuttle Columbia (STS-107) crew, the press briefing scheduled for the rollout of the new Fiscal Year (FY) 2004 budget, is postponed to a later date.

The budget press conference was originally scheduled for 3 p.m. EST, Monday, Feb. 3, at NASA Headquarters in Washington. A new briefing date has not been set.

However, supporting materials for NASA's FY2004 Budget proposal will be available via links on the Internet after 3 p.m. EST on Feb. 3 at:

<http://www.nasa.gov>

or

Detailed budget information will be directly available at:

<http://www.nasa.gov/about/budget/>

Offering...

From: [REDACTED]@aol.com>
Date: Sun, 2 Feb 2003 18:31:48 EST
Subject: Shuttle Tiles
To: d.c.freeman@larc.nasa.gov

Delma:

The purpose of this note is to offer my services to help with the understanding of the cause of the recent Shuttle tragedy. I think you know some of my background. However, I thought I'd mention a few relevant facts.

I headed Langley Research Center's (LaRC) evaluation of the Shuttle Thermal Protection System (TPS) prior to the first Shuttle flight. At the request of Dr. Christopher Craft, LaRC conducted extensive structural, material, thermal and aerodynamic testing and analyses of the Shuttle TPS.

Our progress was presented to Mr. John Yardley and Dr. Craft at frequent intervals. The LaRC Center Director, Don Hearth, and his senior staff were also briefed on a weekly basis. We worked with Mr. Phil Glenn, retired JSC. I was awarded an Exceptional Engineering Achievement medal for these efforts. I retired from LaRC as the Chief Engineer of the System Engineering and Operations Directorate.

If I can be of service in the evaluation of this tragic event, I would be honored. I will attach my resume.

I can be reached in several ways:

e-mail: [REDACTED]@AOL.com

Phone: [REDACTED]

Cell: [REDACTED]

Sincerely,

Dick Snyder

608

<[REDACTED]@aol.com>, 2/2/03 6:35 PM -0500, Resume

Offering


1

From: [REDACTED]@aol.com>
Date: Sun, 2 Feb 2003 18:35:33 EST
Subject: Resume
To: d.c.freeman@larc.nasa.gov

Delma,

I don't think my resume was attached to the first e-mail. I'll try it again.

Dick

 NEWRES_10_02.DOC

Page 1 of Resume withheld under FOIA Exemption (b)(6)

Page 2 of Resume withheld under FOIA Exemption (b)(6)

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

Date: Sun, 02 Feb 2003 19:56:51 -0500

To: courtney.stadd@hq.nasa.gov, mgreenfi@mail.hq.nasa.gov,
frederick.gregory@hq.nasa.gov, boconnor@mail.hq.nasa.gov,
edward.weiler@hq.nasa.gov, mkicza@hq.nasa.gov,
ghassem.asrar@hq.nasa.gov, shubbard@mail.arc.nasa.gov,
kevin.petersen@mail.dfrc.nasa.gov, donald.campbell@lerc.nasa.gov,
avdiaz@pop100.gsfc.nasa.gov, Charles.Elachi@jpl.nasa.gov,
roy.bridges@ksc.nasa.gov, jcreedon@mail.hq.nasa.gov,
arthur.stephenson@msfc.nasa.gov, jefferson.d.howell1@jsc.nasa.gov,
sisakowi@mail.hq.nasa.gov, ppastore@hq.nasa.gov,
D.C.Freeman@larc.nasa.gov, William.Parsons@ssc.nasa.gov,
wreaddy@mail.hq.nasa.gov, jjenning@mail.hq.nasa.gov,
William.Parsons@ssc.nasa.gov, aloston@mail.hq.nasa.gov,
sokeefe@hq.nasa.gov

From: Steve Miley <smiley@hq.nasa.gov>

Subject: Postponement of the February 9-11, 2003, Leadership Council Meeting at Jet Propulsion Laboratory

Cc: dlacy@mail.arc.nasa.gov, Carmen.Arevalo@dfrc.nasa.gov,
Deborah.S.Malow@lerc.nasa.gov, jmhall@pop500.gsfc.nasa.gov,
Tania.Z.Geddes@jpl.nasa.gov, Fred.C.McNutt@jpl.nasa.gov,
Eugene.L.Tattini@jpl.nasa.gov, lisa.a.navy1@jsc.nasa.gov,
Jane.Kleinschmidt-1@ksc.nasa.gov, <k.w.evans@larc.nasa.gov>,
Patsy.Fuller@msfc.nasa.gov, Gena.A.Marsh@msfc.nasa.gov,
janet.austill@ssc.nasa.gov, mary.dick@ssc.nasa.gov,
jacqueline.e.reinitz@jpl.nasa.gov, csaldana@mail.hq.nasa.gov,
cmason@hq.nasa.gov, shiron.gaines@hq.nasa.gov, smiley@mail.hq.nasa.gov,
sfenn@mail.hq.nasa.gov, twijdoog@mail.hq.nasa.gov,
gaile.eastman@hq.nasa.gov, pball@hq.nasa.gov, ediaz@mail.hq.nasa.gov,
amurray@hq.nasa.gov, sreidcar@mail.hq.nasa.gov,
bmaxwell@mail.hq.nasa.gov, jgross@mail.hq.nasa.gov,
djohnso2@hq.nasa.gov, rsenke@hq.nasa.gov, d.c.freeman@larc.nasa.gov,
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nbingham@mail.arc.nasa.gov, bob.meyer@mail.dfrc.nasa.gov,

eugene.l.tattini@jpl.nasa.gov, nancy.j.vanwickle@jpl.nasa.gov,
mary.dick@ssc.nasa.gov, Alison.L.McNally.1@gsfc.nasa.gov,
margot.thigpen@msfc.nasa.gov, Julian.M.Earls@grc.nasa.gov,
Sandra.P.Hippensteele@grc.nasa.gov, Frances.M.Pipak@grc.nasa.gov,
William.F.Townsend.1@gsfc.nasa.gov, Darlene.H.Mayo@nasa.gov,
jperez@hq.nasa.gov, David.A.Culp@nasa.gov,
Thomas.J.Paprocki.1@gsfc.nasa.gov, gwen.young@dfrc.nasa.gov,
jhenn@hq.nasa.gov, susan.h.garman1@jsc.nasa.gov,
jboyd@mail.arc.nasa.gov, marvin.jones-1@ksc.nasa.gov,
beth.smith-1@ksc.nasa.gov, sschmid1@hq.nasa.gov, kburnett@hq.nasa.gov,
adonahue@mail.hq.nasa.gov, tbradley@mail.hq.nasa.gov,
shilding@mail.hq.nasa.gov, msmith4@mail.hq.nasa.gov,
carol.a.sasser1@jsc.nasa.gov, Brian.P.Matisak@msfc.nasa.gov,
mable.l.cobbs.@jsc.nasa.gov, tmccall@mail.hq.nasa.gov,
eebron@mail.hq.nasa.gov, jsoper@mail.hq.nasa.gov, amichael@hq.nasa.gov,
dcontee@mail.hq.nasa.gov, vellerbe@hq.nasa.gov,
James.Kennedy-1@ksc.nasa.gov, tluedtke@hq.nasa.gov

Dear Colleagues:

As you are aware, we had planned our next meeting of the Leadership Council for February 9-11, 2003, at the Jet Propulsion Laboratory. Given the tragic loss of the Space Shuttle Columbia crew and orbiter, and the extremely important response efforts already underway across the Agency, we determined that it would be best to defer this meeting of the Leadership Council to a later, more appropriate time to be determined. We want to make sure that in light of the current contingency, all of the appropriate focus and resources are available as the situation demands. After we've had some time to more thoroughly consider the agenda and best use of the next Leadership Council meeting, we will reschedule and inform you as soon as possible. Thanks for your forbearance and we appreciate all your efforts to help work through this difficult time.

Cordially,
Steven Miley

Office of the Administrator
NASA Headquarters
cell: 202-253-8045

X-Sender: a.c.mennell@pop.larc.nasa.gov
 Date: Mon, 03 Feb 2003 09:14:28 -0500
 To: D.C.FREEMAN@larc.nasa.gov, L.M.COUCH@larc.nasa.gov
 From: Ann Mennell <a.c.mennell@larc.nasa.gov>
 Subject: EAP - Columbia
 Cc: s.l.yokum@larc.nasa.gov

Good Morning

Would you'all like for us to put a notice on at LaRC about the EAP Program as a reminder to our folks that we have that service available. We believe that the EAP coordinators were contacted over the weekend and we will get more information from them this morning. Please let me or Nancy Davis know if we can provide information or assistance. ANN

ANN C. MENNELL a.c.mennell@larc.nasa.gov
 Human Resources Officer
 NASA Langley Research Center OHR/SE, Mail Stop 120
 Hampton, VA 23681

Phone: 757/864-2554
 (FAX: 757/864-8813)

X-Sender: n.t.davis@pop.larc.nasa.gov
X-Priority: 1 (Highest)
Date: Mon, 03 Feb 2003 10:46:32 -0500
To: M P Finneran <M.P.Finneran@larc.nasa.gov>, <Michael.P.Finneran@nasa.gov>, M M Skora <M.M.Skora@larc.nasa.gov>, <Mary.M.Skora@nasa.gov>
From: Nancy Davis <n.t.davis@larc.nasa.gov>
Subject: EAP Services
Cc: D C Freeman <D.C.Freeman@larc.nasa.gov>, <Delma.C.Freeman@nasa.gov>, J M Laneave <J.M.Laneave@larc.nasa.gov>, <Jean.M.Laneave@nasa.gov>, "A C Mennell <A.C.Mennell@larc.nasa.gov>R C Edge" <A.C.Mennell@larc.nasa.gov>, K A Koch <K.A.Koch@larc.nasa.gov>, <Karen.A.Koch@nasa.gov>

Mike,

As a follow-on to the EAP comments during this morning's Senior Staff meeting, Ann Mennell and Jean LaNeave have asked for your assistance/permission to post a banner to @LaRC:

"A reminder in light of the Columbia tragedy that the Employee Assistance Program (EAP) is a confidential service that is equipped to provide short-term counseling at no cost to employees (1-800-950-3434 or 826-8565; 24 hours a day, 7 days a week)."

Mike, Thanks for your assistance with this.

Additional background information for all addressees: Cathy Angotti, NASA POC for Occupational Health, held a teleconference with all EAP contacts (our REACH contact, Liz Bell, participated in the teleconference) on Saturday afternoon (4 p.m.) to instruct them to "aggressively pursue and be pro-action" in working with their perspective Center Directors to provide whatever EAP services were deemed necessary. A 9:30 a.m. meeting was held this morning in the Clinic with Dr. Gross, Liz Bell, Donna Freet, Karen Koch, and me to discuss proposed strategy. Besides the @LaRC posting, we want to pass along the availability for EAP professionals to conduct Critical Incident Stress

Debriefings (CISD) to any groups on an "as needed" basis.

Please contact us if we can be of assistance.

Thanks,

Nancy

*Nancy T. Davis
Management Employee Support Branch
Office of Human Resources
757-864-5040*

*Mail Stop 129
Bus. Phone: 757-864-2686
Fax Phone:*

Have feedback on OHR services? Visit <http://ohr.larc.nasa.gov/index.html>

Margarette Pitts, 2/3/03 2:25 PM -0500, STS-107 Memorial Service

X-Sender: m.pitts@express.larc.nasa.gov
Date: Mon, 3 Feb 2003 14:25:51 -0500
To: title=secretary@larc.nasa.gov
From: Margarette Pitts <m.pitts@larc.nasa.gov>
Subject: STS-107 Memorial Service
Date: Mon, 3 Feb 2003 14:25:59 -0500 (EST)

Please forward the following information to the employees in your organization:

Langley civil service and contractor employees are invited to participate in a memorial service for the STS-107 crew being held at the Johnson Space Center tomorrow. Speakers will include President Bush and Administrator O'Keefe.

The memorial will be broadcast via NASA TV and be held in the Reid Conference Center.

Employees are asked to be in place by 12:50 p.m. Associate Director Douglas Dwoyer will make opening remarks on behalf of Acting Director Freeman. The service is expected to conclude about 1:30.

Margarette Pitts
Office of External Affairs
Building 1219, Room 304
Mail Stop 115
NASA Langley Research Center
Hampton, VA 23681-2199
757-864-6124 - Phone
757-864-6333 - Fax

X-Sender: e.j.prior@pop.larc.nasa.gov
Date: Mon, 3 Feb 2003 13:16:52 -0800
To: K.W.EVANS@larc.nasa.gov
From: "Edwin J. Prior" <e.j.prior@larc.nasa.gov>
Subject: Translation of Italina News Release

Karen

The URL below shows the photo supposedly of the Columbia's wing. I do not believe this story, but it appeared in "Corriere della Sera", a serious newspaper, one of the best in Italy I am told. This is odd because the article supposedly is from an Israeli newspaper! A colleague in my office translated it. I thought I would send it to you rather than ignore it even though I believe the photo is fake. Its your call whether to show it to anyone!

Ed

The Israeli newspaper Maariv has published a photo of the Shuttle Columbia taken during the fifth day of the tragic mission, which could prove the existence of important cracks in the left wing. Forty-eight hours before the tragedy, NASA had distributed an internal note with information on a damaged that had occurred on-board.

The image:

The shot was taken with a camera on the spaceship and it was used during a phone call between the Prime Minister of Israel, Ariel Sharon and Co. Ilan Ramon, from Jerusalem.

The phone call:

During the conversation Ramon wanted to share with Sharon the spectacular views of Earth as seen from space. The telecamera framed a part of the Shuttle, including the left wing and what seem to be two long fissures (cracks) The Israeli newspaper claims that even if NASA had known about the cracks, they would have not been able to do anything to fix it.

NASA knew about an anomaly - 48 hours before the tragedy, NASA distributed an internal memo indicating that the left wing was damaged at the time of launch.

The damage of the tiles during launch was the first thing that was looked at that could help explain what went wrong during the disaster. Even NASA has admitted that, after the indiscretion of Maariv.

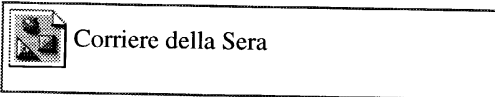
http://www.corriere.it/Primo_Piano/Cronache/2003/02_Febbraio/03/crepe.shtml

--
PRIOR, EDWIN J

E.J.PRIOR@LaRC.NASA.GOV

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17 Langley Boulevard
NASA Langley Research Center
Hampton, VA 23681-0001

Office of Education
Building 1216, Room 103
Phone +1 757 864-5800
Fax +1 757 864-6521



? "Carriere&lavoro" tempo e denaro!

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In primo piano

Una nota della Nasa, prima della tragedia, segnalava anomalie

«Ecco le crepe sull'ala dello Shuttle»

Il giornale israeliano Maariv pubblica un'immagine presa dalla telecamera di bordo durante la telefonata tra Sharon e Ramon

GERUSALEMME - Il quotidiano israeliano Maariv ha pubblicato una foto dello Shuttle Columbia scattata durante il quinto giorno della sua tragica missione, che potrebbe provare l'esistenza di due importanti crepe sulla sua ala sinistra. La Nasa, 48 ore prima della tragedia, aveva distribuito una nota interna che informava di un danneggiamento a bordo.

L'IMMAGINE - Lo scatto * stato ricavato a partire dalle riprese di una telecamera che si trovava a bordo della navicella, e che * stata utilizzata in occasione di una telefonata tra il primo ministro israeliano Ariel Sharon e il colonnello Ilan Ramon, il primo astronauta di Gerusalemme.



L'immagine pubblicata dal giornale israeliano Maariv

LA TELEFONATA - Durante la conversazione, Ramon ha voluto condividere con Sharon lo spettacolo della Terra vista dallo spazio. La telecamera allora ha inquadrato il Pianeta e parte dello Shuttle, compresa l'ala sinistra e quelle che oggi sembrano essere due lunghe fessure. Il giornale israeliano sostiene che anche se alla Nasa si fossero accorti delle crepe, non avrebbero potuto fare nulla per salvare l'equipaggio.

Il dramma del Columbia *clicca su una foto per andare alla galleria*

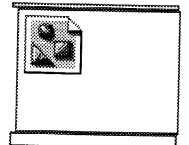


LA NASA ERA AL CORRENTE DI UN'ANOMALIA - Quarantotto ore prima della tragedia, la Nasa distribuì un memo interno sul fatto che l'ala sinistra della navetta Columbia era stata danneggiata al decollo.

La sequenza della tragedia *clicca su una foto per andare alla galleria*



Lo scudo termico *clicca su una foto per andare alla galleria*



La tragedia del Columbia

Ipotesi e scenari futuri: rispondono l'astronauta Franco Malerba e il direttore di Newton È Giorgio Riviaccio

Stazione spaziale: attività ridotta al minimo

Il comunicato dei familiari

- DAL CORRIERE DELLA SERA**
- «Lo Shuttle aveva un assetto sbagliato» di Alessandra Farkas (3 febbraio 2003)
- La tragedia e i simboli di Gianni Riotta (2 febbraio 2003)
- La seconda volta dopo l'11 settembre di Ennio Caretto (2 febbraio 2003)
- «Pensavamo: c'è la guerra sopra di noi» di Goffredo Buccini (2 febbraio 2003)



**LA NASA: LE PIASTRELLE SONO LA TRACCIA PRINCIPALE - Il danno alle piastrelle subito da Columbia all'inizio della missione * la principale traccia seguita per spiegare il disastro di sabato della Columbia. Lo ha ammesso anche la Nasa dopo l'indiscrezione di Maariv.
3 febbraio 2003**

**DA
CORRIERE.IT
Shuttle, ritrovati
i resti degli
astronauti (2
febbraio 2003)**
Documento:
cos'è fatto lo
scudo termico
del Columbia

**Le immagini
Pezzi dello
Shuttle all'asta
su Internet (2
febbraio 2003)**
Lo Shuttle
Columbia si
disintegra in
volo (1 febbraio
2003)

Casa Bianca:
**NESSUNA
evidenza di
terrorismo**

Guidoni:
**Forse un
errore
nell'angolo di
rientro**

Danni al
decollo: aveva
perso delle
piastrelle

I testimoni:
un boato
fortissimo

Nel 1986 la
tragedia del
Challenger
IN RETE

**Il diario di
bordo dello
Shuttle
Columbia
(aggiornato al
27 gennaio, in
inglese)**

CORRIERE DELLA SERA

Manda questa pagina a un amico

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Quimamme | EdicolaFabbri |



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Offering, etc.

X-Sender: s.p.sandford@pop.larc.nasa.gov
Date: Tue, 04 Feb 2003 07:24:30 -0500
To: d.c.freeman@larc.nasa.gov, d.l.dwoyer@larc.nasa.gov
From: "Stephen P. Sandford" <s.p.sandford@larc.nasa.gov>
Subject: atmospheric data
Cc: l.r.mcmaster@larc.nasa.gov

Del and Doug,

As I mentioned yesterday we may be able to contribute some understanding of the prevalent atmospheric conditions at 65 km and along the orbiter's re-entry path. Currently, SABER looks like the best bet and the SABER team at Mlynzak's direction is working hard to process the data available. HALOE and SAGE also make vertical profile measurements in the upper atmosphere. At this altitude, it is a long shot, but there is a potential contributing factor here that should not be left unexplored. I have spoken with Len and he will be the point of contact for providing the data to you.

Steve

=====

Stephen P. Sandford
Director, Earth and Space Science Program Office (ESSPO)
MS 111, 757-864-1836

00 11

X-Sender: e.v.zoby@pop.larc.nasa.gov
Date: Tue, 4 Feb 2003 13:12:17 -0500
To: Charles Miller <c.g.miller@larc.nasa.gov>,
"FREEMAN, DELMA C, JR" <D.C.FREEMAN@larc.nasa.gov>
From: "e. vincent zoby" <e.v.zoby@larc.nasa.gov>
Subject: Fwd: Shuttle Aeroheating

can i have correspondence with peter or not?

From: Erbland Peter J Civ AFRL/VAA <Peter.Erbland@wpafb.af.mil>
To: Hayes James R Civ AFRL/VAAA <James.Hayes@wpafb.af.mil>
Cc: "E. Vincent Zoby (E-mail)" <e.v.zoby@larc.nasa.gov>
Subject: Shuttle Aeroheating
Date: Tue, 4 Feb 2003 11:30:25 -0500

Jim, Vince

Do you recall if any work was ever done to look at "damaged tile" flowfield perturbations and our ability to predict the aerothermal consequences. I am aware of experimental work to study forward and aft-facing steps but was curious about other issues such as longitudinal cuts or channels/groves along the surface.

Peter

Peter Erbland, Ph.D.
Technical Advisor
Aeronautical Sciences Division

Air Vehicles Directorate
AFRL/VAA
2130 Eighth Street, Rm. 290

Wright-Patterson AFB OH 45433-7542

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Air Force Research Laboratory|AFRL

E. Vincent Zoby

Internet: e.v.zoby@larc.nasa.gov

NASA-Langley Research Center Telephone : (757) 864-4386

MS 408A

FAX : (757) 864-8670

Hampton, VA 23681-2199

"Why be difficult when,
with just a little more effort,
I can be completely impossible?"

FYI

X-Sender: space@mail.hq.nasa.gov
Date: Tue, 4 Feb 2003 16:26:22 -0500
To: edward.weiler@hq.nasa.gov, mkicza@hq.nasa.gov, ghassem.asrar@hq.nasa.gov, jcreedon@mail.hq.nasa.gov, wreaddy@mail.hq.nasa.gov, boconnor@hq.nasa.gov, aloston@mail.hq.nasa.gov, sisakowi@mail.hq.nasa.gov, ppastore@hq.nasa.gov, d.c.freeman@larc.nasa.gov, shubbard@mail.arc.nasa.gov, kevin.petersen@mail.dfrc.nasa.gov, donald.campbell@lerc.nasa.gov, avdiaz@pop100.gsfc.nasa.gov, Charles.Elachi@jpl.nasa.gov, roy.bridges@ksc.nasa.gov, arthur.stephenson@msfc.nasa.gov, jefferson.d.howell1@jsc.nasa.gov, William.Parsons@ssc.nasa.gov
From: Scott Pace <space@hq.nasa.gov>
Subject: Fwd: NASA Center's STS-107 Memorial Services
Cc: courtney.stadd@hq.nasa.gov, fgregory@hq.nasa.gov, mgreenfi@mail.hq.nasa.gov, jjennings@mail.hq.nasa.gov, balexand@ostp.eop.gov, wjeffrey@ostp.eop.gov, retha.senke@hq.nasa.gov, sfenn@mail.hq.nasa.gov, shilding@mail.hq.nasa.gov, Carolyn.Saldana%hq.nasa.gov.leastman@hq.nasa.gov

Dear colleagues,

FYI, please find attached a list of NASA memorial services occurring this week.

Regards,

Scott

 STS-107_Memorial_Services_1.doc

00-19

NASA MEMORIAL SERVICES FOR THE STS-107 CREWMEMBERS

ARC	February 3, 2003	2:30pm	ARC
DFRC	February 3, 2003 February 6, 2003	10:00am tbd	DFRC Edwards AFB
GRC	February 4, 2003	11:00 am	Administration Bldg# 3
GSFC	February 4, 2003	1:00 pm	Acknowledged JSC Services
JSC	February 4, 2003	1:00 pm	JSC
KSC	February 7, 2003	8:15 am	Shuttle Landing Facility <i><u>Followed by reception at the Debus Conference Facility.</u></i>
LaRC	February 3, 2003 February 4, 2003	7:30 pm 1:00 pm	Virginia Air & Space Center Out-door Candlelight Vigil Acknowledged JSC Services
MSFC	February 5, 2003	12:00 pm	Von Braun Center Concert Hall
SSC	February 6, 2003	7:45 am	Blg.#1100
JPL	February 4, 2003	1:00 pm	Acknowledged JSC Services
Caltech	February 4, 2003	1:00 pm	Acknowledged JSC Services

X-Sender: m.m.skora@express.larc.nasa.gov
Date: Wed, 5 Feb 2003 08:40:27 -0500
To: d.c.freeman@larc.nasa.gov
From: Marny Skora <m.m.skora@larc.nasa.gov>
Subject: RTD front page story

<http://timesdispatch.com/frontpage/MGB7X01USBD.html>

Allen: Crew worried about wing damage

BY A.J. HOSTETLER

TIMES-DISPATCH STAFF WRITER

Feb 05, 2003

Columbia's crew was concerned about the possibility the shuttle was damaged in its launch, and photographed the left wing, Sen. George Allen said yesterday.

But a NASA spokesman, Bob Jacobs, said from Washington last night "at this point we believe the crew could only see the tip of the wing from the crew compartment. They could not see the leading edge. Nor could they see the bottom where the strike appears to have taken place."

Officials at Johnson Space Center earlier said the shuttle's left wing could not have been viewed from either the windows in the crew compartment or those into the payload bay area, and could not have been photographed.

In televised comments memorializing the shuttle crew, Allen, R-Va., described a telephone conversation with the brother of mission specialist David Brown, an Arlington County native.

Brown's brother Doug could not be reached for comment. Yesterday, Doug Brown sat in the first row of a national memorial at Johnson, along with his mother, father, two cousins and 22 other family members of Columbia's crew.

Just a few hours after the service, Allen spoke from the Senate floor. His comments were broadcast on C-SPAN2.

According to Allen, Doug Brown told the senator that in private e-mail messages during the mission, his astronaut brother said the crew was "concerned" about the shuttle's left wing. Allen spokeswoman Carrie Cantrell confirmed that the senator stood by his recollection of the conversation.

In the conversation, Doug Brown said the crew photographed the left wing, which was struck shortly after launch by a piece of foam insulation that fell from one of the shuttle's external fuel tanks, according to Allen.

Allen said Doug Brown told him he never received any such photos.

NASA "is trying to track what if any e-mails were sent to the family," said Jacobs. The agency is examining NASA computer equipment to see if the e-mails can be tracked, he said.

NASA officials investigating the accident have said engineers initially dismissed the insulation incident, but in hindsight are reconsidering whether it might have damaged the craft and contributed or led to the catastrophe.

Crew members were told about the insulation during the mission, according to NASA, but they were not alarmed by the falling debris, which had occurred on earlier missions.

"All indications that we had from the crew was that they were not concerned about the insulation strike and if there is new information suggesting otherwise we would be interested in hearing from the family," said Jacobs.

A spokeswoman at Johnson Space Center, Nicole Cloutier, said she could not comment about Brown's e-mails to his family. But she said that on its last mission, Columbia was not equipped with a robotic arm, which might have provided a view of the wing area.

Allen serves on the Senate Commerce, Science and Transportation Committee and its subcommittee with

oversight over NASA.

Contact A.J. Hostetler at (804) 649-6355 or
ahostetler@timesdispatch.com

--


Marny Skora
Head, Office of Public Affairs
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11 Langley Blvd.
Hampton, VA 23681
(757) 864-6121

FYI

X-Sender: dmangel@mail.hq.nasa.gov
Date: Wed, 5 Feb 2003 10:01:05 -0400
To: William.Parsons@ssc.nasa.gov, A.V.Diaz.1@gsfc.nasa.gov,
Art.Stephenson@msfc.nasa.gov, D.C.Freeman@larc.nasa.gov,
Roy.Bridges-1@ksc.nasa.gov, Charles.Elachi-106005@jpl.nasa.gov,
Donald.J.Campbell@grc.nasa.gov, shubbard@mail.arc.nasa.gov,
kevin.petersen@mail.dfrc.nasa.gov, Donald.J.Campbell@grc.nasa.gov,
jefferson.d.howell1@jsc.nasa.gov
From: "Diane M. Mangel" <dmangel@hq.nasa.gov>
Subject: Invitation to Columbia Memorial, 2/6 natl Cathedral

Attached is an electronic version of the NASA invitation to the memorial service for the Columbia astronauts which will be held at the National Cathedral on Thursday, Feb 6 at 10:00 am.

Since all guests are required to go through a magnetometer and must be seated by 9:30, we suggest you plan to be there by 9:00 am.

 30342-Invitation.pdf

--

Diane M. Mangel
Guest Operations Coordinator
Public Services Division
Office of Public Affairs
NASA Headquarters
Washington, DC 20546

202/358-1751

*The Bishop of Washington
The Dean of Washington National Cathedral
and
The Administrator,
National Aeronautics and Space Administration
Invite you to join*

The Vice President of the United States of America

at

a Service in Celebration of and Thanksgiving for

*the lives of the Crew
of the Space Shuttle Columbia*

*on Thursday, February 6, 2003
at ten o'clock a.m.*

*Washington National Cathedral
Massachusetts and Wisconsin Avenues, NW
Washington, DC*

*RSVP 202-358-1711
202-358-1718*

*Please Present Invitation
for Admittance*

Offering 100

Doug Arbuckle, 2/5/03 9:13 AM -0500, Re: Fwd: On-orbit tile repair

X-Sender: p.d.arbuckle@express.larc.nasa.gov
X-Priority: 2 (High)
Date: Wed, 5 Feb 2003 09:13:14 -0500
To: prutledg@mail.hq.nasa.gov, prichard@mail.hq.nasa.gov
From: Doug Arbuckle <p.d.arbuckle@larc.nasa.gov>
Subject: Re: Fwd: On-orbit tile repair
Cc: d.c.freeman@larc.nasa.gov, d.l.dwoyer@larc.nasa.gov,
m.j.shuart@larc.nasa.gov, a.h.phillips@larc.nasa.gov,
fchandle@hq.nasa.gov

Dr Rutledge--

Mr John Gleason is currently an aircraft maintenance technician assigned to the Airborne Systems Competency. Many years ago he was a technician assigned to the Structures and Materials Competency, during which time he apparently participated in the studies that you describe.

LaRC's experts in this subject, and most matters relating to Orbiter tiles, are in the Structures and Materials Competency. To assure that LaRC provides the most-informed and most-timely product to Code Q, Mr Gleason will be assigned to pull together what information he has in hand and provide it to the Structures and Materials Competency as soon as possible. Mark Shuart, Director of the Structures and Materials Competency, will be responsible for the final product delivery to Code Q.

LaRC personnel stand ready to provide whatever expertise we have to support the Columbia mishap investigation.

Feel free to contact me at 757-864-1718 if you or Pamela have any questions.

Doug Arbuckle, Director
Airborne Systems Competency

|| X-Sender: prutledg@mail.hq.nasa.gov

Date: Tue, 04 Feb 2003 13:21:41 -0500
To: Tony.L.Trexler@nasa.gov
From: Pete Rutledge <prutledg@hq.nasa.gov>
Subject: On-orbit tile repair
Cc: prichard@hq.nasa.gov

Tony,

Pamela Richardson of my staff has informed me that Mr. John Gleason of your staff has knowledge of historical studies at the NASA Langley Research Center regarding Shuttle on-orbit tile repair. This has been the subject of recent discussions here and was the subject of a memo from John Young at JSC just a couple of months ago. This subject is even more important as a result of the Columbia mishap. Could you please authorize time for Mr. Gleason to search for this information and forward it as soon as possible to:

Pamela Richardson
NASA Headquarters, Code QE
300 E Street SW
Washington, DC 20546

I can be reached at 202-358-0579 if you have any questions.

Thank you very much,

Pete

Peter J. Rutledge, Ph.D.
Director, Enterprise Safety and Mission Assurance Division
Acting Director, Review and Assessment Division
Office of Safety and Mission Assurance
NASA Headquarters, Code QE, Washington, DC 20546

ph: 202-358-0579

FAX:202-358-2778

e-mail: pete.rutledge@hq.nasa.gov

Mission Success Starts with Safety!

--

Tony L.Trexler
Head, Aircraft Systems Branch
Airborne Systems Competency
NASA Langley Research Center

Bldg.1244, MS 255
6 E.Taylor St.
Hampton, Va. 23681-2199
Phone 757-864-3922
Fax 757-864-8294

X-Sender: d.m.bushnell@express.larc.nasa.gov
Date: Wed, 5 Feb 2003 09:03:38 -0500
To: d.l.dwoyer@larc.nasa.gov, d.c.freeman@larc.nasa.gov,
c.m.darden@larc.nasa.gov, c.e.harris@larc.nasa.gov,
r.m.martin@larc.nasa.gov, a.kumar@larc.nasa.gov,
m.p.saunders@larc.nasa.gov, j.m.mckenzie@larc.nasa.gov,
m.j.shuart@larc.nasa.gov, g.r.taylor@larc.nasa.gov
From: "Dennis m. Bushnell" <d.m.bushnell@larc.nasa.gov>
Subject: Shuttle Heating/TPS

Was on Travel - Just returned, reason this was not sent earlier... [called Doug on this Sunday around noon]. Maybe "you'all" already know this...

1. Undersigned was on the Walt Williams/NASA Chief Engineer Shuttle First Flight Certification team in 1980/81 Responsible for Boundary Layer Transition/TPS/Re-entry Heating. The report we [John Bertin and I] sent in indicated the Following:

- Peak Heating is at some 218 Kft. IF the flow is turbulent at Peak heating the heat shield would/could burn through the wheel well doors [even with undamaged tiles].
- Transition data from previous flights [Prime, Asset, etc.] indicated Transition Reynolds Numbers at Shuttle Hypersonic Conditions on admittedly rough surfaces well below a Million Reynolds Number but the data were all over the map. Taking the lower bound [with a rough surface] Turbulent flow at peak heating appeared possible.... We therefore specified tile-to-tile and tile gap smoothness criteria which were pretty severe.
- As I recall the observed shuttle transition is usually around 180Kft.

2. On the first flight there were thousands of dings/gouges in the tiles post

flight which were almost all on the left wing and traced to ice impingement from launch vibrations dislodgment of the ice which builds up on the external tank dump line - WHICH IS LOCATED IN PROXIMITY TO THE LEFT WING ON THE STACK [Dump line is attached to the tank but runs down the side of the tank near where the windward side of the left wing is positioned when mated to the tank in the launch stack]. Why this dump line was not repositioned to the other side of the tank away from the orbiter I do not understand... Over the years each flight has experienced a unique set of heat shield damage from this ice impingement and as a consequence shuttle transition varies mightily flight-to-flight. Several times this damage was quite severe.

3. All of this [1 above] is for undamaged [in the sense of thermal protection, not transition/roughness] tiles. More extensive tile damage, whether from external tank insulation or ice impingement, would obviously add insult to injury and compromise TPS integrity AS WELL AS ACT AS A BOUNDARY LAYER TRIP. IF the gouges were extensive enough then free shear layers form which have VERY LOW TRANSITION REYNOLDS NUMBERS [below a hundred thousand] AND large Impingement HEATING PEAKS.

We [the agency] should have done more analysis of this whole situation/taken it more seriously as well as repositioned that tank dump line to minimize ice impingement... The ice buildup/fracture patterns/subsequent impact patterns/effects due to launch vibration/loads is not deterministic. Just the ice, sans tank insulation, could conceivably have caused "Grievous Harm"...

Dennis Bushnell

F/I

From: "Abraham-1, Delores" <Delores.M.Abraham@nasa.gov>
To: "'sokeefe@hq.nasa.gov'" <sokeefe@hq.nasa.gov>,
"'fgregory@hq.nasa.gov'" <fgregory@hq.nasa.gov>,
"'jjennings@hq.nasa.gov'" <jjennings@hq.nasa.gov>,
"'ronald.d.dittemore1@jsc.nasa.gov'" <ronald.d.dittemore1@jsc.nasa.gov>,
"'mkosteln@hq.nasa.gov'" <mkosteln@hq.nasa.gov>,
"'william.h.gerstenmaier@nasa.gov'" <william.h.gerstenmaier@nasa.gov>,
"'mgreenfi@hq.nasa.gov'" <mgreenfi@hq.nasa.gov>,
"'dhaydenw@hq.nasa.gov'" <dhaydenw@hq.nasa.gov>,
"'vnovak@hq.nasa.gov'" <vnovak@hq.nasa.gov>,
"'ppastore@hq.nasa.gov'" <ppastore@hq.nasa.gov>,
"'tluedtke@hq.nasa.gov'" <tluedtke@hq.nasa.gov>,
"'jefferson.d.howell@nasa.gov'" <jefferson.d.howell@nasa.gov>,
"'art.stephenson@msfc.nasa.gov'" <art.stephenson@msfc.nasa.gov>,
"'william.parsons@ssc.nasa.gov'" <william.parsons@ssc.nasa.gov>,
"'g.scott.hubbard@nasa.gov'" <g.scott.hubbard@nasa.gov>,
"'kevin.l.peterson@nasa.gov'" <kevin.l.peterson@nasa.gov>,
"'d.c.freeman@larc.nasa.gov'" <d.c.freeman@larc.nasa.gov>,
"'donald.j.campbell@grc.nasa.gov'" <donald.j.campbell@grc.nasa.gov>,
"'charles.elachi-106005@jpl.nasa.gov'"
<charles.elachi-106005@jpl.nasa.gov>,
"'jschumac@hq.nasa.gov'" <jschumac@hq.nasa.gov>,
"'jsutton@hq.nasa.gov'" <jsutton@hq.nasa.gov>,
"'rthomas@hq.nasa.gov'" <rthomas@hq.nasa.gov>,
"'chorner@hq.nasa.gov'" <chorner@hq.nasa.gov>,
"'gmahone@hq.nasa.gov'" <gmahone@hq.nasa.gov>,
"Dave Saleeba (HQ)" <dsaleeba@hq.nasa.gov>,
"'jcreedon@hq.nasa.gov'" <jcreedon@hq.nasa.gov>,
"'eweiler@hq.nasa.gov'" <eweiler@hq.nasa.gov>,
"'mkicza@hq.nasa.gov'" <mkicza@hq.nasa.gov>,
"'gasrar@hq.nasa.gov'" <gasrar@hq.nasa.gov>,
"'boconnor@hq.nasa.gov'" <boconnor@hq.nasa.gov>,
"'aloston@hq.nasa.gov'" <aloston@hq.nasa.gov>,
"'a.v.diaz@nasa.gov'" <a.v.diaz@nasa.gov>

Subject: Invitation to KSC Memorial Service for STS-107 Crew

Date: Wed, 5 Feb 2003 11:44:40 -0500

Roy D. Bridges, Jr.
Director
NASA Kennedy Space Center

respectfully requests your presence at

the Memorial Service
for the
STS-107 Crew
at 8:15 a.m.
Friday, February 7, 2003

at the
Shuttle Landing Facility
Kennedy Space Center, FL

Reception immediately following in the
Apollo Saturn V Center Conference Room

X-Sender: r.j.siebels@pop.larc.nasa.gov
Date: Wed, 05 Feb 2003 16:47:11 -0500
To: "FREEMAN, DELMA C, JR" <D.C.FREEMAN@larc.nasa.gov>,
"COUCH, LANA M" <L.M.COUCH@larc.nasa.gov>
From: "Richard J. Siebels" <r.j.siebels@larc.nasa.gov>
Subject: Agency BankCard Activity related to Shuttle Columbia recovery
efforts
Cc: k.g.stone@larc.nasa.gov

Kim Stone asked me to send you a quick heads up on information my office has been provided as result of LaRC's role as the Agency Bank-Card Program Coordinator. Bank of America (the Agency Bank card provider) has responded to urgent requests from NASA HQ and NASA JSC for establishing Travel and Purchase cards related to the Shuttle Columbia's recovery efforts. According to my POC at Bank of America, 10 travel cards were established and delivered to GSFC (based on NASA HQ request) and 6 purchase cards are being established at JSC. The new cards are being established in a different hierarchy so that costs associated with the recovery operations can be tracked separately.

Richard J. Siebels
Procurement Operations Branch
NASA Langley Research Center
Phone: (757) 864-2418

*The Bishop of Washington
 The Dean of Washington National Cathedral
 and
 The Administrator,
 National Aeronautics and Space Administration
 Invite you to join*

The Vice President of the United States of America

at

*a Service in Celebration of and Thanksgiving for
 the lives of the Crew
 of the Space Shuttle Columbia*

*on Thursday, February 6, 2003
 at ten o'clock a.m.*

*Washington National Cathedral
 Massachusetts and Wisconsin Avenues, NW
 Washington, DC*

*RSVP 202-858-1711
 202-858-1718*

*Please Present Invitation
 for Admittance*

1. ARC - DIRECTOR 650/604-3786
2. ARC - PIO 650/604-3953

3. DFRC - DIRECTOR 661/276-2298
4. DFRC - PAO 661/276-3566

5. GSFC - DIRECTOR 301/286-1714
6. GSFC - PAO 301/286-1707

7. JPL - DIRECTOR 818/393-4218
8. JPL - PAO 818/354-4537

9. JSC - DIRECTOR 281/483-2200
10. JSC - EXT REL. 281/483-1228

ATTENTION
THIS FAX REQUIRES
U R G E N T ATTENTION

PLEASE CALL DIANE MANGEL
ON 202/358-1751 IF YOU HAVE
QUESTIONS.

12. LARC - DIRECTOR 757/864-6117
13. LARC - PAO 757/864-6333
14. LARC - PSO 757/864-7732
15. GRC - DIRECTOR 216/433-3437
16. GRC - PAO 216/433-2348
17. MSFC - DIRECTOR 256/544-5228
18. MSFC - PAO 256/544-5852
19. SSC - DIRECTOR 228/688-3240
20. SSC - PAO 228/688-1094
21. KSC - DIRECTOR 321/867-7787
22. KSC - XA/Ms. Morgan 321/867-8007

THIS INVITATION IS FOR THE CENTER DIRECTOR.

PAO offices are FYI copies only.

Offering Help

To: shilding@mail.hq.nasa.gov
From: Karen Evans <k.w.evans@pop.larc.nasa.gov>
Subject: Fwd: Main Gear Breach Concerns
Cc:
Bcc:
X-Attachments:

I was told to also forward this e-mail to you.

X-Sender: d.l.dwoyer@express.larc.nasa.gov
X-Priority: 1 (Highest)
Date: Tue, 4 Feb 2003 10:50:12 -0500
To: "EVANS, KAREN W" <K.W.EVANS@larc.nasa.gov>
From: Doug Dwoyer <d.l.dwoyer@larc.nasa.gov>
Subject: Fwd: Main Gear Breach Concerns

Date: Fri, 31 Jan 2003 11:00:34 -0500
To: d.c.freeman@larc.nasa.gov
From: Doug Dwoyer <d.l.dwoyer@larc.nasa.gov>
Subject: Fwd: Main Gear Breach Concerns
Cc:
Bcc:
X-Attachments:

Del,

Should you call Reedy?

Doug

X-Priority: 1 (Highest)
Date: Fri, 31 Jan 2003 07:49:59 -0500
To: d.l.dwoyer@larc.nasa.gov
From: "Mark J. Shuart" <m.j.shuart@larc.nasa.gov>
Subject: Fwd: Main Gear Breach Concerns

Doug,

FYI. Bob Daugherty can be the kind of conservative, thorough engineer that NASA needs. I think he is demonstrating that below. I can only hope the folks at JSC are listening.....Mark

Date: Thu, 30 Jan 2003 18:22:41 -0500
To: "LECHNER, DAVID F. (JSC-DF52) (USA)"
<david.f.lechner1@jsc.nasa.gov>
From: "Robert H. Daugherty" <r.h.daugherty@larc.nasa.gov>
Subject: Main Gear Breach Concerns
Cc: M.J.SHUART@larc.nasa.gov, H.M.ADELMAN@larc.nasa.gov,
carlisle.c.campbell1@jsc.nasa.gov

Hi David,

I talked to Carlisle a bit ago and he let me know you guys at MOD were getting into the loop on the tile damage issue. I'm writing this email not really in an official capacity but since we've worked together so many times I feel like I can say pretty much anything to you. And before I begin I would offer that I am admittedly erring way on the side of absolute worst-case scenarios and I don't really believe things are as bad as I'm getting ready to make them out. But I certainly believe that to not be ready for a gut-wrenching decision after seeing instrumentation in the wheel well not be there after entry is irresponsible. One of my personal theories is that you should seriously consider the possibility of the gear not deploying at all if there is a substantial breach of the wheel well. The reason might be that as the temps increase, the wheel (aluminum) will lose material properties as it heats up and the tire pressure will increase. At some point the wheel could fail and send debris everywhere. While it is true there are thermal fuses in the wheel, if the rate of heating is high enough, since the tire is such a good insulator, the wheel may degrade in strength enough to let go far below the 1100 psi or so that the tire normally bursts at. It seems to me that with that much carnage in the wheel well, something could get screwed up enough to prevent deployment and then you are in a world of hurt. The

following are scenarios that might be possible...and since there are so many of them, these are offered just to make sure that some things don't slip thru the cracks...I suspect many or all of these have been gone over by you guys already:

1. People talk about landing with two flat tires...I did too until this came up. If both tires blew up in the wheel well (not talking thermal fuse and venting but explosive decomp due to tire and/or wheel failure) the overpressure in the wheel well will be in the 40 + psi range. The resulting loads on the gear door (a quarter million lbs) would almost certainly blow the door off the hinges or at least send it out into the slip stream...catastrophic. Even if you could survive the heating, would the gear now deploy? And/or also, could you even reach the runway with this kind of drag?
2. The explosive bungies...what might be the possibility of these firing due to excessive heating? If they fired, would they send the gear door and/or the gear into the slipstream?
3. What might excessive heating do to all kinds of other hardware in the wheel well...the hydraulic fluid, uplocks, etc? Are there vulnerable hardware items that might prevent deployment?
4. If the gear didn't deploy (and you would have to consider this before making the commitment to gear deploy on final) what would happen control-wise if the other gear is down and one is up? (I think Howard Law and his community will tell you you're finished)
5. Do you belly land? Without any other planning you will have already committed to KSC. And what will happen during derotation in a gear up landing (trying to stay away from an asymmetric gear situation for example) since you will be hitting the aft end body flap and wings and pitching down extremely fast a la the old X-15 landings? My guess is you would have an extremely large vertical decel situation up in the nose for the crew. While directional control would be afforded in some part by the drag chute...do you want to count on that to keep you out of the moat?
6. If a belly landing is unacceptable, ditching/bailout might be next on the list. Not a good day.
7. Assuming you can get to the runway with the gear deployed but with

two flat tires, can the commander control the vehicle both in pitch and lateral directions? One concern is excessive drag (0.2 g's) during TD throughout the entire saddle region making the derotation uncontrollable due to saturated elevons...resulting in nose gear failure? The addition of crosswinds would make lateral control a tough thing too. Simulating this, because it is so ridiculously easy to do (sims going on this very minute at AMES with load-persistence) seems like a real no-brainer.

Admittedly this is over the top in many ways but this is a pretty bad time to get surprised and have to make decisions in the last 20 minutes. You can count on us to provide any support you think you need.

Best Regards,

Bob

--

Doug Dwoyer

Associate Director for Research and Technology Competencies

Mail Stop 103

Director

11 Langley Boulevard

1219, Room 133

NASA Langley Research Center

864 6114

Hampton, VA 23681-2199

864 8915

Office of

Building

Phone: 757

FAX: 757

To: shilding <shilding@mail.hq.nasa.gov>
From: Karen Evans <k.w.evans@pop.larc.nasa.gov>
Subject: Fwd: RE: Main Gear Breach Concerns
Cc:
Bcc:

X-Attachments:

Mr. Freeman asked that I forward this e-mail to you.

X-Sender: d.l.dwoyer@express.larc.nasa.gov
Date: Tue, 4 Feb 2003 10:49:26 -0500
To: "EVANS, KAREN W" <K.W.EVANS@larc.nasa.gov>
From: Doug Dwoyer <d.l.dwoyer@larc.nasa.gov>
Subject: Fwd: RE: Main Gear Breach Concerns

Date: Fri, 31 Jan 2003 15:51:35 -0500
To: d.c.freeman@larc.nasa.gov
From: Doug Dwoyer <d.l.dwoyer@larc.nasa.gov>
Subject: Fwd: RE: Main Gear Breach Concerns
Cc:
Bcc:
X-Attachments:

Date: Fri, 31 Jan 2003 14:00:29 -0500
To: d.l.dwoyer@larc.nasa.gov
From: "Mark J. Shuart" <m.j.shuart@larc.nasa.gov>
Subject: Fwd: RE: Main Gear Breach Concerns

| Doug,

Here's the latest from JSC on the damage to the orbiter tiles. Looks like they believe all has been addressed.....Mark

| From: "LECHNER, DAVID F. (JSC-DF52) (USA)"
| <david.f.lechner1@jsc.nasa.gov>
| To: "'Robert H. Daugherty'" <r.h.daugherty@larc.nasa.gov>

Cc: M.J.SHUART@larc.nasa.gov, H.M.ADELMAN@larc.nasa.gov,
"CAMPBELL, CARLISLE C., JR (JSC-ES2) (NASA)"
<carlisle.c.campbell@nasa.gov>

Subject: RE: Main Gear Breach Concerns

Date: Fri, 31 Jan 2003 12:17:34 -0600

Bob,

I really appreciate the candid remarks. As always your points have generated extremely valuable discussion in our group. Thank you. We have been discussing and continue to discuss the all possible scenarios, signatures and decisions. Your input is beneficial. Like everyone, we hope that the debris impact analysis is correct and all this discussion is mute.

David F-M Lechner
Space Shuttle Mechanical Systems
Mechanical, Maintenance, Arm & Crew Systems (MMACS)
United Space Alliance, Johnson Space Center
(281) 483-1685

-----Original Message-----

From: Robert H. Daugherty [<mailto:r.h.daugherty@larc.nasa.gov>]

Sent: Thursday, January 30, 2003 5:23 PM

To: LECHNER, DAVID F. (JSC-DF52) (USA)

Cc: M.J.SHUART@larc.nasa.gov; H.M.ADELMAN@larc.nasa.gov;

CAMPBELL,
CARLISLE C., JR (JSC-ES2) (NASA)

Subject: Main Gear Breach Concerns

Hi David,

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getting into the loop on the tile damage issue. I'm writing this email not really in an official capacity but since we've worked together so many times I feel like I can say pretty much anything to you. And before I begin I would offer that I am admittedly erring way on the side of absolute worst-case scenarios and I don't really believe things are as bad as I'm getting ready to make them out. But I certainly believe that to not be ready for a gut-wrenching decision after seeing instrumentation in the wheel well not be there after entry is irresponsible. One of my personal theories is that you should seriously consider the possibility of the gear not deploying at all if there is a substantial breach of the wheel well. The reason might be that as the temps increase, the wheel (aluminum) will lose material properties as it heats up and the tire pressure will increase. At some point the wheel could fail and send debris everywhere. While it is true there are thermal fuses in the wheel, if the rate of heating is high enough, since the tire is such a good insulator, the wheel may degrade in strength enough to let go far below the 1100 psi or so that the tire normally bursts at. It seems to me that with that much carnage in the wheel well, something could get screwed up enough to prevent deployment and then you are in a world of hurt. The following are scenarios that might be possible...and since there are so many of them, these are offered just to make sure that some things don't slip thru the cracks...I suspect many or all of these have been gone over by you guys already:

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Best Regards,

Bob

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Doug Dwoyer

Associate Director for Research and Technology Competencies

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1219, Room 133

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864 6114

Hampton, VA 23681-2199

864 8915

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Phone: 757

FAX: 757

Frustration

William Readdy, 2/2/03 11:02 PM -0500,

X-Sender: wreaddy@mail.hq.nasa.gov
Date: Sun, 02 Feb 2003 23:02:07 -0500
To: D.C.Freeman@larc.nasa.gov
From: William Readdy <wreaddy@hq.nasa.gov>

Del,

Tough days for all of us. Someone felt the need to forward the below to me so I felt that as a senior leader I couldn't ignore it. Some raw emotion contained in those words. Don't know what you can do with it, but I trust your sage counsel and discretion should you choose to deal with it...

Be well, my friend.

R,

Reads

=====

All of the employees at LaRC are deeply saddened by the loss of the Columbia, and it's brave crew. It's a terrible loss, and I'm sure the mood at Langley tomorrow will be very somber. Along with the lives lost, I mourn the loss of Columbia as well, as I feel it was a unique, living vehicle.

I only wish all of the people in my organization had the same interest and passion for manned space flight operations.

Last week, during the Columbia's mission, one of the managers in my organization decided that having the television in my facility on, during the flight, was no longer allowed, and ordered the cabinet containing the television set, padlocked. We were not allowed to see any Nasa TV coverage of the flight after that.

My impression is that this Branch Head was of the opinion, that having the television on "might" give a visitor to our facility, a bad impression of our commitment to our duties. Nothing could

be further from the truth. No one in my facility pulled up a chair and sat watching the Nasa feed for any amount of time.

My opinion is just the opposite of this manager's. My thought is that having the Nasa feed on, show's our interest in the space program, and shuttle operations. The personnel in my facility have manufactured many pieces of hardware for shuttle flights, and we take pride in seeing these parts and pieces perform as designed, on orbit.

Hopefully this tragic event will open this persons eyes, and we will once again be allowed to view the future flights of the shuttle fleet.