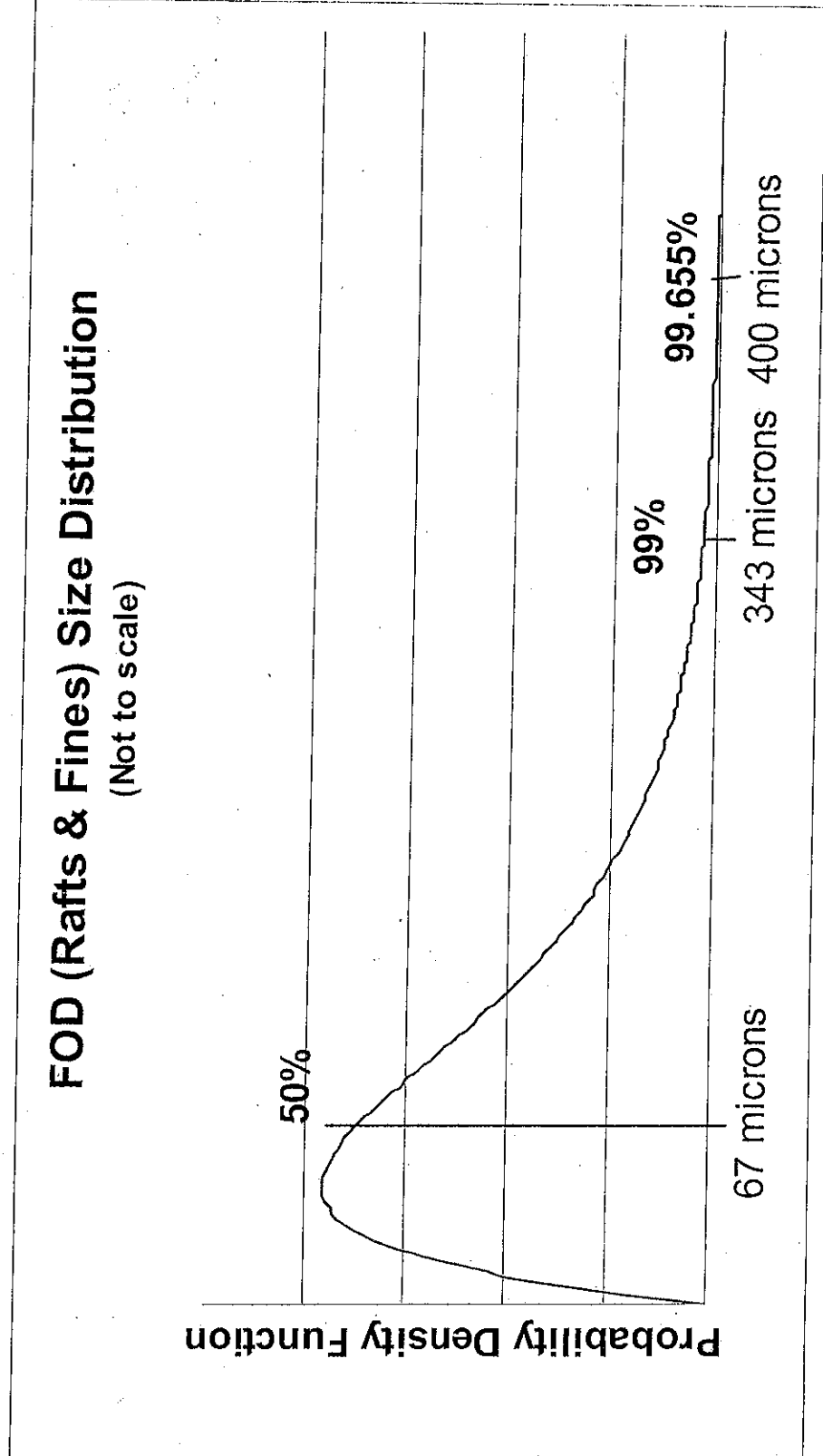




<b>BSTRA PRA Approach</b>	
Presenter	Roger Boyer
Date	1/6/03
	Page 9





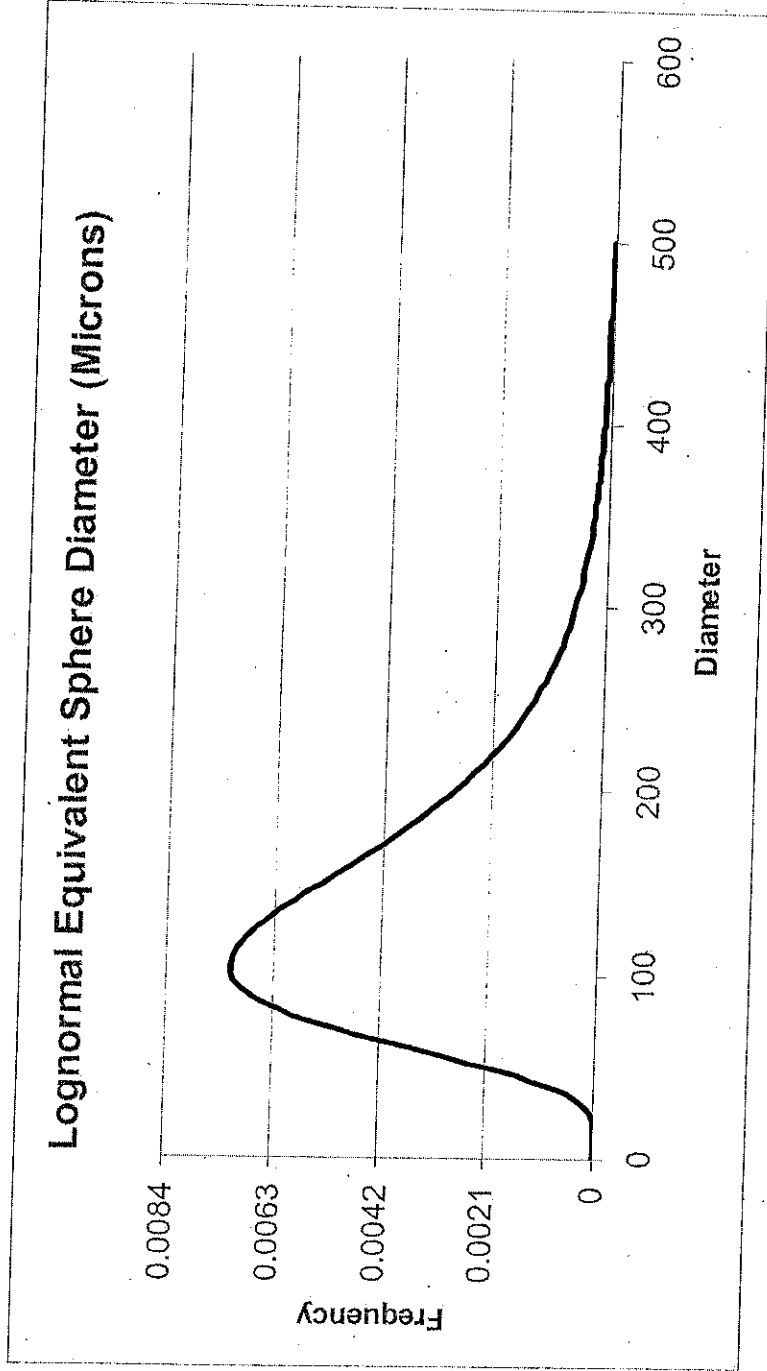
## BSTRA PRA Approach

Presenter Roger Boyer

Date 1/6/03

Page 10

### FOD (Rafts Only) Size Distribution





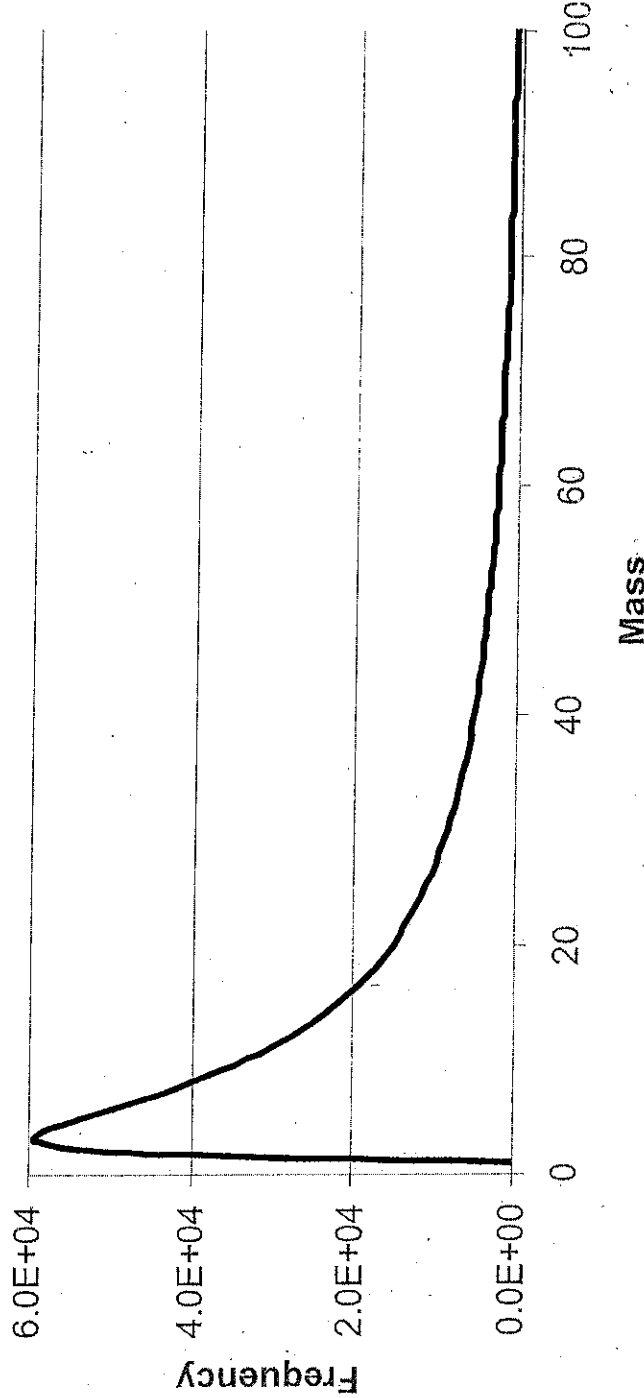
## BSTRA PRA Approach

Presenter Roger Boyer

Date 1/6/03

Page 11

### Lognormal Mass Distribution (Grams)





<b>BSTRA PRA Approach</b>	
Presenter	Roger Boyer
Date	1/6/03
	Page 12

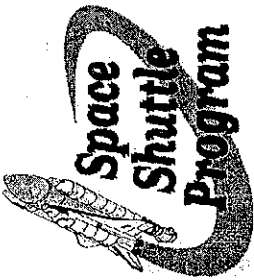
>400μ  
FOD

What is the likelihood that a raft of  
400μ or larger is released?

- No known rafts from Vehicle balls.
- 26 rafts out of 125 islands released from test balls.
- 2 Rafts liberated on MRTB after >145 thermal cycles were < 99 percentile.

Use Lognormal distribution

$$m = 10^{-4} \rightarrow 10^{-6}$$



**SPACE SHUTTLE PROGRAM**  
Space Shuttle SR&QA Office  
NASA Johnson Space Center, Houston, Texas



## BSTRA PRA Approach

Presenter Roger Boyer

Date 1/6/03

Page 13

# Results

Critical SSME  
Damage

1.0

Passes thru  
SSME

Exposed  
Raft

Uniform Distribution between 0.2 to 0.3

>400 $\mu$   
FOD

$m = 10^{-4} \rightarrow 10^{-6}$   
-Preliminary -

Crack  
Frequency

Mean = 0.22 with an Error Factor of 8





## BSTRA PRA Approach

Presenter Roger Boyer

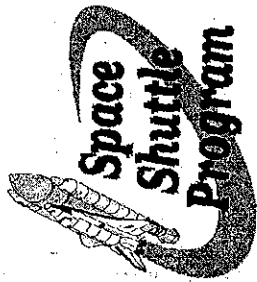
Date 1/6/03

Page 14

# Event Sequence Uncertainty

A chart showing the uncertainty distributions of the  
BSTRA Raft Mission Risk showing:

- Mean
- Median
- 5th
- 95th



**SPACE SHUTTLE PROGRAM**  
Space Shuttle SR&QA Office  
NASA Johnson Space Center, Houston, Texas



## BSTRA PRA Approach

Presenter

Roger Boyer

Date

1/6/03

Page

15

# Mission Risk Comparison

**Nominal Shuttle Mission Risk**  
(Based on QRAS 2000)

- Ascent
  - Mean ~ 1 in 517 missions
  - Median ~ 1 in 557 missions
  - 5<sup>th</sup> ~ 1 in 900 missions
  - 95<sup>th</sup> ~ 1 in 310 missions
- Total Mission Mean ~ 1 in 265 missions

**BSTRA Raft Mission Risk**

- Mean < 1 in ? missions
- Median < 1 in 200,000 missions
- 5<sup>th</sup> < 1 in ? missions
- 95<sup>th</sup> < 1 in 20,000 missions



**SPACE SHUTTLE PROGRAM**  
Space Shuttle SR&QA Office  
NASA Johnson Space Center, Houston, Texas



<b>BSTRA PRA Approach</b>	
Presenter	Roger Boyer
Date	1/6/03
	Page 16

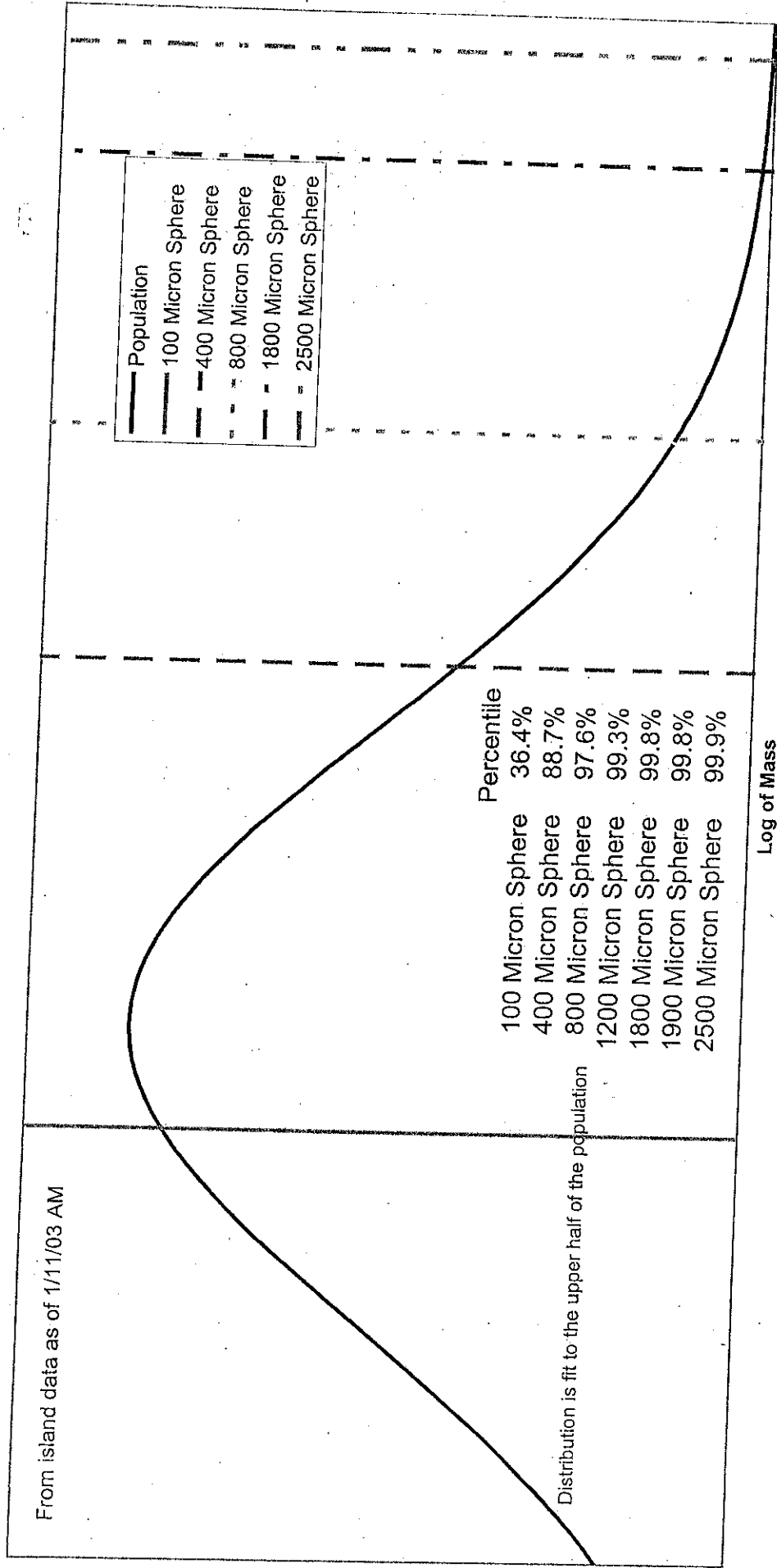
# Backup Charts



Test Ball	Raft Data					
	L ( $\mu$ )	W ( $\mu$ )	Raft Volume ( $\mu^3$ )	Area ( $\mu^2$ )	Mass (g $\mu$ )	
2.24-2	343	86	29,498	2,536,828	2.220E-05	
	372	114	42,408	4,834,512	4.232E-05	
	143	29	4,147	120,263	1.053E-06	
	143	86	12,298	1,057,628	9.257E-06	
	143	29	4,147	120,263	1.053E-06	
	286	72	20,592	1,482,624	1.298E-05	
	515	286	147,290	42,124,940	3.687E-04	
	143	114	16,302	1,858,428	1.627E-05	
	143	114	16,302	1,858,428	1.627E-05	
	229	57	13,053	744,021	6.512E-06	
2.24-1	229	114	26,106	2,976,084	2.605E-05	
	172	143	24,596	3,517,228	3.079E-05	
	257	57	14,649	834,993	7.309E-06	
	143	29	4,147	120,263	1.053E-06	
	229	143	32,747	4,682,821	4.099E-05	
	200	57	11,400	649,800	5.688E-06	
	229	114	26,106	2,976,084	2.605E-05	
	114	57	6,498	370,386	3.242E-06	
	114	57	6,498	370,386	3.242E-06	
	429	172	73,788	12,691,536	1.111E-04	
	229	72	16,488	1,187,136	1.039E-05	
	229	29	6,641	192,589	1.686E-06	
	343	86	29,498	2,536,828	2.220E-05	
	143	86	12,298	1,057,628	9.257E-06	
	143	29	4,147	120,263	1.053E-06	
	143	86	12,298	1,057,628	9.257E-06	

Test Ball	Raft Data					
	L ( $\mu$ )	W ( $\mu$ )	Raft Volume ( $\mu^3$ )	Area ( $\mu^2$ )	Mass (g $\mu$ )	
1.75-7	200	143	28,600	4,089,800	3.580E-05	
	343	200	68,600	13,720,000	1.201E-04	
	200	86	17,200	1,479,200	1.295E-05	
	143	57	8,151	464,607	4.067E-06	
	114	86	9,804	843,144	7.380E-06	
	343	29	9,947	288,463	2.525E-06	
	114	86	9,804	843,144	7.380E-06	
	114	29	3,306	95,874	8.392E-07	
	229	86	19,694	1,693,684	1.482E-05	
	143	57	8,151	464,607	4.067E-06	
1.75-2	200	57	11,400	649,800	5.688E-06	
	200	57	11,400	649,800	5.688E-06	
	172	29	4,988	144,652	1.266E-06	
	400	172	68,800	11,833,600	1.036E-04	
	343	71	24,353	1,729,063	1.513E-05	
	200	100	20,000	2,000,000	1.751E-05	
	286	100	28,600	2,860,000	2.503E-05	
	257	114	29,298	3,339,972	2.923E-05	
	257	50	12,850	642,500	5.624E-06	

# Lognormal Fit of Original Island Estimated Mass



To: "Cardinale-1, Michael" <Michael.A.Cardinale@nasa.gov>  
From: "Wayne R. Frazier" <wfrazier@hq.nasa.gov>  
Subject: Re: Foam problem  
Cc: "Mullin, Jonathan" <jmullin@mail.hq.nasa.gov>  
Bcc:  
Attached:

Send it up. My uninformed guess is that concentrating all of the pieces in one place may add risk.

At 10:23 AM 2/4/2003 -0500, Cardinale-1, Michael wrote:

I'm sure the idea has already come up, but has anyone considered using some type of 'hair net' to wrap the ET and suppress delaminating foam?

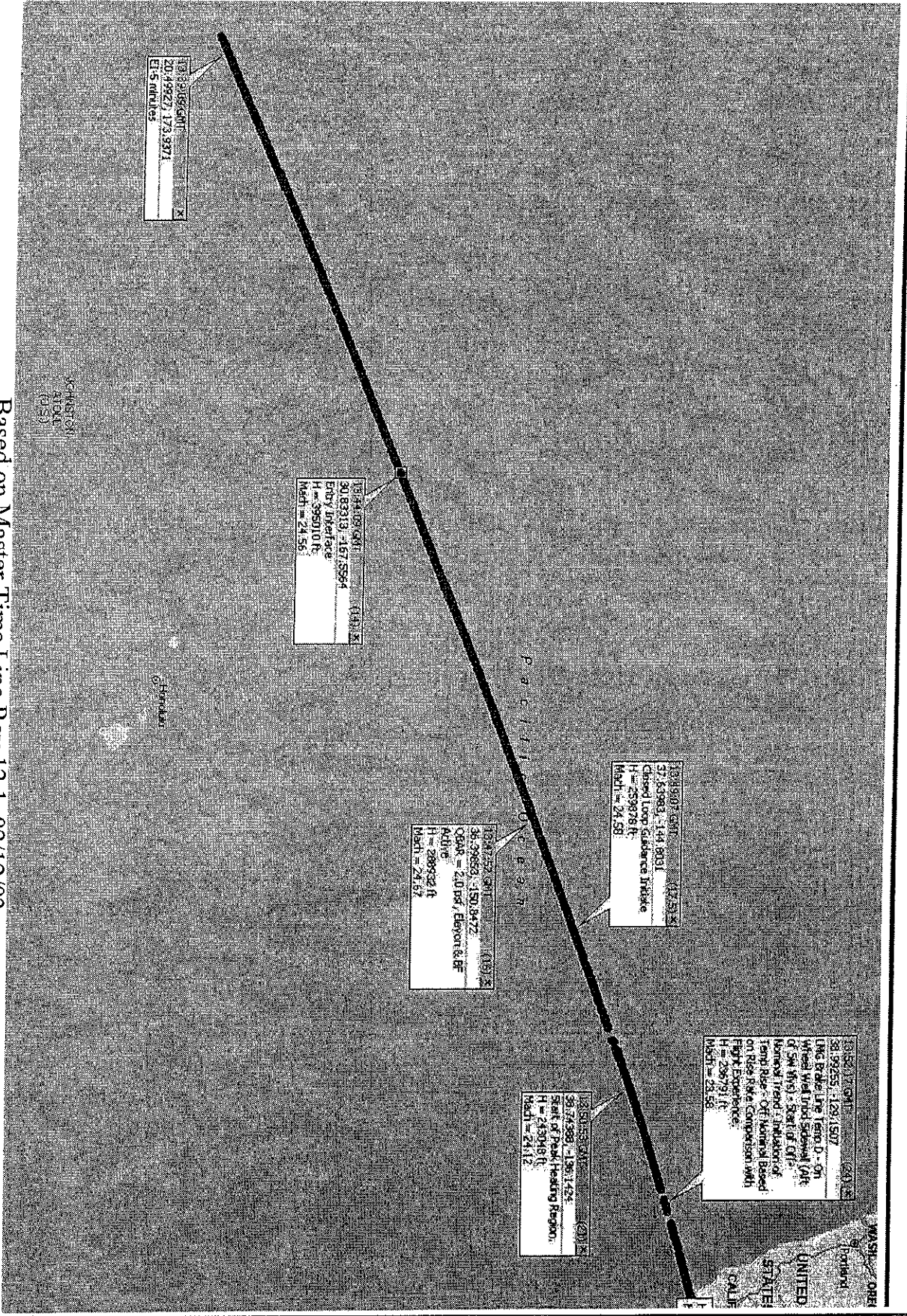
Mike

## Explanation of Ground Tracks

---

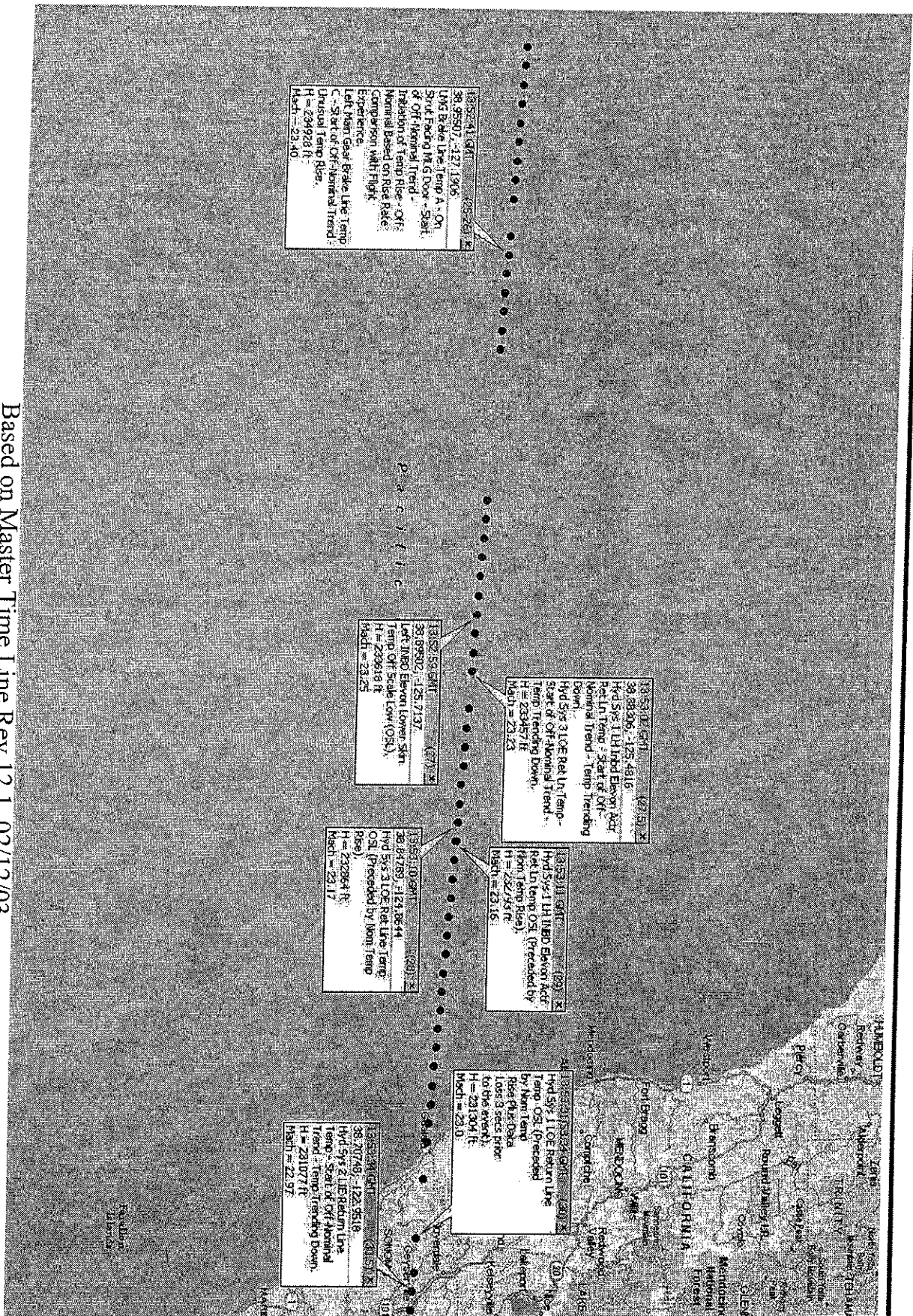
- Ground Track Data Source: STS-107 GPS State Vector
- Event Time Line Source: STS-107 Accident Investigation Master Timeline (Baselined), Revision 12.1, dated 02/12/03 9:00 am CST, from the Integrated Time Line Team.
- GPS-derived Latitudes and Longitudes are plotted on the map at 0.96 second time intervals, although there are numerous data dropouts. The symbol used for points from the trajectory data file is a red dot.
- The time tags of events from the Master Time Line sometimes fall between trajectory data points, and in some cases they occur during GPS data dropouts. In these cases the correct location of the event is indicated by a blue dot.
- Explanation of the contents of Note Boxes:
  - Grey Header – Greenwich Mean Time (GMT) of the event and the Event Sequence Number from the Master Time Line (in parentheses)
  - Geodetic Latitude and W. Longitude of the event (red dots only) in decimal degrees.
  - Event description from the Master Time Line
  - Geodetic Altitude of the event (H) in feet (interpolated when necessary)
  - Mach Number of the event (Mach) (interpolated when necessary)
  - Some nominal events have been intentionally omitted.

# Entry Interface to Coastal Crossing



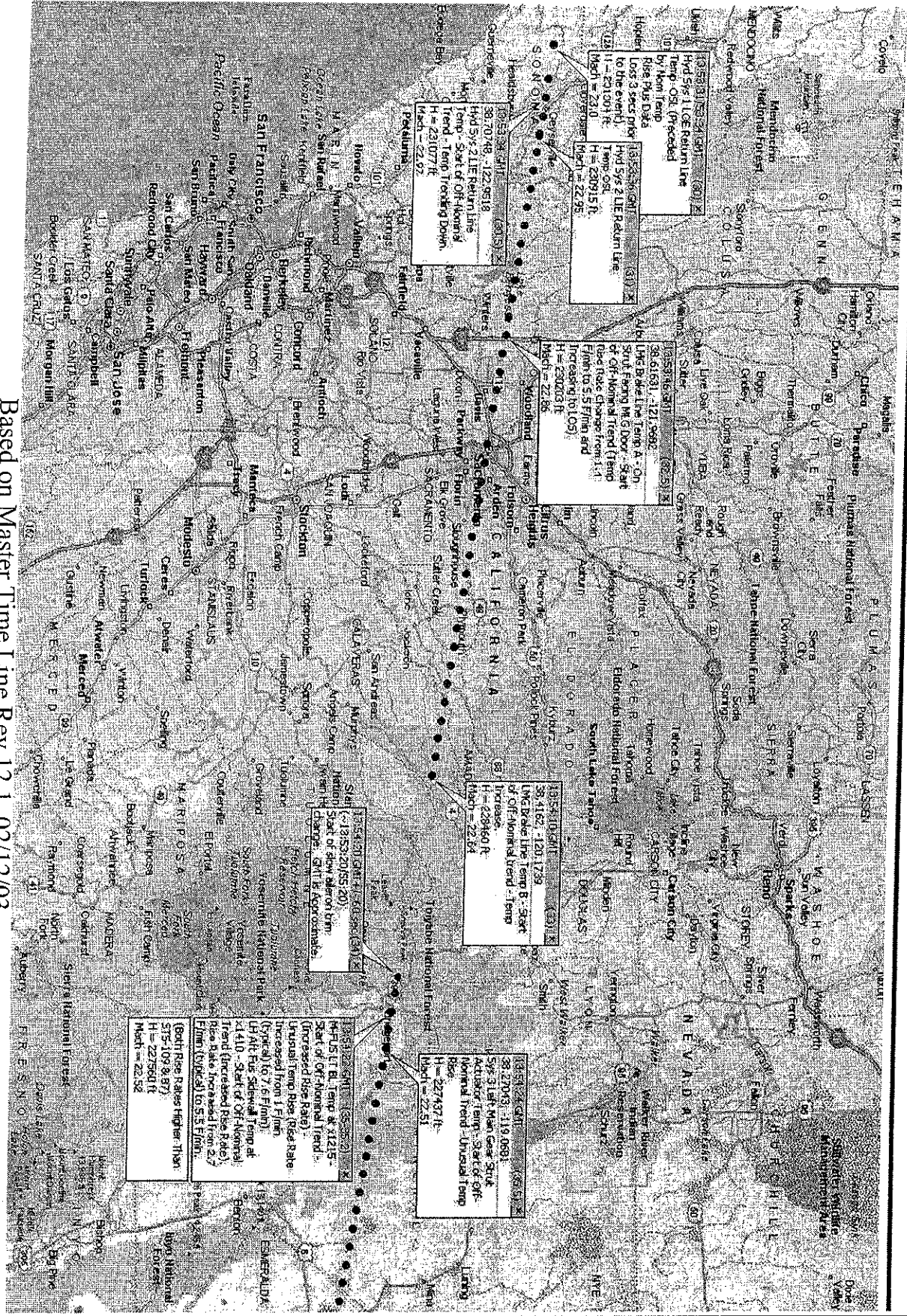
Based on Master Time Line Rev 12.1, 02/12/03

# Crossing the California Coast



Based on Master Time Line Rev 12.1, 02/12/03

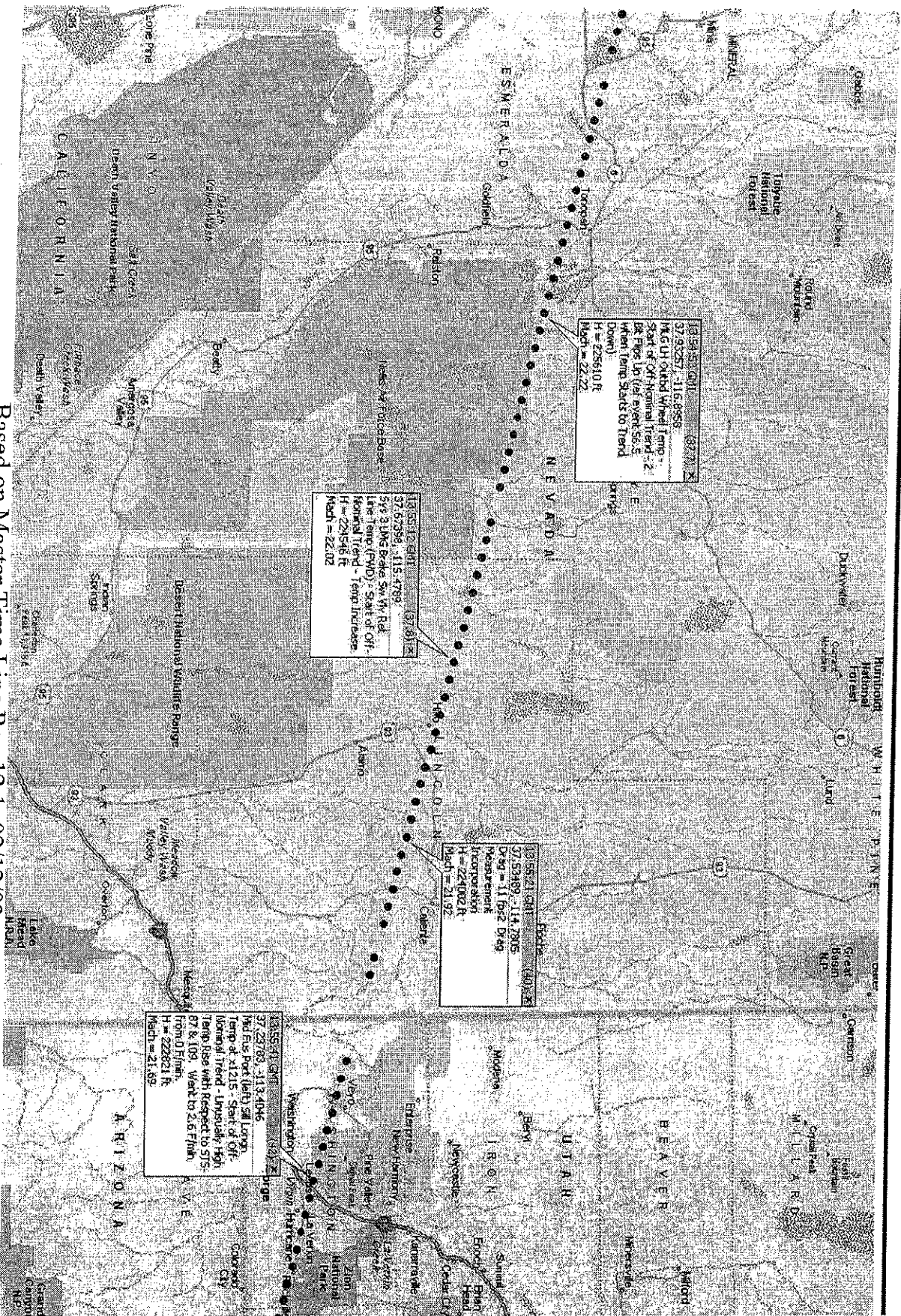
# Crossing California



Based on Master Time Line Rev 12.1, 02/12/03

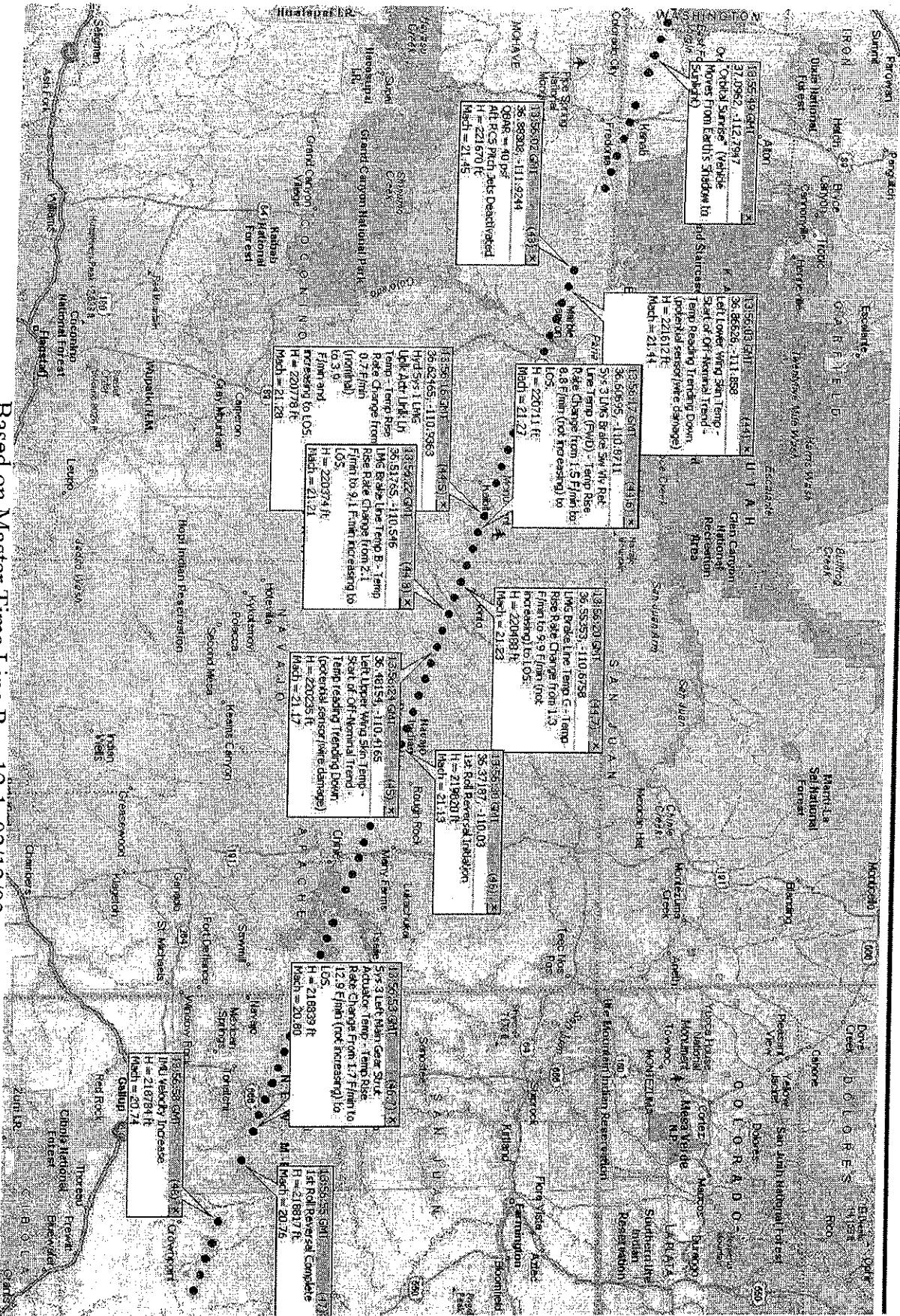


# Crossing Nevada



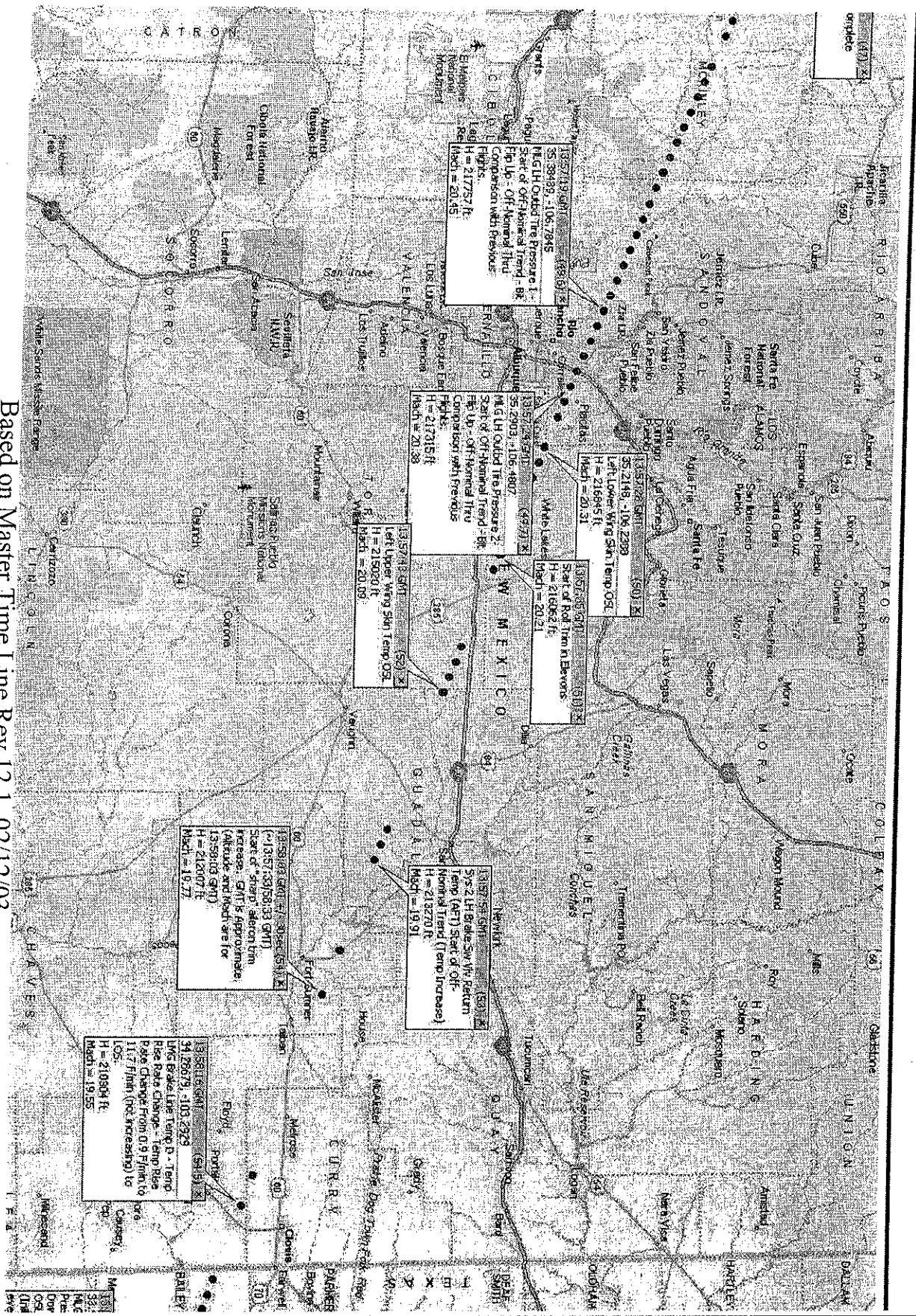
Based on Master Time Line Rev 12.1, 02/12/03

# Crossing Arizona



Based on Master Time Line Rev 12.1, 02/12/03

# Crossing New Mexico



Based on Master Time Line Rev 12.1, 02/12/03

M 1358183 GNT, 1063154  
 H = 212007 ft.  
 Mch = 19.77





From: "FENNELLY, JASON L. (JSC-GA) (IDI)" <jason.l.fennelly1@jsc.nasa.gov>

To: ANTHONY CECCACCI <anthony.j.ceccacci@nasa.gov>,  
CHARLES BOEHL

<charles.boehl1@jsc.nasa.gov>,  
DAVID THARP <david.tharp1@jsc.nasa.gov>,  
DL ESAT <DL-ESAT@ems.jsc.nasa.gov>,  
DONN LIDDLE

<donn.a.liddle1@jsc.nasa.gov>,  
EDWARD WILSON <edward.b.wilson@nasa.gov>,  
EILEEN HAWLEY <eileen.m.hawley@nasa.gov>,  
EILEEN WALSH

<eileen.walsh1@jsc.nasa.gov>,  
GREGORY BYRNE <gregory.j.byrne@nasa.gov>,  
imserbrv <imserbrv@ems.jsc.nasa.gov>,  
JAMES MCALPIN

<james.mcalpin1@jsc.nasa.gov>,  
JANET SALAZAR

<janet.l.salazar1@jsc.nasa.gov>,  
JASON FENNELLY

<jason.l.fennelly1@jsc.nasa.gov>,  
JEANNE NEWMAN

<jeanne.m.newman1@jsc.nasa.gov>,  
JEFFREY VAN PELT

<jeffrey.l.vanpelt1@jsc.nasa.gov>,  
JENNIFER LESTOURGEON

<jennifer.l.lestourgeon@nasa.gov>,  
JONATHAN DISLER

<jonathan.m.disler1@jsc.nasa.gov>,  
JULIE ROBINSON

<julie.a.robinson1@jsc.nasa.gov>,  
KELLY BECK <kelly.b.beck@nasa.gov>,  
MARSHA IVINS <marsha.s.ivins@nasa.gov>,  
PATRICK CHIMES

<patrick.j.chimes@nasa.gov>,  
RICHARD CANTER

<richard.f.canter1@jsc.nasa.gov>,  
"S. SMITH" <s.m.smith1@jsc.nasa.gov>,  
SHERYL LOCKE <sheryl.d.locke@nasa.gov>,  
SILVIA STEWART

<silvia.stewart1@jsc.nasa.gov>,  
STEPHEN FRICK <stephen.n.frick@nasa.gov>,  
SUSAN ZARELLA <susan.c.zarella1@jsc.nasa.gov>

Subject: STS-107 MIT EOC ONBOARD and Digital Video

Date: Tue, 11 Feb 2003 16:10:05 -0600

X-Mailer: Internet Mail Service (5.5.2653.19)

26 EOC video clips processed. SX D2 is ready at the desk with log and paperwork. An additional D2 dub is in work and will be ready for pickup at

8:00am Wednesday morning, along with the VHS dubs for EOC/MER. DV Clones will be in work Wednesday morning. Digital files were not processed today, we will catch up in the morning. Bar 9, 10, 11 and 12 will be mastered Wednesday.

Updated Tracking log:

<<STS107GlobalTracking.doc>>

Updated EOC list:

<<STS107EOCHANDLIST.doc>>

Jason Fennelly  
Mission Video  
Voice: 281-483-0925



STS107GlobalTracking2.doc



STS107EOCHANDLIST3.doc ✓

## STS-107 Investigation: Global Tracking List

**Tape** Various **Civil Service**

**Format:** Recipient:

**Serial Numbers, Other Information:**

**ISD Contacts:** Ed Wilson 483-7736, Patrick Chimes 483-2397, Rick Slater 483-7723

**Description of \* (asterisk) in Data Stamp column:** F- Full Data Stamp, P - Partial Data Stamp, N - No Data Stamp, S - Data Stamp starts and stops

**Logging** **Opr. Team** BT - Trainor **CD - Dupla** **JC - Clemens** **JW - Wheeler** **RG - Geeseman** **SZ - Zarella** **TS - Starks** **Y - Mich-Youis**  
**Team:** **Members:** C - **DD - Duling** **JF - Fennelly** **LS - Salazar** **SK - Knarr** **TH - Henson** **O-KirkOlson**

**Logging/gt/finning start datetime:**

**Processing start datetime:**

**Processing completion datetime:**

Ref ID	Date Rcvd	Media Identification and attached materials	Received From:	Media Type	Process	Media Destination Location	EOC / MIT # Number	Release Authority	Op
1	02/01/03	Billanes2.zip, full.avi		Digital AVI Movie	Digital Video Processing	Columbia Images Repository STS107CLIP0001		ISD TM	JF
2	02/01/03	Fredbruenjes_020103_1005pm.rm		Digital Real Media	Digital Video Processing	Columbia Images Repository STS107CLIP0002		ISD TM	JF
3	02/01/03	STS107.mpg		Digital MPEG	Corrupt	Bldg 8 Mission Video Corrupt folder		ISD TM	JF
4	02/01/03	MOV004392.MPG		Digital MPEG	Digital Video Processing	Columbia Images Repository STS107CLIP0003		ISD TM	JF
5	02/01/03	thomastressell_020103am.mpg		Digital MPEG	Digital Video Processing	Columbia Images Repository STS107CLIP0004		ISD TM	JF
6	02/02/03	thomastressell_020103am.txt		Digital AVI	Digital Video Processing	Columbia Images Repository		ISD TM	JF
7	02/03/03	Im000110.avi, email.txt		Digital WAV	Digital Video Processing	Columbia Images Repository Audio Folder		ISD TM	JF
8	02/03/03	Hxden_clips.way, email.txt		Digital Real Media	Digital Video Processing	Bldg 8 Mission Video Corrupt folder		ISD TM	JF
9	02/03/03	Gates_witness030201.ram, email.txt		Digital Real Media	Digital Video Processing	Columbia Images Repository STS107CLIP0005		ISD TM	JF
10	02/03/03	Columbia_fullcomp_large02.wmv email.txt		Digital WMV	Digital Video Processing	Columbia Images Repository STS107CLIP0006		ISD TM	JF
11	02/04/03	107film1.pdf, E212.mpg, email.txt	David.p.tancredi@usago.ksc.nasa.gov	Digital MPEG	Digital Video Processing	Columbia Images Repository STS107CLIP0007		ISD TM	JF
12	02/04/03	100_0360.mov, 100_0360.txt		Digital Quicktime	Digital Video Processing	Columbia Images Repository STS107CLIP0009		ISD TM	JF
13	02/04/03	STS-107MIT_DV CAM ID 1-6	MIT/Barksdale/FtLington	DV CAM Tape	MIT DV CAM Processing	Bldg 8 Mission Video		ISD TM	JF
14	02/04/03	MarfoVakverde_020303_0730pm.avi		Digital AVI	Digital Video Processing	Columbia Images Repository STS107CLIP0008		ISD TM	JF
15	02/05/03	MarfoVakverde_020303_0730pm.txt		Digital MPEG	Digital Video Processing	Columbia Images Repository STS107CLIP0010		ISD TM	JF
16	02/05/03	Columbia 4 Seconds.MPG, email.txt		Digital WMV	Digital Video Processing	Columbia Images Repository STS107CLIP0014		ISD TM	JF
17	02/05/03	Space Shuttle.WMV, email.txt		Digital WMV	Digital Video Processing	Columbia Images Repository		ISD TM	JF
18	02/05/03	Space Shuttle.WMV, email.txt		Digital WMV	Digital Video Processing	Columbia Images Repository STS107CLIP0011		ISD TM	JF
		columbianesqueize2.avi, columbianesqueize2.txt	FTP_columbianesqueize2	Digital AVI	Digital Video Processing	Columbia Images Repository		ISD TM	TH



## STS-107 Investigation: Global Tracking List

Ref ID	Date Rcvd	Media Identification and attached materials	Received From	Media Type	Process	Media Destination Location	EOC / MIT # Number	Release Authority	Op.
19	02/05/03	DanMcNew.mpg, DanMcNew.txt		Digital MPEG	Digital Video Processing	Columbia Images Repository STS107CLIP0013		ISD TM	TH
20	02/05/03	P2010077.mov, email.txt		Digital Quicktime	Digital Video Processing	Columbia Images Repository STS107CLIP0012		ISD TM	TH
21	02/05/03	STS-107MIT DVCAM ID 007	MIT / Ellington	MiniDV	MIT DVCAM Process	Bldg. 8 Mission Video		ISD TM	
22	02/06/03	STS-107 H-8mm Onboard ID# 001 (Damaged)		H-8mm		JSC Bldg. 8 Mission Video	SKO205-008	ISD TM	SZ
23	02/06/03	EOC Delivery: EOC 24-001 - 0016	EOC-Beck	Various	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0001-	ISD TM	SZ
24	02/06/03	EOC Delivery: EOC 24-017 - 0031	EOC-Beck	Various	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0017-	ISD TM	SZ
25	02/06/03	EOC Delivery: EOC 24-032 - 0034	EOC-Beck	Various	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0032-	ISD TM	SZ
26	2/07/03	EOC Delivery: EOC 24-0035 - 0037	EOC-Beck	Various	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0037	ISD TM	
27	2/07/03	EOC Delivery: EOC 24-0041 - 0054	EOC Beck	Various	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0041-	ISD TM	
28	2/07/03	STS-107 MIT DVCAM 008-012	MIT - Field	Mini DV	MIT Process	JSC-Bldg. 8 Mission Video	24-0054		
29	2/07/03	EOC Delivery: EOC 24-0055 - 0059	EOC-Tony	Various	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0055-	ISD TM	
30	2/08/03	EOC Delivery: EOC 24-0060	EOC-Beck	Beta SP	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0060	ISD TM	
31	2/08/03	EOC Delivery: EOC 24-0061	EOC-Beck	Beta SP	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0061	ISD TM	
32	2/08/03	EOC Delivery: EOC 24-0062	EOC-Beck	Beta SX	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0062	ISD TM	
33	2/08/03	AnthonyRandal020503_1818.rm		Digital Real Media	Digital Video Process	Columbia Images Repository STS107CLIP0020		ISD TM	
34	2/08/03	EOC Delivery 02-4-0064 and 0065	EOC	Various	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0064-	ISD TM	
35	2/10/03	MIT delivery of public video from Eulless	MIT-Locke	VHS	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	D101-0009		
36	2/10/03	EOC Delivery 24-0064	EOC	VHS	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0064		
37	2/10/03	EOC Delivery 24-0065	EOC	VHS	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0065		
38	2/11/03	EOC Delivery 24-0066 - 0076	EOC	Various	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0066-		
39	2/11/03	EOC Delivery 24-0077 - 0090	EOC	Various	EOC Process	JSC-Bldg. 8 Mission Video EOC-2VHS Analysis- 1D2	24-0077-		

# STS-107 Investigation: Global Tracking List

Ref ID	Date Rcvd	Media Identification and attached materials	Received From	Media Type	Process	Media Destination Location	EOC / MIT # Number	Release Authority	Op.
40	2/11/03	EOC Delivery 2-4-0091	EOC	VHS	EOC Process	JSC-Bldg 8 Mission Video EOC-2VHS Analysis- 1D2	2-4-0091		
41									
42									
43									
44									
45									
46									
47									
48									
49									
50									
51									
52									
53									
54									
55									
56									
57									
58									
59									
60									
61									



# STS-107 EOC and Hand Delivered Tapes

Ref ID	Date Rcvd	Title	Received From	Cut #	Digibeta #	SMPT/E START	SMPT/E STOP	Length	Tape Format	Content	EOC#	Release Authority	Op
19	2/6/03	Launch, Cocoa Beach Pier		4	716091	01:08:00	01:10:45	0:02:45	Dig-8	Shuttle launches behind hotel, no detail.	24-0019	ISD TM	SK
20	2/6/03	Landing, NE Fort Worth. VHS dub of camcorder		11	716117	20:56:00	20:57:40	0:01:40	VHS		24-0020	ISD TM	JF
21	2/6/03	St. George, Utah		12	716117	03:06:00	03:07:16	0:01:16	VHS		24-0021	ISD TM	JF
22	2/6/03	KCEN-TV Shuttle Columbia Footage Eddy, Texas looking North		6	716091	01:13:00	01:14:21	0:01:21	DVCPro VHS		24-0022a	ISD TM	SK
23	2/6/03	Columbia, Feb. 1, 2003 8am CST Carrollton, TX		13	716117	03:19:00	03:20:13	0:01:13	8mm VHS		24-0022b	ISD TM	
24	2/6/03	Columbia Reentry		14	716117	03:26:00	03:27:05	0:01:05	VHS		24-0023a		
25	2/6/03	Columbia Shuttle Camp Swift Bastrop, TX		15	716117	03:53:00	03:58:39	0:05:39	MiniDV CD	Re-entry Blue Sky Full, 1/2 speed and 2X DVCAM Clone provided	24-0024a 24-0024b	ISD TM	JF
26		Line Intentionally Left Blank		21	716117	06:50:00	06:53:27	0:03:27	VHS	EP Mode. Can not dub at this time	24-0025	ISD TM	JF
27		See Photo Log											JF
28	2/6/2003	Columbia over St. George Utah, copyright VIP Media		16	716117	04:33:00	04:37:56	0:04:56	MiniDV CD	Dark sky, Columbia overhead DVCAM clone provided	24-0028a 24-0028b	ISD TM	JF
29	2/6/03	STS-107 Re-entry Cerillos, New Mexico		17	716117	04:47:00	04:48:42	0:01:42	VHS	Very detailed info attached.	24-0029	ISD TM	JF
30	2/6/03	Space Shuttle Columbia Re-entry Las Vegas, NV. West Northwest to East		5	716091	01:11:00	01:12:39	0:01:39	Dig-8		24-0030	ISD TM	SK
31	2/6/2003	KTVM Video of Columbia 2/1/03		7	716091	01:14:40	01:17:46	0:03:06	Beta SX	Looks like a dub from camcorder.	24-0031	ISD TM	SK
32	2/6/03	Shuttle Columbia Disaster Video 7:59:20 Lafayette, LA 30d09:30.2" 92d02:05.2"		18	716117	05:08:00	05:10:30	0:02:30	VHS	Chief Meteorologist Elevation 29 feet	24-0032	ISD TM	JF
33	2/6/03	Space Shuttle exit 23 1-15 Southern Utah facing East Prints to Photo		19	716117	05:18:00	05:21:24	0:03:24	MiniDV	Dark	24-0033a	ISD TM	JF
34	2/6/2003	STS-107 Re-entry Bissinger/Reno, NV Shuttle Pass, Clock and Camera		20	716117	05:35:00	05:50:32	0:07:32	BetaSP	Timing information listed on EOC attachment	24-0034	ISD TM	JF
35		Photo											
36		Photo											
37	2/6/2003	KDFW/FOX Views from Corsicana		8	716091	16:07:00	16:08:21	0:01:21	Beta SP	Some closeups, through trees	24-0037	ISD TM	
38	02/07/03	KABC-TV Glendale, CA Mt. Santiago Facing 80 - 90 Degrees 9am-12noon							Beta SP	Maybe of debris falling from sky.		ISD TM	
39	02/07/03	DAT Tape of Sonic Boom in Palatona, CA IMPASS NOTE: GIVEN TO ACR FOR 1 VHS							DAT Tape	Sonic Boom			

# STS-107 EOC and Hand Delivered Tapes

Ref ID	Date Rcvd	Title	Received From	Cut #	Digibeta #	SMPTE START	SMPTE STOP	Length	Tape Format	Content	EOC#	Release Authority	Op
40		Photo											
41		Photo											
42	02/07/08	Sighting: Goveaton, Tx		14	716091	08:13:01	08:14:31	0:01:30	VHS-C	Good Video of Break-up	24-0042	ISD TM	CD
43		Photo											
44	02/07/08	Sighting: south of Hanksville, Utah GPS 110 degrees 43.65' 38 Degrees 14' 20"		9	716091	07:08:18	07:09:48	0:01:30	VHS		24-0044	ISD TM	CD
45	02/07/08	Data and Images from Starfire and AMOS							CD	CD copy made for Analysis	24-0038	DOD	JF
46		Photo											
47	02/07/08	Video is of Fox News							VHS	Camera set up to record Fox News	24-0047	ISD TM	
48		Photo											
49	02/07/08	Sighting: Washington, Utah		10	716091	07:16:30	07:17:50	0:01:20	H-8mm	Good View	24-0049	ISD TM	CD
50	02/07/08	Sighting: 06:56 am MST. St. George, Utah		11	716091	07:33:05	07:33:30	0:00:25	Digi 8	Good View	24-0050	ISD TM	CD
51	02/07/08	Sighting: Haltom City, Tx. South of Dallas / Fort Worth		15	716091	08:21:00	08:21:54	0:00:54	VHS	Good View	24-0051	ISD TM	CD
52													
53													
54	2/10/03	Sighting: Eufless TX			716091	17:25:05	17:26:03	0:00:58	VHS	Good view of break up but video is ver shaky.	D101-0009	ISD TM	LM
55	2/07/03	STS-107 Re-entry Video over Sparks, NV		16	716091	08:26:00	08:27:35	0:01:35	H-8mm		24-0055	ISD TM	CD
56	2/07/03	Video from Lick Observatory MT. Hamilton, CA		12	716091	07:56:34	07:58:21	0:01:47	H-8mm	This ID contains a mini DV copy of this H-8mm tape	24-0056	ISD TM	CD
57	2/07/03	Video from Weather Camera in Los Angeles On Santiago Peak		17	716091	08:38:26	08:39:33	0:01:07	Beta SP	Time Lapse Video 1 frame every 10 seconds	24-0057	ISD TM	CD
58	2/07/03	Re-entry from Whitaker Park, CA		13	716091	08:02:45	08:04:08	0:01:23	Mini DV		24-0058	ISD TM	CD
59	2/07/03	Sighting: Coarsegold, CA		18	716091	08:46:32	08:47:51	0:01:19	Mini DV		24-0059	ISD TM	CD
60	2/08/2003	Sighting: Southern UTAH		19	716091	20:56:00	20:58:18	0:02:18	Beta SP	Views of video that we have seen before.	24-0060	ISD TM	JF

STS-107 EOC and Hand Delivered Tapes

Ref ID	Date Rcvd	Title	Received From	Cut #	Digibeta #	SMPTE START	SMPTE STOP	Length	Tape Format	Content	EOC#	Release Authority	Op
61	2/8/03	Sighting: Over Arizona DUPLICATE VIDEO							BetaSP VHS		24-0061	ISD TM	LM
62	2/08/03	7 views of Columbia deorbit From CBS News							BetaSX		24-0062	ISD TM	CD
63													
64	2/10/03	Lockheed Missile & Space Fairfield, CA Lockheed Missile & Space Fairfield, CA (Data Code)			716091	20:00:41	20:52:18	0:01:37	Digi 8mm	5:51am Columbia Shuttle, Fairfield California, Lionel Machrado	24-0064	ISD TM	LM
65	2/10/03	Sighting: Richardson, TX		1	716119	20:28:01	20:30:41	0:02:40	VHS	Good Clear Video, original tape has video tracking problem	24-0065	ISD TM	LM
66	2/11/03	Sighting: Romans, CA Second cut has data stamp		2	716119	16:29:40	16:31:18	0:01:38	Digi-8 DATA	Dark sky, horizon, internal digital adjustments.	24-0066a	ISD TM	JF
67	2/11/03	Sighting: Albuquerque, NM		3	716119	16:51:10	16:52:43	0:01:33	Beta SP	Quick image of small white dot, wide shot of contrail	24-0066b		
68	2/11/03			4	716119	17:19:01	17:20:15	0:01:14			24-0067		
69	2/11/03	Sighting: Hurricane, UTAH		9	716119	18:07:02	18:08:04	0:01:38	VHS				
70	2/11/03	Sighting: Bishop, California		5	716119	17:30:00	17:30:54	0:00:54	Hi-8mm	Shaky video, daylight	24-0070		
71	2/11/03	NAVALR China Lake Naval Air Weapons Station Bldg 451									24-0071		
72	2/11/03	Sighting: San Rafael, California		6	716119	17:43:30	17:46:57	0:03:27	Mini DV	Sequence of events refers to time code on tape, 4:43:05 is four minute	24-0072		
73	2/11/03	Sighting: Fort Worth, Texas		7	716119	17:56:38	17:58:15	0:01:37	VHS	Poor image quality	24-0073		
74	2/11/03	Sighting: Fort Worth		8	716119	18:01:02	18:04:05	0:03:03	VHS		24-0074		
75	2/11/03	Debris: Dallas, Texas							VHS	Processing on hold Street camera video, 8 hours			
76	2/11/03	Sighting: Rowlett, Texas		10	716119	18:14:00	18:15:38	0:01:38	VHS				
77	2/11/03	Sighting: multiple views from NBC		11	716119	19:04:00	19:17:24	0:13:24	Beta SP	Includes shots filmed on TV	24-0077		
78	2/11/03	Sighting: Kirkwood, MO		12	716119	19:22:00	19:25:28	0:03:28	Digi Beta	Launch video from Titusville, FL	24-0078		
79	2/11/03	Sighting: Bessemer City, NC		14	716119	19:54:05	19:57:05	0:03:00	VHS	Launch Video, bad tracking problems	24-0079		
80	2/11/03	Sighting: Dallas, TX		15	716119	19:59:01	19:59:34	0:00:33	VHS		24-0080		