1
00:00:04,009 --> 00:00:07,339
>>> GOOD AFTERNOON, EVERYONE.
THIS IS THE PRELAUNCH CONFERENCE

2
00:00:07,339 --> 00:00:13,670
FOR OUR OA-6 MISSION, THE CYGNUS
MODEL TO BE LAUNCHED TOMORROW

3
00:00:13,670 --> 00:00:17,980
NIGHT.
HERE TO DISCUSS THE LAUNCH AND

4
00:00:17,980 --> 00:00:22,060
THE MISSION IS KENNETH TODD, THE
INTERNATIONAL SPACE STATION

5
00:00:22,060 --> 00:00:27,890
OPERATIONS INTEGRATION MANAGER,
FRANK CULBERTSON, THE PRESIDENT

6
00:00:27,890 --> 00:00:34,620
OF ORBITAL ATK'S SPACE SYSTEMS
GROUP, VERN THORPE, UNITED

7
00:00:34,620 --> 00:00:40,280
LAUNCH ALLIANCE'S PROGRAM
MANAGER FOR NASA MISSIONS, B.

8
00:00:40,280 --> 00:00:47,230
HASBROOK, ASSOCIATE SCIENTIST
FOR THE SPACE STATION PROGRAM AT

9
00:00:47,230 --> 00:00:56,370
NASA, AND DR.†MICHAEL ROBERTS,
DEPUTY CHIEF SCIENTIST FOR KSIS.

10
00:00:56,370 --> 00:01:00,280
AND LAURA GODOY, THE LAUNCH
WEATHER OFFICER FOR THE 45th

11
00:01:00,280 --> 00:01:03,870
WEATHER SQUADRON.
WE'LL BEGIN FIRST WITH KENNETH

12
00:01:03,870 --> 00:01:05,220
TODD.
KENNY?

13
00:01:05,220 --> 00:01:09,210
>> GOOD AFTERNOON, EVERYONE.
IT'S GREAT TO BE HERE WITH YOU

14
00:01:09,210 --> 00:01:14,460
TODAY AS WE GET READY TO GO DO
THIS OA-6 MISSION.

15
00:01:14,460 --> 00:01:18,990
IT WAS LITERALLY ALMOST A MONTH
AGO THAT WE FINISHED UP OUR

16
00:01:18,990 --> 00:01:23,580
JOINT OPERATIONS WITH THE CRS-4
CYGNUS MODEL, SO FIRST OFF I'D

17
00:01:23,580 --> 00:01:27,700
LIKE TO CONGRATULATE FRANK AND
THE ORBITAL ATK TEAM.

18
00:01:27,700 --> 00:01:32,670
THAT'S A PRETTY PHENOMENAL
TURNAROUND TO SUPPORT A

19
00:01:32,670 --> 00:01:37,000
77-SOME-DAY MISSION FOR A CRS-4
AND THEN TURN AROUND A MONTH

20
00:01:37,000 --> 00:01:39,740
LATER AND BE READY TO FLY AGAIN.
SO CONGRATULATIONS, FRANK.

21
00:01:39,740 --> 00:01:44,070
AND WE'RE REAL EXCITED AND HAPPY
TO BE READY TO WELCOME YOU GUYS

22
00:01:44,070 --> 00:01:47,860
ON BOARD AGAIN.
AT THE END OF THE DAY, THESE

23
00:01:47,860 --> 00:01:51,390
RESUPPLY MISSIONS ARE CRITICAL.
THEY KIND OF BECOME OUR

24
00:01:51,390 --> 00:01:55,030
LIFEBLOOD ON THE SPACE STATION,
AND SO AS WE START TO GET INTO

25
00:01:55,030 --> 00:01:59,180
KIND OF THIS REGULAR CADENCE OF
FLIGHT, IT REALLY DOES ALLOW US

26
00:01:59,180 --> 00:02:02,290
TO DO MORE, ALLOWS US TO KEEP
OUR CREWS GOOD AND HEALTHY AND

27
00:02:02,290 --> 00:02:06,560
AT THE SAME TIME CONTINUE TO DO
THE CRITICAL RESEARCH THAT WE'RE

28
00:02:06,560 --> 00:02:09,819
ALL WANTING TO DO, THAT WE WANT
TO DO WITH THIS PROGRAM.

29
00:02:09,819 --> 00:02:15,689
SO VERY EXCITED ABOUT THAT.
SINCE THE TIME THE CRS-4 CYGNUS

30
00:02:15,689 --> 00:02:23,930
WAS ON BOARD, WE'VE BROUGHT
THREE CREW HOME AND WITH 44-S

31
00:02:23,930 --> 00:02:30,280
RETURN, AND THIS PAST SATURDAY
IN KAZAKHSTAN, WE LAUNCHED A

32
00:02:30,280 --> 00:02:33,829
46-S AND GOT THE CREW BACK TO
SIX AGAIN, WHICH WHEN THINK

33
00:02:33,829 --> 00:02:37,060
ABOUT THE UPCOMING CAR GROW
TRAFFIC, IT'S GOOD TO HAVE SIX

34
00:02:37,060 --> 00:02:40,560
MEMBERS.
AT THIS POINT THE ICE ISS IS IN

35
00:02:40,560 --> 00:02:44,560
VERY GOOD SHAPE.
CONSUMEABLES-WISE WE'RE IN VERY

36
00:02:44,560 --> 00:02:49,209
GOOD SHAPE.
OVER THE LAST COUPLE WEEKS THE

37
00:02:49,209 --> 00:02:52,680
CREW HAS BEEN PREPARING FOR THIS
MISSION, DOING THEIR STANDARD

38
00:02:52,680 --> 00:02:56,159
TRAINING ACTIVITIES LEADING UP
TO THE CAPTURE AND BIRTH

39
00:02:56,159 --> 00:02:59,749
ACTIVITY.
TIM CULLPER WILL BE OUR PRIME

40
00:02:59,749 --> 00:03:08,000
ROBOTICS CHIEF, AND TIM KEITH
WILL BE ASSISTING IN THE NORMAL

41
00:03:08,000 --> 00:03:12,359
BACKUP DUTIES.
ONCE WE GET THIS CYGNUS ON

42
00:03:12,359 --> 00:03:14,950
BOARD, WE'LL HAVE OUR WORK CUT
OUT FOR US.

43
00:03:14,950 --> 00:03:20,680
ABOUT 7,000 POUNDS OF CARGO ALL
SPREAD OUT ACROSS THE DIFFERENT

44
00:03:20,680 --> 00:03:24,639
AREAS THAT WE CARE ABOUT, OUR
CREW HEALTH, SUPPLIES, TYPE OF

45
00:03:24,639 --> 00:03:29,049
HARDWARE, SOME EBA HARDWARE ON
BOARD, A LOT OF VEHICLE SYSTEMS

46
00:03:29,049 --> 00:03:33,139
HARDWARE ON BOARD.
AND EQUALLY AS IMPORTANT, ABOUT

47
00:03:33,139 --> 00:03:36,840
1,700 POUNDS OF SCIENCE AND
RESEARCH THAT PETE CAN TALK TO

48
00:03:36,840 --> 00:03:40,180
YOU ABOUT A LITTLE LATER IN THE
BRIEFING.

49
00:03:40,180 --> 00:03:44,421
A LOT OF GOOD CARGO COMING UP SO
WE'RE EXCITED TO GET ON WITH

50
00:03:44,421 --> 00:03:50,069
THIS MISSION.
ONCE WE GET INTO THAT WORKLOAD,

51
00:03:50,069 --> 00:03:53,489
WE'RE RIGHT AWAY GOING TO BE
LOOKING AT SOME MORE VISITING

52
00:03:53,489 --> 00:03:56,819
VEHICLE TRAFFIC.
NEXT WEEK WE'VE GOT A PROGRESS

53
00:03:56,819 --> 00:03:58,370
EXCHANGE, A RUSSIAN PROGRESS
EXCHANGE.

54
00:03:58,370 --> 00:04:02,590
WE'LL HAVE ONE LEAVING, 61-P AND
63-P WILL LAUNCH A FEW DAYS

55
00:04:02,590 --> 00:04:07,239
LATER.
SO AGAIN, THE TRAFFIC JUST KEEPS

56
00:04:07,239 --> 00:04:11,280
COMING OVER THE SHORT TERM HERE.
AND THEN PROBABLY IN A COUPLE

57
00:04:11,280 --> 00:04:14,349
WEEKS HERE WE'RE GOING TO HIT A
FIRST FOR THE SPACE STATION

58
00:04:14,349 --> 00:04:17,459
PROGRAM, WHAT I CONSIDER KIND OF
A MILESTONE, IN THAT IT LOOKS

59
00:04:17,459 --> 00:04:22,110
LIKE WE'RE GOING TO HAVE AN
OPPORTUNITY TO HAVE BOTH OUR CRS

60
00:04:22,110 --> 00:04:23,980
PROVIDERS ON BOARD AT THE SAME
TIME.

61
00:04:23,980 --> 00:04:28,080
WE'LL HAVE CYGNUS AS WELL AS A
SPACEX DRAGON.

62
00:04:28,080 --> 00:04:31,000
FOR THOSE OF US THAT HAVE WORKED
THROUGH THIS TRANSITION FROM

63
00:04:31,000 --> 00:04:36,190
SHUTTLE INTO THIS COMMERCIAL
CARGO SERVICE, IT'S REALLY A

64
00:04:36,190 --> 00:04:38,660
NEAT THING FOR US TO BE ABLE TO
SEE BOTH OF THESE VEHICLES UP

65
00:04:38,660 --> 00:04:41,190
THERE AT THE SAME TIME.
AGAIN, A LOT OF WORK FOR THE

66
00:04:41,190 --> 00:04:46,670
CREW BUT CERTAINLY A MILESTONE
MOMENT FOR THE PROGRAM.

67
00:04:46,670 --> 00:04:49,720
IN THE SHORT TERM, WE'RE EXCITED
ABOUT TOMORROW NIGHT, GETTING

68
00:04:49,720 --> 00:04:54,200
THIS ATLAS OFF THE GROUND AND
GETTING CYGNUS ON IT WAY AND

69
00:04:54,200 --> 00:04:58,510
LOOK FORWARD TO WELCOMING THE
CRS 6 ON BOARD.

70
00:04:58,510 --> 00:05:02,090
>> THANK YOU, KENNY.
NOW TO FRANK CULBERTSON, THE

71
00:05:02,090 --> 00:05:05,290
PRESIDENT OF ORBITAL ATK'S SPACE
SYSTEMS GROUP.

72
00:05:05,290 --> 00:05:07,280
FRANK?
>> THANK YOU VERY MUCH, AND GOOD

73
00:05:07,280 --> 00:05:10,360
AFTERNOON TO EVERYONE.
VERN, SEEMS LIKE A COUPLE WEEKS

74
00:05:10,360 --> 00:05:16,290
AGO WE WERE HERE DOING THIS.
IT'S ONLY BEEN ABOUT 3†1/2

75
00:05:16,290 --> 00:05:19,350
MONTHS.
GREAT TO BE BACK SO SOON AND

76
00:05:19,350 --> 00:05:22,990
GETTING READY TO LAUNCH ON AN
ATLAS AND TAKE CARGO TO THE

77
00:05:22,990 --> 00:05:25,000
SPACE STATION.
ON BEHALF OF THE ORBITAL ATK

78
00:05:25,000 --> 00:05:30,130
TEAM, I WANT TO THANK EVERYONE
HERE PARTICULARLY FOR ALL THE

79
00:05:30,130 --> 00:05:32,190
HARD WORK.
WE'VE HAD A LOT OF GREAT

80
00:05:32,190 --> 00:05:34,880
COOPERATION AND SUPPORT FROM THE
KENNEDY SPACE CENTER AND ITS

81
00:05:34,880 --> 00:05:39,650
CONTRACTOR TEAM IN LOADING THE
CARGO AND PROCESSING IT AND FROM

82
00:05:39,650 --> 00:05:43,320
THE ULA TEAM, THANKS FOR THE
GREAT WORK AND PUTTING THE STAFF

83
00:05:43,320 --> 00:05:46,380
TOGETHER AND HANDLING OUR
SPACECRAFT SO WELL.

84
00:05:46,380 --> 00:05:49,950
WE HAD A CHANCE TO WATCH IT ROLL
OUT TO THE PAD THIS MORNING.

85
00:05:49,950 --> 00:05:53,390
IT'S BASICALLY RACING COMPARED
TO WHAT A SHUTTLE DID IN THE OLD

86
00:05:53,390 --> 00:05:55,690
DAYS, BUT IT GOT OUT THERE
PRETTY QUICKLY, EVEN WITH THE

87
00:05:55,690 --> 00:05:58,940
WIND, AND IT LOOKS MAGNIFICENT.
SO WE'RE LOOKING FORWARD TO A

88
00:05:58,940 --> 00:06:00,780
SPECTACULAR LAUNCH TOMORROW
NIGHT.

89
00:06:00,780 --> 00:06:02,440
NIGHT LAUNCHES ARE ALWAYS VERY
EXCITING.

90
00:06:02,440 --> 00:06:07,030
I DO HAVE A BRIEF VIDEO THAT I'D
LIKE TO ROLL, AND WE'LL TAKE A

91
00:06:07,030 --> 00:06:10,780
LOOK AT SOME OF THE PROCESSING
THAT WE HAVE ACCOMPLISHED

92
00:06:10,780 --> 00:06:16,260
LEADING UP TO THIS.
THIS IS A QUICK PICTURE OF THE

93
00:06:16,260 --> 00:06:20,610
SERVICE MODULE IN PROCESS AND IN
TESTING AT OUR DULLES FACILITY.

94
00:06:20,610 --> 00:06:24,990
WHAT YOU'RE SEEING HERE IS A
TEST OF THE SOLAR RAY UNFURLING.

95
00:06:24,990 --> 00:06:29,680
THIS IS AN ORBITAL ATK SOLAR
ARRAY THAT IS NEW TO THIS

96
00:06:29,680 --> 00:06:31,280
VEHICLE.
THIS IS OUR SECOND FLIGHT OF

97
00:06:31,280 --> 00:06:35,590
THAT PARTICULAR ARRAY.
IT HAS WORKED VERY WELL.

98
00:06:35,590 --> 00:06:38,490
PROCESSING THE SERVICE MODULE
ITSELF AND PREPARING IT FOR

99
00:06:38,490 --> 00:06:42,470
TRANSPORTATION DOWN TO KENNEDY
SPACE CENTER, DOWN I-95,

100
00:06:42,470 --> 00:06:45,680
ACTUALLY JUST A FEW MILES FROM
MY HOMETOWN IN SOUTH CAROLINA.

101
00:06:45,680 --> 00:06:49,150
ALL MY FRIENDS ARE STANDING ON
THE ROAD WAVING AS IT WEPT BY.

102
00:06:49,150 --> 00:06:55,450
THEN SETTING IT UP FOR ASSEMBLY
IN THE SPACE STATION PROCESSING

103
00:06:55,450 --> 00:07:01,780
FACILITY AND MOVE IT INTO PLACE
FOR THE PRESSURIZED CARGO

104
00:07:01,780 --> 00:07:06,060
MODULE.
WE HAVE TO LOAD THE MODULE FIRST

105
00:07:06,060 --> 00:07:08,710
OF COURSE, SIMILAR TO WHAT WE
HAVE'VE DONE IN THE PAST.

106
00:07:08,710 --> 00:07:12,890
WE LOADED ABOUT 3†1/2 TONS OF
CARGO.

107
00:07:12,890 --> 00:07:14,120
TEAM WORKED REALLY WELL
TOGETHER.

108
00:07:14,120 --> 00:07:17,500
HAD TO DO A BIT OF REPACKING,
BUT SOMETIMES YOU HAVE TO DO

109
00:07:17,500 --> 00:07:20,800
THAT ON A TRIP JUST TO GET IT
RIGHT AND IT WORKED OUT WELL.

110
00:07:20,800 --> 00:07:23,300
WE PUT IT IN THE VERTICAL,
ATTACHED IT TO THE SERVICE

111
00:07:23,300 --> 00:07:28,920
MODULE, VERY CAREFUL OPERATION,
VERY, VERY DETAILED, OF COURSE.

112
00:07:28,920 --> 00:07:34,420
BUT THAT WENT WELL WITH THE
SUPPORT OF THE LOCAL TROOPS.

113
00:07:34,420 --> 00:07:36,870
GETTING IT READY FOR INTEGRATION
WITH THE ATLAS.

114
00:07:36,870 --> 00:07:42,680
AND MOVING IT TO THE PROCESSING
FACILITY FOR THAT.

115
00:07:42,680 --> 00:07:47,890
LATE LOAD, NOT THAT LATE IN THE
FLOW BUT THE LAST HARDWARE WE

116
00:07:47,890 --> 00:07:53,950
PUT IN PRIOR TO CLOSING THE
HATCH AND GETTING IT READY FOR

117
00:07:53,950 --> 00:07:57,750
INTEGRATING WITH THE UPPER
STAGE.

118
00:07:57,750 --> 00:08:00,150
PUTTING THE PAIRING ON IS ONE OF
THE LAST THINGS, AND OF COURSE

119
00:08:00,150 --> 00:08:04,420
THAT PREPARES THE SPACECRAFT FOR
ITS FLIGHT TO THE STATION,

120
00:08:04,420 --> 00:08:08,680
PROTECTING IT FROM THE FORCES OF
THE ATMOSPHERE AND OF COURSE THE

121
00:08:08,680 --> 00:08:10,500
WEATHER EFFECTS LEADING UP TO
THE LAUNCH.

122
00:08:10,500 --> 00:08:14,640
SO IT'S ALL GONE VERY SMOOTHLY,
AND AS I SAID WE'RE VERY PROUD

123
00:08:14,640 --> 00:08:17,840
OF THE TEAMWORK HERE.
EVERYONE SUPPORTS THIS VERY

124
00:08:17,840 --> 00:08:21,240
WELL, BUT WE ALL UNDERSTAND HOW
IMPORTANT SUPPLYING THE

125
00:08:21,240 --> 00:08:25,220
INTERNATIONAL SPACE STATION IS.
ONE OTHER ITEM OF NOTE.

126
00:08:25,220 --> 00:08:29,040
WE NAME ALL OF OUR CYGNUS
SPACECRAFT PRIOR TO LAUNCH, AND

127
00:08:29,040 --> 00:08:32,089
THIS PARTICULAR SPACECRAFT HAS
BEEN NAMED FOR COLONEL RICK

128
00:08:32,089 --> 00:08:36,930
HUSBAND, THE COMMANDER OF
COLUMBIA, WHO I'M SURE MANY OF

129
00:08:36,930 --> 00:08:39,330
YOU REMEMBER.
RICK AND HIS CREW, OF COURSE,

130
00:08:39,330 --> 00:08:42,820
WERE HEROS TO ALL OF US AND DID
FANTASTIC WORK ON ORBIT BEFORE

131
00:08:42,820 --> 00:08:47,210
BEING LOST DURING REENTRY.
HOWEVER, RICK WAS A MEMBER OF A

132
00:08:47,210 --> 00:08:49,840
CREW THAT WENT TO THE SPACE
STATION AND WAS ACTUALLY

133
00:08:49,840 --> 00:08:53,230
INVOLVED IN THE ASSEMBLY OF THE
SPACE STATION, AND SO HE IS THE

134
00:08:53,230 --> 00:08:56,080
FIRST ASTRONAUT WHO HAS BEEN
INVOLVED IN SPACE STATION

135
00:08:56,080 --> 00:08:59,380
ASSEMBLY TO HAVE HIS NAME
ASSOCIATED WITH A CYGNUS, SO WE

136
00:08:59,380 --> 00:09:03,130
ARE VERY PROUD THAT WE COULD DO
THAT FOR RICK AND FOR HIS FAMILY

137
00:09:03,130 --> 00:09:05,420
AND FOR THE MEMORY OF THE ENTIRE
CREW.

138
00:09:05,420 --> 00:09:11,310
AND EVELYN AND TWO OF HER HIS
WILL BE HERE TOMORROW TO WATCH

139
00:09:11,310 --> 00:09:15,044
THE LAUNCH, AND SO WE'RE VERY
PROUD OF THAT ALSO AND WE

140
00:09:15,044 --> 00:09:16,880
WELCOME THEM.
AS I SAID, IT WILL BE EXCITING

141
00:09:16,880 --> 00:09:19,970
TO WATCH A NIGHT LAUNCH.
I HOPE EVERYBODY WATCHING

142
00:09:19,970 --> 00:09:25,830
REMEMBERS TO TUNE IN FOR IT.
WE'RE VERY PLEASED WITH THE WAY

143
00:09:25,830 --> 00:09:29,410
THE FLOW HAS GONE AND ALL THE
GOOD WORK LEADING UP IT TO, AND

144
00:09:29,410 --> 00:09:31,540
IT LOOKS LIKE THE WINDS WILL BE
A LOT BETTER TOMORROW NIGHT THAN

145
00:09:31,540 --> 00:09:34,470
THEY WERE LAST TIME.
SO LOOKING FORWARD TO GOING ON

146
00:09:34,470 --> 00:09:36,509
THE FIRST TRY.
SO THANK YOU VERY MUCH.

147
00:09:36,509 --> 00:09:38,040
>> ALL RIGHT.
THANK YOU, FRANK.

148
00:09:38,040 --> 00:09:42,320
NOW TO VERN THORPE, THE UNITED
LAUNCH PROGRAM MANAGER FOR NASA

149
00:09:42,320 --> 00:09:43,399
MISSIONS.
VERN?

150
00:09:43,399 --> 00:09:46,920
>> THANK YOU, GEORGE.
OR UNITED LAUNCH ALLIANCE TEAM

151
00:09:46,920 --> 00:09:50,810
IS THRILLED TO BE HERE ONCE
AGAIN ONE DAY BEFORE LAUNCH OF

152
00:09:50,810 --> 00:09:53,290
THE OA-6 MISSION WITH THE CYGNUS
SPACE SPAIS CRAFT.

153
00:09:53,290 --> 00:09:58,320
THIS WILL BE ULA'S SECOND SPACE
MISSION.

154
00:09:58,320 --> 00:10:01,950
WE WERE HERE ABOUT 3†1/2 MONTHS
AGO FOR THE OA-4 MISSION IN

155
00:10:01,950 --> 00:10:05,020
EARLY DECEMBER.
WE'RE HONORED TO SUPPORT ORBITAL

156
00:10:05,020 --> 00:10:08,120
ATK AND NASA IN DELIVERING
SUPPLIES AND SCIENTIFIC

157
00:10:08,120 --> 00:10:11,760
EXPERIMENTS AND EQUIPMENT TO OUR
ASTRONAUTS ON THE ISS.

158
00:10:11,760 --> 00:10:14,540
THIS MISSION WILL BE THE
HEAVIEST MISSION THAT'S EVER

159
00:10:14,540 --> 00:10:17,100
FLOWN ON AN ATLAS FIVE ROCK TOTE
DATE.

160
00:10:17,100 --> 00:10:19,800
TOTAL SPACECRAFT MASS IS A
LITTLE OVER 16,000 POUNDS.

161
00:10:19,800 --> 00:10:23,340
ABOUT HALF OF THAT IS CARGO AS
WE TALKED ABOUT.

162
00:10:23,340 --> 00:10:30,540
OA-6 WILL ALSO BE ULA'S 106th
OVERALL LAUNCH SINCE ULA WAS

163
00:10:30,540 --> 00:10:36,200
FORMED AND THAT WAS JUST OVER
NINE YEARS AGO IN DECEMBER OF

164
00:10:36,200 --> 00:10:38,150
2006.
SIMILAR NUMBERS, THIS WILL BE

165
00:10:38,150 --> 00:10:44,040
OUR 32nd LAUNCH AT THE ATLAS
5-401 CONFIGURATION AND THE 62nd

166
00:10:44,040 --> 00:10:48,860
LAUNCH OF AN ATLAS-5 IN TOTAL.
THE ATLAS WE'RE USING FOR THIS

167
00:10:48,860 --> 00:10:52,779
MISSION IS OUR 401
CONFIGURATION, AND IT'S THE ONE

168
00:10:52,779 --> 00:10:55,550
THAT INCLUDES THE LONGEST
VERSION OF OUR FOUR-METER

169
00:10:55,550 --> 00:10:57,660
PAYLOAD FARING.
WE HAVE THREE DIFFERENT LENGTHS

170
00:10:57,660 --> 00:11:00,270
OF THAT.
WE'RE USING THE EXTRA EXTENDED

171
00:11:00,270 --> 00:11:04,640
PAYLOAD FARING AND WE HAD TO GO
WITH THAT LONGEST VERSION FARING

172
00:11:04,640 --> 00:11:08,210
TO BE ABLE TO ACCOMMODATE THE
CYGNUS MODULE.

173
00:11:08,210 --> 00:11:10,720
BECAUSE THIS IS A 401, OF COURSE
THAT MEANS WE HAVE NO SOLID

174
00:11:10,720 --> 00:11:14,360
ROCKET BOOSTERS ON THIS VEHICLE.
RIGHT NOW I'D LIKE TO PLAY A

175
00:11:14,360 --> 00:11:17,279
BRIEF VIDEO THAT SHOWS YOU HOW
THE MAJOR ELEMENTS FOR THIS

176
00:11:17,279 --> 00:11:20,260
VEHICLE CAME TOGETHER DOWN HERE
AT THE CAPE.

177
00:11:20,260 --> 00:11:25,990
IF WE COULD ROLL THAT.
THIS IS ARRIVING BACK ON JANUARY

178
00:11:25,990 --> 00:11:29,360
23rd, AND IT CAME IN ITS OWN
SPECIAL SHIPPING CONTAINER.

179
00:11:29,360 --> 00:11:31,990
WE BRING IT DOWN FROM DECATUR,
ALABAMA, ABOUT A ONE-DAY TRIP

180
00:11:31,990 --> 00:11:34,930
FROM OUR FACTORY THIS.
ONCE WE REMOVE IT FROM THE

181
00:11:34,930 --> 00:11:38,750
TRANSPORT CONTAINER, WE KEEP IT
IN OUR ATLAS SPACE FLIGHT

182
00:11:38,750 --> 00:11:42,660
OPERATIONS CENTER, AT KNOWN AS
THE A-SOC, FOR SOME FINAL

183
00:11:42,660 --> 00:11:44,990
HORIZONTAL PROCESSING STEPS AND
CHECKOUT.

184
00:11:44,990 --> 00:11:49,490
YOU CAN SEE IT PULLING INTO THE
ASOC RIGHT THERE.

185
00:11:49,490 --> 00:11:53,440
WE HAVE THE ABILITY TO CONNECT
IT†-- CONNECT ALL THE

186
00:11:53,440 --> 00:11:56,710
ELECTRONICS EVEN WHEN IT'S IN
THE HORIZONTAL POSITION TO SORT

187
00:11:56,710 --> 00:11:59,110
OF SIMULATE WHAT IT WILL SEE OUT
ON THE LAUNCH PAD, MAKE SURE WE

188
00:11:59,110 --> 00:12:01,440
WRING ANYTHING OUT BEFORE WE
TAKE IT OUT THERE.

189
00:12:01,440 --> 00:12:04,110
THIS IS THE ATLAS BOOSTER COMING
OFF THE MARINER.

190
00:12:04,110 --> 00:12:07,720
THE MARINER IS THE SHIP THAT WE
USE TO TRANSPORT ROCKET STAGES

191
00:12:07,720 --> 00:12:10,510
FROM OUR FACTORY IN DECATUR,
ALABAMA.

192
00:12:10,510 --> 00:12:14,399
ONCE WE LOAD IT ON THERE, WE'LL
HEAD UP TO TENNESSEE RIVER,

193
00:12:14,399 --> 00:12:18,290
CONNECTING THE OHIO, DOWN THE
MISSISSIPPI, GULF OF MEXICO,

194
00:12:18,290 --> 00:12:21,380
THROUGH THE STRAITS OF FLORIDA
AND UP THE COAST HERE TO THE

195
00:12:21,380 --> 00:12:22,790
CAPE.
WE CAN ALSO USE THE MARINER TO

196
00:12:22,790 --> 00:12:27,720
DELIVER ROCKET STAGES TO VANOVER
AIR FORCE BASE AS WELL.

197
00:12:27,720 --> 00:12:30,230
ONCE THE STAGE ARRIVES HERE, IT
GOES INTO ASOC FOR FINAL

198
00:12:30,230 --> 00:12:33,770
PROCESSING AS WELL.
YOU SEE THE SENTAUR, WHICH HAS

199
00:12:33,770 --> 00:12:36,370
BEEN INTEGRATED WITH THE INNER
STAGE ADAPTER AND SOME OTHER

200
00:12:36,370 --> 00:12:41,029
HARDWARE.
WE DO THAT SORT OF PARTIAL STACK

201
00:12:41,029 --> 00:12:44,990
OFFLINE AND IT ACTUALLY SAVES US
A LOT OF TIME WHEN WE PUT THE

202
00:12:44,990 --> 00:12:47,350
VEHICLE ON THE STAND.
WE PUT THE BOOSTER UP, AND THEN

203
00:12:47,350 --> 00:12:50,140
WE BRING OUT THAT INTEGRATED
SENTAUR STACK, AND BY DOING THAT

204
00:12:50,140 --> 00:12:53,210
WE CAN GET THE ENTIRE ROCKET UP
IN ONE DAY NOW.

205
00:12:53,210 --> 00:12:56,529
THAT'S ONE OF MANY THICKS THAT
WE'VE DONE IN THE LAST COME OF

206
00:12:56,529 --> 00:12:57,920
YEARS TO REDUCE OUR PROCESSING
TIME.

207
00:12:57,920 --> 00:13:02,220
THEN OF COURSE THE FINAL STEP IS
TO TAKE THAT SPACECRAFT, YOU SAW

208
00:13:02,220 --> 00:13:05,190
IT ENCAPSULATED IN FRANK'S
VIDEO, WE BRING IT OUT HERE

209
00:13:05,190 --> 00:13:07,601
EARLY IN THE MORNING.
THAT WAS A WEEK AGO, EARLY

210
00:13:07,601 --> 00:13:11,680
MORNING ON THE 14th OF MARCH,
AND THEN DURING FIRST SHIFT

211
00:13:11,680 --> 00:13:15,530
AFTER THE SUN COMES UP WE'LL
HOIST IT UP, PLACE IT ON TOP OF

212
00:13:15,530 --> 00:13:18,900
THE ROCKET, AND THEN WE'RE
ALMOST READY TO GO AT THAT

213
00:13:18,900 --> 00:13:20,750
POINT.
THAT TAKES US UP TO ABOUT A WEEK

214
00:13:20,750 --> 00:13:24,040
BEFORE LAUNCH.
THAT LAST SHOT WAS WHAT THE

215
00:13:24,040 --> 00:13:27,560
VEHICLE LOOKED LIKE THIS MORNING
BEFORE IT ROLLED OUT.

216
00:13:27,560 --> 00:13:30,380
NOW THAT YOU'VE SEEN HOW THE
VEHICLE CAME TOGETHER AT THE

217
00:13:30,380 --> 00:13:32,680
CAPE, I'D LIKE TO SHOW ONE MORE
VIDEO, AND THIS WILL GIVE YOU A

218
00:13:32,680 --> 00:13:36,300
PREVIEW OF WHAT TO EXPECT
TOMORROW WHEN WE ACTUALLY LAUNCH

219
00:13:36,300 --> 00:13:42,220
IT.
IF WE COULD ROLL THAT.

220
00:13:42,220 --> 00:13:50,110
>> FIVE, FOUR, THREE, TWO, ONE,
ZERO, AND LITOFF.

221
00:13:50,110 --> 00:13:57,019
WE HAVE LIFTOFF OF THE ATLAS-5
ROCKET.

222
00:13:57,019 --> 00:14:00,370
>> OKAY.
SO WHEN THAT VEHICLE LIFTS OFF,

223
00:14:00,370 --> 00:14:03,370
IT'S ABOUT 194 FEET TALL.
IT WILL LIFT OFF WITH A LITTLE

224
00:14:03,370 --> 00:14:06,430
LESS THAN 900,000 POUNDS OF
THRUST.

225
00:14:06,430 --> 00:14:09,430
AND WITH THIS CONFIGURATION
SINCE THERE ARE NO SRBs, THE

226
00:14:09,430 --> 00:14:13,220
FIRST MAJOR EVENT THAT YOU'LL
SEE IS WHEN THAT BOOSTER STAGE

227
00:14:13,220 --> 00:14:18,130
RUNS OUT OF FUEL, AND THAT WILL
HAPPEN ABOUT FOUR MINUTES INTO

228
00:14:18,130 --> 00:14:22,160
FLIGHT.
THIS WAS ACTUAL FOOTAGE FROM THE

229
00:14:22,160 --> 00:14:25,709
OA-4 MISSION WE LAUNCHED IN
EARLY DECEMBER.

230
00:14:25,709 --> 00:14:28,570
YOU CAN SEE WE'LL GO OUT ON A
PRETTY NORTHERLY TRAJECTORY.

231
00:14:28,570 --> 00:14:33,470
WE HAVE TO GO TO AN BOIRT TO
MATCH THE ORBIT OF THE ISS, AND

232
00:14:33,470 --> 00:14:37,120
WHAT HAPPENS IS THE ISS ACTUALLY
WILL FLY OVER RIGHT ABOUT THE

233
00:14:37,120 --> 00:14:41,830
TIME THAT WE'LL LAUNCH, AND WE
BASICALLY CATCH UP TO IT, GET IT

234
00:14:41,830 --> 00:14:44,450
AN ORBIT THAT'S A LITTLE BIT
BELOW THAT, THEN ORBITAL WILL

235
00:14:44,450 --> 00:14:47,870
TAKE OVER AND CYGNUS WILL PHASE
WITH THE STATION OVER THE NEXT

236
00:14:47,870 --> 00:14:49,830
FEW DAYS.
HERE WE ARE ABOUT FOUR MINUTES

237
00:14:49,830 --> 00:14:52,440
INTO FLIGHT.
WE SHUT DOWN THE BOOSTER ENGINES

238
00:14:52,440 --> 00:14:56,050
WHEN THE FUEL IS GONE.
WE SEPARATE ABOUT SIX SECONDS

239
00:14:56,050 --> 00:14:58,780
AFTER THAT.
TEN SECONDS AFTER SEPARATION,

240
00:14:58,780 --> 00:15:01,690
WE'LL LIGHT THE SENTAUR ENGINE
FOR THE FIRST BURN.

241
00:15:01,690 --> 00:15:06,560
IN FACT, IT'S THE MAIN BURN FOR
THIS MISSION.

242
00:15:06,560 --> 00:15:08,810
ABOUT EIGHT SECONDS AFTER WE
LIGHT THE ENGINE, WE'LL JETTISON

243
00:15:08,810 --> 00:15:14,959
THE PAYLOAD FARING, AND LET'S
SEE, THAT BURN IS ABOUT†-- JUST

244
00:15:14,959 --> 00:15:18,410
SHORT OF 14 MINUTES, AND THAT'LL
PUT US INTO THE LOW EARTH ORBIT

245
00:15:18,410 --> 00:15:22,420
WE NEED TO GET INTO.
MAIN ENGINE CUT THAUF YOU SAW

246
00:15:22,420 --> 00:15:26,270
THERE WILL HAPPEN AT T-PLUS 18
MINUTES, AND THEN WE'LL SEPARATE

247
00:15:26,270 --> 00:15:30,040
THE CYGNUS SPACECRAFT AT ABOUT
T-MINUS 21 MINUTES AS YOU SEE

248
00:15:30,040 --> 00:15:33,709
RIGHT THERE.
NOW, AFTER SEPARATION, WE WILL

249
00:15:33,709 --> 00:15:37,580
COAST FOR ABOUT I THINK 27†1/2
MINUTE, THEN WE'LL DO ANOTHER

250
00:15:37,580 --> 00:15:40,521
VERY SHORT ENGINE BURN.
THE REASON WE DO THAT IS TO DO A

251
00:15:40,521 --> 00:15:43,700
CONTROLLED REENTRY, SO WE'LL
BRING THE SENTAUR UPPER STAGE

252
00:15:43,700 --> 00:15:46,360
DOWN.
IT WILL IMPACT INTO THE OCEAN

253
00:15:46,360 --> 00:15:48,970
JUST SOUTH OF AUSTRALIA, AND
THAT WILL HAPPEN ABOUT AN HOUR

254
00:15:48,970 --> 00:15:56,450
AND TEN MINUTES AFTER LIFTOFF.
WASN'T WE FINISHED THE WITH THE

255
00:15:56,450 --> 00:15:59,519
MATING OF THE CYGNUS SPACECRAFT
TO THE LAUNCH VEHICLE AS YOU SAW

256
00:15:59,519 --> 00:16:02,680
IN THAT OTHER VIDEO, WE DO SOME
FINAL TESTING.

257
00:16:02,680 --> 00:16:05,490
THE INTEGRATED TESTING WENT VERY
WELL.

258
00:16:05,490 --> 00:16:07,890
WE HAD YOU ARE A LAUNCH REVIEW
LAST FRIDAY.

259
00:16:07,890 --> 00:16:10,959
ALL PARTIES VERIFIED THEY ARE
READY FOR LAUNCH.

260
00:16:10,959 --> 00:16:14,230
WE HAD THE AIR FORCE'S 45th
SPACE WING LAUNCH REVIEW THIS

261
00:16:14,230 --> 00:16:19,380
MORNING AND EVERYBODY CONFIRMED
THAT STATUS AT THAT MEETING, AND

262
00:16:19,380 --> 00:16:21,540
WE ROLLED THE VEHICLE TO THE
LAUNCH PAD JUST ABOUT THREE

263
00:16:21,540 --> 00:16:24,779
HOURS AGO.
SO THE VEHICLE IS OUT ON THE

264
00:16:24,779 --> 00:16:27,550
PAD, HEALTHY VEHICLE, HEALTHY
SPACECRAFT, READY TO GO.

265
00:16:27,550 --> 00:16:30,940
FINAL COUNTDOWN OPERATIONS WILL
BEGIN ABOUT 4:30 P.M. TOMORROW

266
00:16:30,940 --> 00:16:35,760
AFTERNOON, AND THE LAUNCH WINDOW
WILL OPEN AT ABOUT 11:05 LOCAL

267
00:16:35,760 --> 00:16:38,320
TIME.
NORMALLY FOR A CARGO MISSION TO

268
00:16:38,320 --> 00:16:40,800
THE STATION YOU HAVE AN
INSTANTANEOUS LAUNCH WINDOW, BUT

269
00:16:40,800 --> 00:16:44,800
OUR TEAM HAS WORKED CLOSELY WITH
THE ORBITAL ATK TEAM AND JUST

270
00:16:44,800 --> 00:16:48,100
LIKE WE DID FOR OA-4, WE'RE ABLE
TO SUPPORT A HALF-HOUR WINDOW

271
00:16:48,100 --> 00:16:51,019
FOR THIS MISSION.
BASICALLY, WE HAVE FIVE DISCRETE

272
00:16:51,019 --> 00:16:54,241
POINTS.
THE WAY WE FLY THE VEHICLE

273
00:16:54,241 --> 00:16:57,140
CHANGES A LITTLE EACH TIME TO
ACCOUNT FOR THE ROTATION OF THE

274
00:16:57,140 --> 00:17:00,269
EARTH DURING THOSE TIMES AND
OVER THE COURSE OF A HALF HOUR

275
00:17:00,269 --> 00:17:02,820
WE'LL HAVE FIVE OPPORTUNITIES TO
LAUNCH IN CASE WE RUN INTO A

276
00:17:02,820 --> 00:17:06,250
WEATHER ISSUE OR ANY OTHER KIND
OF ISSUE.

277
00:17:06,250 --> 00:17:10,270
THAT WILL OPEN AT 11:05 LOCAL
TIME TOMORROW.

278
00:17:10,270 --> 00:17:13,420
ONCE AGAIN, WE'RE PROUD TO
DELIVER CYGNUS AND EVERY

279
00:17:13,420 --> 00:17:16,829
SPACECRAFT WE LAUNCH FOR BOTH
MILITARY, CIVIL, AND COMMERCIAL

280
00:17:16,829 --> 00:17:20,030
CUSTOMERS IN THIS RISKY AND
TECHNOLOGICALLY CHALLENGING

281
00:17:20,030 --> 00:17:23,250
BUSINESS OF SPACE KRAUNCH, ULA
WILL CONTINUE TO RELIABLY

282
00:17:23,250 --> 00:17:28,540
DELIVER OUR PAYLOADS AND
CRITICAL CAPABILITIES TO ORBIT.

283
00:17:28,540 --> 00:17:32,260
I'D LIKE TO SAY THANK YOU TO ALL
OUR MISSION PARTNERS, ORBITAL

284
00:17:32,260 --> 00:17:36,920
ATK, NASA, THE AIR FORCE, AND
THE FAA, AND OUR ENTIRE SUPPLY

285
00:17:36,920 --> 00:17:39,350
TEAM THAT HEMMED GET US TO THIS
POINT.

286
00:17:39,350 --> 00:17:41,410
WE LOOK FORWARD TO A GREAT
LAUNCH TOMORROW NIGHT.

287
00:17:41,410 --> 00:17:43,370
THANKS.
>> THANK YOU, VERN.

288
00:17:43,370 --> 00:17:47,782
NOW TO P. HASBROOK, THE
ASSOCIATE PROGRAM SIGN T.I.P.S.

289
00:17:47,782 --> 00:17:50,940
FOR NASA FOR THE INTERNATIONAL
SPACE STATION.

290
00:17:50,940 --> 00:17:52,400
PETE?
>> THANK YOU.

291
00:17:52,400 --> 00:17:56,390
I'D LIKE TO THANK ALL OF YOU FOR
JOINING US TODAY AND TUPED WITH

292
00:17:56,390 --> 00:17:59,010
US TODAY.
IT'S MY JOB TO TELL YOU A LITTLE

293
00:17:59,010 --> 00:18:02,190
ABOUT THE SCIENTIFIC CARGO ON
THE CYGNUS.

294
00:18:02,190 --> 00:18:05,299
IT'S GOING TO BRING IMPORTANT
CARGO TO US TO CONTINUE OUR

295
00:18:05,299 --> 00:18:09,290
SCIENTIFIC MISSION WE'RE ALREADY
DOING ON THE ISS.

296
00:18:09,290 --> 00:18:12,549
THE CYGNUS CARGO INCLUDES A
VARIETY OF PAYLOADS, AND AS

297
00:18:12,549 --> 00:18:17,130
KENNY SAID, IT'S OVER 1,700
POUNDS OF PAYLOADS SOR OVER

298
00:18:17,130 --> 00:18:21,000
ALMOST 860 KILOGRAMS OF CARGO,
AND THAT MAKES UP ABOUT A

299
00:18:21,000 --> 00:18:24,010
QUARTER OF THE CARGO THAT CYGNUS
IS BRINGING TO US.

300
00:18:24,010 --> 00:18:27,680
NOW, THE ISS IS AN INTERNATIONAL
LABORATORY IN SPACE.

301
00:18:27,680 --> 00:18:31,210
IT'S A VERY CAPABLE AND
VERSATILE LABORATORY.

302
00:18:31,210 --> 00:18:33,250
NOT LIKE A LOT OF THE
LABORATORIES THAT YOU'D BE

303
00:18:33,250 --> 00:18:35,710
FAMILIAR WITH ON THE GROUND,
WHICH MAY FOCUS IN ONE

304
00:18:35,710 --> 00:18:39,210
DISCIPLINE OR MAYBE A VERY
NARROW FOCUS WITHIN THAT

305
00:18:39,210 --> 00:18:41,250
DISCIPLINE.
WE'VE GOT A VARIETY OF

306
00:18:41,250 --> 00:18:44,250
SCIENTIFIC DISCIPLINES THAT WE
DO ON THE ISS.

307
00:18:44,250 --> 00:18:48,370
WE'VE GOT HUMAN RESEARCH, WE'VE
GOT BIOLOGY AND BIOTECHNOLOGY,

308
00:18:48,370 --> 00:18:51,720
PHYSICAL SCIENCES, WE'VE GOT
EARTH AND SPACE SCIENCES, WE'VE

309
00:18:51,720 --> 00:18:53,799
GOT TECHNOLOGY DEVELOPMENT, AND
WE'VE GOT EDUCATION AND

310
00:18:53,799 --> 00:18:57,299
OUTREACH, SO WE'VE GOT A VERY
PROUD SPECTRUM.

311
00:18:57,299 --> 00:19:00,240
AND IN OUR HISTORY OF THE
INTERNATIONAL SPACE STATION

312
00:19:00,240 --> 00:19:03,990
PROGRAM PARTNERSHIP ACROSS THE
PARTNERSHIP AND OVER 15 YEARS,

313
00:19:03,990 --> 00:19:07,290
WE'VE DONE MORE THAN 1,900
DIFFERENT SCIENTIFIC

314
00:19:07,290 --> 00:19:11,610
EXPERIMENTS.
WE'VE SUPPORTED OVER 2,700

315
00:19:11,610 --> 00:19:14,200
DIFFERENT SCIENTISTS AROUND THE
WORLD, AND WE'VE HAD 95

316
00:19:14,200 --> 00:19:17,490
COUNTRIES INVOLVED IN OUR
RESEARCH ACTIVITIES.

317
00:19:17,490 --> 00:19:22,170
THE RESEARCH RESULTS ADD NEW
KNOWLEDGE ABOUT OUR

318
00:19:22,170 --> 00:19:26,590
UNDERSTANDING OF OUR NATURAL
WORLD AROUND US TO ENABLE FUTURE

319
00:19:26,590 --> 00:19:31,190
EXPLORATION AS WELL AS IMPROVING
THE QUALITY OF LIFE ON EARTH.

320
00:19:31,190 --> 00:19:34,660
NOW, THE CYGNUS LAUNCH IS GOING
TO BRING SUPPLIES TO EXISTING

321
00:19:34,660 --> 00:19:37,680
EXPERIMENTS ON STATION, BUT IT'S
ALSO BRINGING US SEVERAL NEW AND

322
00:19:37,680 --> 00:19:40,540
EXCITING EXPERIMENTS.
IF YOU WERE WITH US FOR THE

323
00:19:40,540 --> 00:19:44,350
WHAT'S ON BOARD BRIEFING EARLIER
TODAY, YOU HEARD A COUPLE OF THE

324
00:19:44,350 --> 00:19:46,520
GOOD ONES THERE.
YOU HEAR ABOUT SAPPHIRE, AND IF

325
00:19:46,520 --> 00:19:50,470
I COULD HAVE THE FIRST SLIDE,
PLEASE, SAPPHIRE INVOLVES A

326
00:19:50,470 --> 00:19:54,270
CONTROLLED, PLANNED FIRE ON
BOARD THE CYGNUS SPACECRAFT.

327
00:19:54,270 --> 00:19:56,860
THIS IS AFTER IT'S FINISHED ITS
BERTH MISSION AFTER IT'S

328
00:19:56,860 --> 00:20:00,390
UNBERTHED FROM THE ISS.
YOU SEE THE VIEW OF THE

329
00:20:00,390 --> 00:20:02,880
SAPPHIRE.
IT'S GOT ABOUT A ONE-METER-LONG

330
00:20:02,880 --> 00:20:07,370
FABRIC SAMPLE INSIDE OF IT THAT
WILL BE IGNITED.

331
00:20:07,370 --> 00:20:10,240
IT HELPS US UNDERSTAND THE
PROPAGATION OF FIRE IN A

332
00:20:10,240 --> 00:20:13,430
MICROGRAVITY ENVIRONMENT.
IT HELPS PROTECT FUTURE CREWS

333
00:20:13,430 --> 00:20:16,870
AND SPACECRAFT.
THE NEXT BIT OF SCIENCE THAT YOU

334
00:20:16,870 --> 00:20:20,010
HEARD ABOUT TODAY WAS SOME
TECHNOLOGY CALLED THE GECKO

335
00:20:20,010 --> 00:20:22,880
GRIPPER.
IT'S A MECHANICAL ADHESION

336
00:20:22,880 --> 00:20:25,900
TECHNOLOGY USING VANDER WAL'S
FORCES.

337
00:20:25,900 --> 00:20:30,150
IT IS AN ADHESIVE, JUST
MECHANICAL, NOTHING STICKY.

338
00:20:30,150 --> 00:20:32,470
IT'S REMOVABLE.
IT'S REUSABLE.

339
00:20:32,470 --> 00:20:35,540
AND EVEN BEST IT'S REUSABLE ON
SEVERAL†-- MANY DIFFERENT

340
00:20:35,540 --> 00:20:39,460
SURFACES OVER ITS LIFE.
THE NEXT BRIEFING THAT WE HEARD

341
00:20:39,460 --> 00:20:43,360
THIS MORNING WAS FROM THE
ADDITIVE MANUFACTURING WORLD, OR

342
00:20:43,360 --> 00:20:46,530
3D PRINTING.
NOW WE WILL HAVE A FACILITY ON

343
00:20:46,530 --> 00:20:48,919
THE ISS WHERE WE CAN DO 3D
PRINTING.

344
00:20:48,919 --> 00:20:51,350
WE CAN REPLACE PARTS THAT ARE
LOST OR BROKEN.

345
00:20:51,350 --> 00:20:54,980
WE CAN CREATE NEW PARTS THAT
HAVE BEEN THOUGHT UP AND SENT UP

346
00:20:54,980 --> 00:20:57,630
CONFIGURATION FILE-WISE ON THE
GROUND.

347
00:20:57,630 --> 00:21:02,020
WE'RE LOOKING FORWARD EVENTUALLY
TO BE ABLE TO PRINT WHOLE NEW

348
00:21:02,020 --> 00:21:05,860
HARDWARE EXPERIMENTS FOR US.
THE NEXT ONE THAT WE HEARD ABOUT

349
00:21:05,860 --> 00:21:10,660
WAS CALLED STRATA-1.
IT'S STUDYING THE BEHAVIOR OF

350
00:21:10,660 --> 00:21:14,140
THE IMPACT SHATTERED ROCK THAT
MAKES UP THE SOIL-LIKE MATERIAL

351
00:21:14,140 --> 00:21:19,070
THAT MAKES UP THE SURFACE OF THE
MOON, ASTEROIDS, AND COMETS.

352
00:21:19,070 --> 00:21:22,330
NEXT WE ALSO HEARD ABOUT THE
NEXT WAVE OF MICROSATELLITES

353
00:21:22,330 --> 00:21:25,919
THAT WILL BE BROUGHT TO ISS,
SOME OF WHICH WILL BE DEPLOYED

354
00:21:25,919 --> 00:21:30,059
THROUGH THE JAPANESE AIR LOCK
AND THEN OUT THERE WHAT THE

355
00:21:30,059 --> 00:21:33,299
STATION ARMS.
WE ALSO HEARD ABOUT SOME NEW

356
00:21:33,299 --> 00:21:36,620
MICROSATELLITES THAT WILL BE
DEPLOYED FROM THE CYGNUS VEHICLE

357
00:21:36,620 --> 00:21:41,950
AFTER IT DEPARTS THE ISS.
WITH ALL THIS, I'VE GIVEN YOU A

358
00:21:41,950 --> 00:21:45,600
BRIEF SUMMARY OF THE BRIEFINGS
WE HEARD EARLIER TODAY.

359
00:21:45,600 --> 00:21:49,030
I WOULD ENCOURAGE YOU TO GO BACK
AND LOOK UP ON SOCIAL MEDIA THE

360
00:21:49,030 --> 00:21:51,600
WHAT'S ON BOARD BRIEFING.
YOU'LL HEAR FROM THE SCIENTISTS

361
00:21:51,600 --> 00:21:53,640
THEMSELVES.
IT'S EXCITING TO HEAR HOW

362
00:21:53,640 --> 00:21:57,890
SCIENTISTS DESCRIBE THEIR
SCIENCE IN WORDS THAT YOU AND I

363
00:21:57,890 --> 00:22:00,710
CAN ALL UNDERSTAND.
SO WE HOPE YOU'LL AGREE THAT THE

364
00:22:00,710 --> 00:22:05,240
SCIENCE THAT'S COMING ON ISS AND
IS BEING DONE ON ISS IS ADDING

365
00:22:05,240 --> 00:22:08,530
KNOWLEDGE TO OUR WORLD, IT'S
ADVANCING OUR EXPLORATION OF

366
00:22:08,530 --> 00:22:11,660
SPACE, AND IT'S BRINGING
BENEFITS TO THOSE OF US HERE ON

367
00:22:11,660 --> 00:22:12,880
EARTH.
THANKS.

368
00:22:12,880 --> 00:22:16,620
>> THANK YOU, PETE.
TO DR.†MICHAEL ROBERTS, THE

369
00:22:16,620 --> 00:22:21,210
DEPUTY CHIEF SCIENTIST FOR
COMMERCIAL PARTNER AND KSIS.

370
00:22:21,210 --> 00:22:22,630
DR.†ROBERTS?
>> THANK YOU, AND GOOD

371
00:22:22,630 --> 00:22:24,960
AFTERNOON, EVERYONE.
SO KSIS IS THE CENTER FOR

372
00:22:24,960 --> 00:22:26,600
ADVANCEMENT OF SCIENCE AND
SPACE.

373
00:22:26,600 --> 00:22:30,530
WE WORK IN PARTNERSHIP WITH NASA
TO MANAGE THAT PART OF THE

374
00:22:30,530 --> 00:22:34,740
INTERNATIONAL SPACE STATION THAT
IS A NATIONAL LAB.

375
00:22:34,740 --> 00:22:38,410
IN SIMILAR WAYS THAT THE
DEPARTMENT OF ENERGY OPERATES

376
00:22:38,410 --> 00:22:45,020
NATIONAL LABS HERE ON EARTH,
CASIS OPERATES A LAB IN ORBIT.

377
00:22:45,020 --> 00:22:48,510
OUR MISSION IS TO WORK IN
PARTNERSHIP WITH NASA TO ALLOW

378
00:22:48,510 --> 00:22:52,690
ACCESS TO THAT NATIONAL LAB SO
INVESTIGATORS FROM ACADEMIC

379
00:22:52,690 --> 00:22:55,570
INSTITUTIONS, FROM COMMERCIAL
INSTITUTIONS, FROM GOVERNMENTAL

380
00:22:55,570 --> 00:22:59,679
AGENCIES IN ADDITION TO NASA CAN
HAVE ACCESS TO THAT RESEARCH

381
00:22:59,679 --> 00:23:02,540
PLATFORM.
AS YOU HEARD ALREADY, THAT

382
00:23:02,540 --> 00:23:06,280
PLATFORM CAN SUPPORT A VARIETY
OF DIFFERENT INVESTIGATIONS THAT

383
00:23:06,280 --> 00:23:10,049
RANGE FROM THE UTILIZATION OF
THE INTERNATIONAL SPACE STATION

384
00:23:10,049 --> 00:23:13,620
AS A LAUNCH PLATFORM, SO AS PETE
MENTIONED, THERE'S AN

385
00:23:13,620 --> 00:23:16,850
OPPORTUNITY TO UTILIZE
INTERNATIONAL SPACE STATION FOR

386
00:23:16,850 --> 00:23:20,160
LAUNCH OF SMALL AND
NANOSATELLITES.

387
00:23:20,160 --> 00:23:23,590
THOSE ARE IN PARTNERSHIP WITH AN
IMPLEMENTATION PARTNER CALLED

388
00:23:23,590 --> 00:23:28,110
NANORAX, WHICH ALSO OFFERS
OPPORTUNITIES FOR RESEARCH

389
00:23:28,110 --> 00:23:31,870
INVESTIGATION SUPPORTED BY
COMMERCIAL COMPANIES, AND MOST

390
00:23:31,870 --> 00:23:35,350
IMPORTANTLY OF ALL TO MY MIND,
EDUCATIONAL OPPORTUNITIES.

391
00:23:35,350 --> 00:23:39,919
SO IN ADDITION TO THE NANORAX
SATELLITES WE'LL BE LAUNCHING

392
00:23:39,919 --> 00:23:42,419
FROM THE INTERNATIONAL SPACE
STATION, THERE ARE OPPORTUNITIES

393
00:23:42,419 --> 00:23:46,180
FOR PAYLOADS THAT HAVE BEEN
DEVELOPED BY MIDDLE AND HIGH

394
00:23:46,180 --> 00:23:49,410
SCHOOL STUDENT WHICH IS WILL GO
INSIDE A STATION TO BE OPERATED

395
00:23:49,410 --> 00:23:52,549
THERE.
WE ALSO WORK IN PARTNERSHIP WITH

396
00:23:52,549 --> 00:23:56,500
RESEARCH ORGANIZATIONS SUCH AS
SOUTHWEST RESEARCH INSTITUTE,

397
00:23:56,500 --> 00:24:00,390
WHICH IS FLYING PROJECT METEOR.
PROJECT METEOR IS A VISUAL

398
00:24:00,390 --> 00:24:03,929
SPECTROMETER THAT WILL BE PLACED
ON THE STATION THAT WILL ENABLE

399
00:24:03,929 --> 00:24:07,570
SCIENTISTS THE OPPORTUNITY TO
LOOK AT METEORS AS THAP IMPACT

400
00:24:07,570 --> 00:24:10,500
THE EARTH'S ATMOSPHERE FROM A
UNIQUE VANTAGE POINT THAT'S

401
00:24:10,500 --> 00:24:13,870
OFFERED BY THE INTERNATIONAL
SPACE STATION NATIONAL LAB.

402
00:24:13,870 --> 00:24:17,390
PETE MENTIONED THE ADDED
MANUFACTURING CAPABILITY GOING

403
00:24:17,390 --> 00:24:20,550
UP TO THE STATION.
THIS IS AN EXCITING CAPABILITY

404
00:24:20,550 --> 00:24:23,560
FOR STATION, AND THIS
DEMONSTRATES THE ABILITY OF THE

405
00:24:23,560 --> 00:24:26,750
INTERNATIONAL SPACE STATION
NATIONAL LAB TO FUNCTION AS A

406
00:24:26,750 --> 00:24:30,549
RESEARCH ENVIRONMENT AND
TRANSLATE THE FINDINGS FROM

407
00:24:30,549 --> 00:24:34,690
THOSE RESEARCH INVESTIGATIONS
INTO MANUFACTURING OPPORTUNITIES

408
00:24:34,690 --> 00:24:37,900
AND TO OPPORTUNITIES THAT MAY BE
OF INTEREST TO COMMERCIAL

409
00:24:37,900 --> 00:24:42,010
ENTITIES OR OTHER NATIONAL LABS
HERE ON THE GROUND.

410
00:24:42,010 --> 00:24:49,310
THE ADD†-- IT'S OPERATED BY MADE
IN SPACE.

411
00:24:49,310 --> 00:24:51,690
WHAT THEY ARE GOING TO HAVE ON
BOARD ORBIT IS THE CAPABILITY TO

412
00:24:51,690 --> 00:24:55,970
OFFER ADDITIVE MANUFACTURING IN
THE SPACE ENVIRONMENT TO USERS

413
00:24:55,970 --> 00:24:59,380
FROM A VARIETY OF DIFFERENT
ORGANIZATIONS INCLUDING MIDDLE

414
00:24:59,380 --> 00:25:02,590
AND HIGH SCHOOL STUDENTS OR
COMMERCIAL VENDOR WHO IS WANT TO

415
00:25:02,590 --> 00:25:06,590
EXPLORE WAYS TO UTILIZE THE
UNIQUE ASPECTS OF MICROGRAVITY

416
00:25:06,590 --> 00:25:09,520
TO BENEFIT 3D ADDITIVE
MANUFACTURING IN THAT

417
00:25:09,520 --> 00:25:10,690
ENVIRONMENT.
THANK YOU.

418
00:25:10,690 --> 00:25:12,250
>> ALL RIGHT.
THANK YOU.

419
00:25:12,250 --> 00:25:17,039
AND WE'RE READY NOW TO GO FOR
OUR WEATHER FORECAST FOR

420
00:25:17,039 --> 00:25:19,210
TOMORROW.
LAURA GODOY, THE LAUNCH WEATHER

421
00:25:19,210 --> 00:25:21,450
OFFICER FROM THE 45th WEATHER
SQUADRON.

422
00:25:21,450 --> 00:25:23,610
LAURA?
>> THANK YOU, GEORGE.

423
00:25:23,610 --> 00:25:26,549
WE'RE EXPECTING VARIABLE WEATHER
CONDITIONS FOR TOMORROW NIGHT'S

424
00:25:26,549 --> 00:25:29,340
LAUNCH WINDOW.
LET'S LOOK AT THE SATELLITE

425
00:25:29,340 --> 00:25:32,280
IMAGE.
AS YOU CAN SEE ON THE IMAGE, THE

426
00:25:32,280 --> 00:25:35,840
COLD FRONT THAT PUSHED THROUGH
YESTERDAY IS NOW WELL SOUTH OF

427
00:25:35,840 --> 00:25:41,130
THE FLORIDA PENINSULA.
THE COLD FRONT NOW THAT PASSED

428
00:25:41,130 --> 00:25:44,400
US, WE'RE SEEING DRIER, WINDIER
CONDITIONS BEHIND THE FRONT.

429
00:25:44,400 --> 00:25:47,090
YOU CAN SEE ON THE SATELLITE
IMAGE THERE ARE SOME UPPER-LEVEL

430
00:25:47,090 --> 00:25:49,850
CIRRUS CLOUDS ASSOCIATED WITH
THE JET STREAM.

431
00:25:49,850 --> 00:25:54,230
HOUMP, THIS SHOULD SAG A LITTLE
FURTHER SOUTH OVERNIGHT.

432
00:25:54,230 --> 00:25:57,620
ALSO THE HIGH-PRESSURE CENTER IS
CURRENTLY OVER THE GULF STATES.

433
00:25:57,620 --> 00:26:01,190
HOWEVER, THAT WILL CONTINUE TO
PUSH EASTWARD AND BUILD OVER THE

434
00:26:01,190 --> 00:26:04,640
NEXT 24 HOURS OVER THE FLORIDA
PENINSULA.

435
00:26:04,640 --> 00:26:08,970
AS WE LOOK AT THE LAUNCH
FORECAST, WE'RE ONLY FORECASTING

436
00:26:08,970 --> 00:26:14,150
A 10% PROBABILITY OF VIOLATION,
AND THAT IS DUE TO THE CUMULUS

437
00:26:14,150 --> 00:26:17,000
CLOUD RULE.
WE'RE EXPECTING CUMULUS CLOUDS

438
00:26:17,000 --> 00:26:19,890
TO DEVELOP ABOUT 3,000 FEET.
HOWEVER, WE'RE NOT EXPECTING

439
00:26:19,890 --> 00:26:22,260
SIGNIFICANT VERTICAL
DEVELOPMENT.

440
00:26:22,260 --> 00:26:25,910
SO WE'RE NOT OVERLY CONCERNED
WITH THE CUMULUS CLOUDS THAT

441
00:26:25,910 --> 00:26:29,820
WILL DEVELOP.
AND OUR WIND SHIFT WILL BE†--

442
00:26:29,820 --> 00:26:32,520
OUR WINDS WILL SHIFT FROM TODAY
FROM THE NORTH TO BE

443
00:26:32,520 --> 00:26:36,120
SOUTHEASTERLY TOMORROW.
ALSO, YOU'LL NOTICE THAT OUR

444
00:26:36,120 --> 00:26:38,851
WINDS DROP.
THEY'RE ABOUT 30 KNOTS TODAY, IN

445
00:26:38,851 --> 00:26:41,240
THE LOW 30s.
HOWEVER, THEY'RE GOING TO BE

446
00:26:41,240 --> 00:26:44,610
ONLY GUSTING INTO THE LOW TEENS
TOMORROW DURING THE LAUNCH

447
00:26:44,610 --> 00:26:46,540
WINDOW.
ALSO, WE HAVE OBSERVED

448
00:26:46,540 --> 00:26:47,790
UNSEASONABLY COOLER
TEMPERATURES.

449
00:26:47,790 --> 00:26:54,750
HOWEVER, THE LAUNCH WINDOW,
WE'RE EXPECTING BETWEEN 64 AND

450
00:26:54,750 --> 00:26:58,380
65 DEGREES FAHRENHEIT, AND THE
LOW TEMPERATURES THAT WE'LL SEE

451
00:26:58,380 --> 00:27:04,380
TOMORROW MORNING WILL ONLY BE
ABOUT THE 40s INLAND.

452
00:27:04,380 --> 00:27:08,190
HOWEVER, OVER BY THE COAST, BY
THE LAUNCH PAD, SHOULD ONLY DROP

453
00:27:08,190 --> 00:27:12,299
INTO THE LOW 50s.
AND AGAIN, WE'RE ONLY EXPECTING

454
00:27:12,299 --> 00:27:16,540
A 10% PROBABILITY OF VIOLATION
DUE TO CUMULUS CLOUD RULE.

455
00:27:16,540 --> 00:27:19,950
IN THE EVENT OF A 24-HOUR DELAY,
WE'RE EXPECTING REALLY SIMILAR

456
00:27:19,950 --> 00:27:23,670
CONDITIONS.
WE DO EXPECT TO SEE THE ONSHORE

457
00:27:23,670 --> 00:27:28,260
FLOW TO CONTINUE, AND WITH THAT
WE NIGHT SEE AN ISOLATED COASTAL

458
00:27:28,260 --> 00:27:30,550
SHOWER.
HOWEVER, THE CUMULUS CLOUDS

459
00:27:30,550 --> 00:27:36,039
WE'RE NOT EXPECTING TO AGAIN
DEVELOP HIGH IN THE ATMOSPHERE.

460
00:27:36,039 --> 00:27:40,400
SO WE'RE NOT PARTICULARLY
CONCERNED WITH THE†-- WITH

461
00:27:40,400 --> 00:27:43,130
VIOLATING THE CUMULUS CLOUD
RULE.

462
00:27:43,130 --> 00:27:46,070
SO FOR THE 24-HOUR DELAY
FORECAST, WE'RE EXPECTING 20%

463
00:27:46,070 --> 00:27:51,580
PROBABILITY OF VIOLATION.
AND WINDS AGAIN WILL BE LIGHT,

464
00:27:51,580 --> 00:27:56,580
ONLY GUSTING IN THE MIDTEENS.
SO OVERALL I HOPE THAT YOU GET

465
00:27:56,580 --> 00:27:59,100
OUT TO SEE THE LAUNCH BECAUSE
WE'RE EXPECTING FAVORABLE

466
00:27:59,100 --> 00:28:03,150
WEATHER CONDITIONS.
ALSO, IT WILL BE ALMOST A FULL

467
00:28:03,150 --> 00:28:07,780
MOON AND SO IT SHOULD BE A GREAT
NIGHT TO VIEW THE LAUNCH.

468
00:28:07,780 --> 00:28:09,020
BACK TO YOU, GEORGE.
?

469
00:28:09,020 --> 00:28:11,429
THANK YOU, LAURA.
WE'RE GOING TO NOW TAKE

470
00:28:11,429 --> 00:28:13,080
QUESTIONS.
WE'LL START AT THE NEWS CENTER

471
00:28:13,080 --> 00:28:17,720
AND THEN GO TO THE PHONES.
AND SOCIAL MEDIA.

472
00:28:17,720 --> 00:28:21,840
YOU CAN ASK QUESTIONS GOING
TO†#ASKNASA.

473
00:28:21,840 --> 00:28:30,040
IN THE FRONT, BILL?
>> I'M BILL HOROWITZ WITH CBS

474
00:28:30,040 --> 00:28:36,309
NEWS.
WE WERE TALKING BEFORE OA-6

475
00:28:36,309 --> 00:28:39,810
PROGRESS AND SPACEX ALL WITHIN
LITERALLY THREE WEEKS, FOUR

476
00:28:39,810 --> 00:28:43,440
MISSIONS, WHICH IS UNPRECEDENTED
IT WOULD SEEM TO ME IN THE SPACE

477
00:28:43,440 --> 00:28:45,830
STATION RATHER.
WOULD YOU TALK ABOUT THAT, THE

478
00:28:45,830 --> 00:28:47,179
COMPLEXITY?
IT'S ALMOST LIKE WITH THESE

479
00:28:47,179 --> 00:28:50,300
THREE FLIGHTS IT'S ALMOST 12
TONS OF SUPPLIES GOING UP, WHICH

480
00:28:50,300 --> 00:28:53,409
IS LIKE A SHUTTLE CARGO, ALMOST,
WITH THOSE.

481
00:28:53,409 --> 00:28:56,419
SEITZ A LOT OF WORK FOR THE CREW
AND FOR YOU GUYS TO MAKE THAT

482
00:28:56,419 --> 00:28:57,440
HAPPEN.
>> IT IS.

483
00:28:57,440 --> 00:29:01,980
IT'S A LOT OF WORK.
BUT THE REALITY IS DOING

484
00:29:01,980 --> 00:29:05,919
DAY-TO-DAY OPERATIONS, WE'RE
CONSTANTLY WORKING AROUND CLINCH

485
00:29:05,919 --> 00:29:14,630
POINTS
RELATIVE TO THE VEHICLE

486
00:29:14,630 --> 00:29:16,650
OPERATIONS HERE.
YOU HAVE SOME THAT ARE GOING TO

487
00:29:16,650 --> 00:29:19,760
HAPPEN ON THE RUSSIAN SEGMENT,
SOME ON THE U K SOS SEGMENT.

488
00:29:19,760 --> 00:29:23,770
WE DIDN'T HAVE THAT MANY COMPLEX
TO WORK AROUND IN THIS SHORT

489
00:29:23,770 --> 00:29:26,900
TIME TO DEAL WITH ALL THESE
VEHICLES.

490
00:29:26,900 --> 00:29:30,220
WE HAD A COUPLE THINGS THAT WE
HAD TO PUT A LITTLE EXTRA EFFORT

491
00:29:30,220 --> 00:29:34,950
IN WITH OUR RUSSIAN COLLEAGUES,
BUT WE WORKED THROUGH THAT, AND

492
00:29:34,950 --> 00:29:39,210
NOTHING OUTSTANDING THAT I KNOW
OF AND BEING ABLE TO DO THAT.

493
00:29:39,210 --> 00:29:44,030
RELATIVE TO THE VOLUME OF CARGO,
THE REALITY IS THAT OVER A

494
00:29:44,030 --> 00:29:48,200
PERIOD OF TIME THERE WE DIDN'T
SEE A LOT OF VEHICLE TRAFFIC.

495
00:29:48,200 --> 00:29:54,350
AND SO GETTING OUR CONSUMEABLES
BACK UP TO THE POINT WHERE THEY

496
00:29:54,350 --> 00:29:56,270
NEED TO BE IS SOMETHING THAT
WE'VE BEEN PUTTING A LOT OF

497
00:29:56,270 --> 00:30:01,620
EFFORT IN.
AND, AGAIN, TO OUR PROVIDERS

498
00:30:01,620 --> 00:30:07,570
HERE, CERTAINLY OUR ORBITAL ATK,
THEY'VE DELIVERED IN A BIG WAY

499
00:30:07,570 --> 00:30:12,370
HERE OVER THE HOLIDAY SEASON,
AND CERTAINLY HERE AGAIN WITH

500
00:30:12,370 --> 00:30:16,020
ANOTHER MISSION.
SO WE'RE GOING TO BE IN GOOD

501
00:30:16,020 --> 00:30:18,470
SHAPE ON CONSUMEABLES AFTER THIS
MISSION.

502
00:30:18,470 --> 00:30:21,800
WE'RE PRETTY GOOD SHAPE NOW, BUT
THIS WILL EXTEND US OUT FURTHER

503
00:30:21,800 --> 00:30:25,990
TOWARDS THE END OF THE YEAR FOR
SOME OF THOSE CONSUMEABLES THAT

504
00:30:25,990 --> 00:30:28,450
WE'D LIKE TO KEEP OUR EYE ON.
THE MAJORITY OF THEM ARE ALREADY

505
00:30:28,450 --> 00:30:31,650
OUT PAST THE BEGINNING OF NEXT
YEAR.

506
00:30:31,650 --> 00:30:34,040
AGAIN, THIS JUST GETS US A
LITTLE FURTHER DOWN THE ROAD ON

507
00:30:34,040 --> 00:30:36,010
A LOT OF THOSE CRITICAL
CONSUMEABLES.

508
00:30:36,010 --> 00:30:40,309
AS FAR AS THE SPACEX LAUNCH,
AGAIN, BRINGING A LOT OF

509
00:30:40,309 --> 00:30:43,909
DIFFERENT TYPE OF CARGO ON THAT
FLIGHT AS WELL, AND SO I DON'T

510
00:30:43,909 --> 00:30:46,250
SEE ANYTHING RIGHT NOW THAT'S
GOING TO PRECLUDE US FROM BEING

511
00:30:46,250 --> 00:30:48,710
ABLE TO WORK THROUGH THOSE
MISSIONS SIMULTANEOUSLY.

512
00:30:48,710 --> 00:30:53,059
YOU'RE RIGHT, IT WILL BE A LOT
OF WORK AND WE'LL HAVE TO GET

513
00:30:53,059 --> 00:30:56,470
CREATIVE IN TERMS OF MAKE SHURG
THAT WE DON'T PUT THE WRONG

514
00:30:56,470 --> 00:30:58,880
THINGS IN THE WRONG VEHICLES
WHEN THEY GET READY TO LEAVE.

515
00:30:58,880 --> 00:31:02,321
THAT'S SOMETHING WE'RE WORKING
HARD AND GOING TO HAVE TO PUT

516
00:31:02,321 --> 00:31:08,070
SOME FOCUS ON BECAUSE WE ARE
GOING TO BE MOVING A LOT OF

517
00:31:08,070 --> 00:31:10,660
CARGO THROUGH HATCHES.
>> MARSHA.

518
00:31:10,660 --> 00:31:13,250
>> MARSHA DUNN, ASSOCIATED
PRESS.

519
00:31:13,250 --> 00:31:16,760
HOW LONG WILL THE SIGNATURE
REMAIN AT THE SPACE STATION AND

520
00:31:16,760 --> 00:31:19,550
HOW LONG WILL THE DRAGON REMAIN?
BECAUSE I'M THINKING MAYBE YOU

521
00:31:19,550 --> 00:31:23,580
WANT THAT ONE TO COME BACK FIRST
AND HOW BIG IS THE BACKLOG OF

522
00:31:23,580 --> 00:31:26,280
STUFF THAT NEEDS TO COME DOWN TO
SNERT.

523
00:31:26,280 --> 00:31:28,050
>> SURE.
RIGHT NOW WE'RE ANTICIPATING

524
00:31:28,050 --> 00:31:33,809
ABOUT A 55-DAY STAY FOR CYGNUS.
TYPICALLY, WHEN WE GET INTO ANY

525
00:31:33,809 --> 00:31:37,169
OF THESE CRS MISSIONS WE SORT OF
COMMIT TO THE LAUNCH DATE AND

526
00:31:37,169 --> 00:31:41,059
ABOUT WHAT THE LENGTH OF THE
MISSION WILL BE, THEN WE SORT OF

527
00:31:41,059 --> 00:31:44,040
GET INTO IT, AND WE HAVE TO GO A
DAY THIS WAY OR THAT WAY,

528
00:31:44,040 --> 00:31:47,570
USUALLY WE HAVE SOME FLEXIBILITY
AND THESE GUYS HAVE BEEN AWESOME

529
00:31:47,570 --> 00:31:50,890
AT WORKING WITH US TO MAKE SURE
THAT WE CAN GET THE RIGHT TARGET

530
00:31:50,890 --> 00:31:54,550
DATE BASED ON THINGS WE HAVE
GOING ON ON ORBIT.

531
00:31:54,550 --> 00:31:59,230
BUT WE'LL SHOOT FOR ABOUT 5 DAY
†-- 55 DAYS, AND AT LEAST OFF

532
00:31:59,230 --> 00:32:01,240
THE PAD, THAT'S WHAT I'LL TELL
YOU.

533
00:32:01,240 --> 00:32:07,970
AS FAR AS THE SPACEX MISSION,
WE'LL PROBABLY HOLD THAT TO THAT

534
00:32:07,970 --> 00:32:10,650
30-DAYTIME FRAME.
WE'VE GOT A FULL SLATE OF THINGS

535
00:32:10,650 --> 00:32:15,510
TO COME HOME IN TERMS OF WHAT I
WOULD CONSIDER TO BE CARGO THAT,

536
00:32:15,510 --> 00:32:18,179
YOU KNOW, NEEDS TO BE
REFURBISHED, ALSO THINGS THAT WE

537
00:32:18,179 --> 00:32:22,309
JUST NEED TO HAVE FOR FAILURE
INVESTIGATION AND SO FORTH.

538
00:32:22,309 --> 00:32:27,020
SO, YEAH, WE'LL HAVE A FULL
FLIGHT COMING HOME WITH SPACEX 8

539
00:32:27,020 --> 00:32:31,830
FOR SURE.
>> HOW SERIOUS IS THE BACKLOG UP

540
00:32:31,830 --> 00:32:36,720
THERE?
>> I WOULDN'T CALL IT SO SERIOUS

541
00:32:36,720 --> 00:32:38,400
THAT, YOU KNOW, WE WON'T BE ABLE
TO CLEAR IT OUT IN THE NEXT

542
00:32:38,400 --> 00:32:40,809
COUPLE FLIGHTS.
THE NEXT COUPLE RETURN FLIGHTS,

543
00:32:40,809 --> 00:32:44,860
WE'LL BE FINE.
YOU KNOW, A LOT OF TIMES WHEN WE

544
00:32:44,860 --> 00:32:49,490
DEAL WITH THE BIG THINGS, AND
ONE OF THE CYGNUS MODULES, OR

545
00:32:49,490 --> 00:32:53,529
EXCUSE ME IN THE DRAGON THERE'S
ONLY SO MANY PLACES YOU CAN PUT

546
00:32:53,529 --> 00:32:55,409
THE BIG THINGS.
LIGHT ON SPACEX-8, WE'LL BRING

547
00:32:55,409 --> 00:32:58,940
HOME AN EVA SUIT, AND THAT TAKE
UP A LOT OF SPACE.

548
00:32:58,940 --> 00:33:04,610
WE HAVE A COUPLE OTHER THINGS TO
KEEP OUR EYES ON TO GET DOWN TO

549
00:33:04,610 --> 00:33:07,679
THE GROUND, BUT WE'RE
PRIORITIZING THAT AND NOTHING

550
00:33:07,679 --> 00:33:10,799
THAT WE'RE LOSING A LOT OF SLEEP
OVER YET.

551
00:33:10,799 --> 00:33:16,500
>> INY MORE QUESTIONS HERE?
>> JARED HAYWORTH WITH WE REPORT

552
00:33:16,500 --> 00:33:19,470
SPACE.
A QUESTION FOR VERN THORPE.

553
00:33:19,470 --> 00:33:22,260
GIVEN THE LARGER MASS OF THE
PAYLOAD, CAN YOU TALK A LITTLE

554
00:33:22,260 --> 00:33:25,151
BIT ABOUT THE DECISION TO USE
THE 401 VARIANT OF THE ATLAS

555
00:33:25,151 --> 00:33:27,600
VERSUS ONE OR MORE SOL SNIDS.
>>†-- SOLIDS?

556
00:33:27,600 --> 00:33:30,029
>> YEAH.
IT CAME DOWN TO WHAT THE LEVEL

557
00:33:30,029 --> 00:33:33,340
OF PERFORMANCE IS REQUIRED TO
MAKE THE MISSION.

558
00:33:33,340 --> 00:33:36,390
BECAUSE WE'RE GOING INTO A LOW
EARTH ORBIT, WE CAN HANDLE THE

559
00:33:36,390 --> 00:33:39,300
MASS.
IF THIS WAS A GEOSYNCHRONIZED

560
00:33:39,300 --> 00:33:46,029
TRANSFER ORBIT, A COMMON MISSION
WE FLY, THIS WOULD HAVE REQUIRED

561
00:33:46,029 --> 00:33:48,110
A LOT OF SRVs TO BE ABLE TO DO
THAT.

562
00:33:48,110 --> 00:33:51,600
BUT IT'S A COMBINATION OF THE
HEAVIER SPACECRAFT PLUS THE

563
00:33:51,600 --> 00:33:54,480
LOW-EARTH ORBIT GIVES US A
PERFORMANCE LEVEL THAT THE 401

564
00:33:54,480 --> 00:33:59,659
CAN HANDLE AND WE HAVE A FAIR
BIT LEFT OVER ON THIS MISSION.

565
00:33:59,659 --> 00:34:03,460
>> JUST TO FOLLOW UP ON THAT,
ASSUMING YOU DID USE THE SOLIDS,

566
00:34:03,460 --> 00:34:08,049
WOULD THAT AFFECT YOUR 30-MINUTE
WINDOW POSSIBILITY OR SAY YOU

567
00:34:08,049 --> 00:34:12,220
DID HAVE A PAYLOAD LARGE ENOUGH
TO NEED THAT SOLID TO TO GO TO

568
00:34:12,220 --> 00:34:20,240
THE ISS, WOULD THAT AFFECT YOUR
30-MINUTE WINDOW TO LAUNCH?

569
00:34:20,240 --> 00:34:23,929
>> I WOULD HAVE TO DEFER TO OUR
TRAJECTORY FOLKS TO ANSWER THAT

570
00:34:23,929 --> 00:34:27,211
FOR SURE, BUT I THINK IF THIS
PAYLOAD WEIGHED ENOUGH THAT WE

571
00:34:27,211 --> 00:34:30,109
NEEDED ONE OR TWO SOLIDS, I
THINK WE WOULD STILL HAVE QUITE

572
00:34:30,109 --> 00:34:32,510
A BIT OF STEERING CAPABILITY.
IT'S REALLY THE VEHICLE'S

573
00:34:32,510 --> 00:34:37,250
STEERING CAPABILITY, THE ABILITY
TO BASICALLY HAVE IT EVERY FEW

574
00:34:37,250 --> 00:34:41,570
MINUTES GO TO A DIFFERENT FLIGHT
PROFILE THAT IT'S GOING TO FLY,

575
00:34:41,570 --> 00:34:45,159
WHICH ENABLES US TO DO THAT.
THERE'S NOT A DIRECT CORRELATION

576
00:34:45,159 --> 00:34:46,929
BETWEEN THAT AND THE NUMBER OF
SOLIDS ON THE VEHICLE, SO WE'D

577
00:34:46,929 --> 00:34:50,460
STILL HAVE SOME FLEXIBILITY.
>> ALL RIGHT.

578
00:34:50,460 --> 00:34:54,849
LET'S COME RIGHT HERE.
>> MARK GOC, HISTORICAL SPACE

579
00:34:54,849 --> 00:34:58,950
IMAGERY.
I WANTED TO SPEAK FIRST OFF

580
00:34:58,950 --> 00:35:03,099
ABOUT THE INCREDIBLE BEN IF I
WANTS THAT WE ALL KNOW IT WILL

581
00:35:03,099 --> 00:35:08,300
ISS HAS GIVEN MANKIND SINCE NASA
CREATED IT, THE BEGINNING OF ITS

582
00:35:08,300 --> 00:35:12,050
INCEPTION.
COULD YOU TELL ME, SINCE CASIS

583
00:35:12,050 --> 00:35:16,150
WAS CREATED, WHAT YEAR WAS IT
CREATED, AND THE VALUABLE

584
00:35:16,150 --> 00:35:21,260
EXPERIMENTS AND THEIR BENEFIT TO
MANKIND, WHAT IS THE VOLUME IN

585
00:35:21,260 --> 00:35:26,349
INCREASE NOT ONLY BY PRIVATE
INDIVIDUALS BUT IN GENERAL IN

586
00:35:26,349 --> 00:35:32,859
THE AMOUNT OF EXPERIMENTS THAT
HAVE BEEN CONDUCTED IN THE ISS?

587
00:35:32,859 --> 00:35:34,030
>> THANK YOU.
VERY GOOD QUESTION.

588
00:35:34,030 --> 00:35:39,540
SO THE FOCUS OF CASIS, TO ANSWER
YOUR FIRST QUESTION, CASIS WAS

589
00:35:39,540 --> 00:35:44,250
CREATED IN 2011.
IN 2005, THE U.S. OPERATING

590
00:35:44,250 --> 00:35:47,490
SEGMENT OF THE INTERNATIONAL
SPACE STATION WAS DECLARED A

591
00:35:47,490 --> 00:35:50,780
NATIONAL LAB.
AND CASIS CAME INTO CREATION AS

592
00:35:50,780 --> 00:35:53,800
A RESULT OF A COOPERATIVE
AGREEMENT ANNOUNCEMENT MADE BY

593
00:35:53,800 --> 00:35:57,240
NASA.
SO THE REASON FOR CREATING AN

594
00:35:57,240 --> 00:36:02,430
ENTITY OUTSIDE OF NASA TO MANAGE
THE INTERNATIONAL SPACE STATION

595
00:36:02,430 --> 00:36:06,750
WAS TO ENABLE OPPORTUNITIES
ABOVE AND BEYOND WHAT NASA WAS

596
00:36:06,750 --> 00:36:10,550
GOING TO BE ABLE TO FUND OR TO
ENGAGE IN PARTNERSHIPS WITH

597
00:36:10,550 --> 00:36:13,090
OTHER GOVERNMENT AGENCIES TO
INCREASE THE LEVEL OF FUNDING

598
00:36:13,090 --> 00:36:16,500
AND ACCESS TO THE INTERNATIONAL
SPACE STATION NATIONAL LAB AS A

599
00:36:16,500 --> 00:36:19,760
RESEARCH PLATFORM.
SO TO DATE I WOULDN'T LOOK AT IT

600
00:36:19,760 --> 00:36:24,710
A AN INCREASE IN VOLUME BUT I
WOULD LOOK AT IT MORE AS A

601
00:36:24,710 --> 00:36:28,580
RESEARCH SHIFT AND FOCUS SO THAT
NOW THE INTERNATIONAL SPACE

602
00:36:28,580 --> 00:36:32,530
STATION AS A NATIONAL LAB IS
OPEN FOR RESEARCH INVESTIGATIONS

603
00:36:32,530 --> 00:36:37,290
THAT RUN A BROAD ARRAY OF
RESEARCH INTERESTS THAT ARE NOT

604
00:36:37,290 --> 00:36:40,540
ONLY INTERESTS TO NASA'S
EXPLORATION GOALS BUT ON TOP OF

605
00:36:40,540 --> 00:36:43,920
THAT, ALSO ENABLE RESEARCH
THEMES THAT ARE SOLELY FOCUSED

606
00:36:43,920 --> 00:36:47,670
ON EARTH'S BENEFIT.
SO WHERE CASIS HAS SEEN A LOT OF

607
00:36:47,670 --> 00:36:50,490
ENGAGEMENT AND WHERE THE ISS
NATIONAL LAB I THINK HAS HAD THE

608
00:36:50,490 --> 00:36:53,650
GREATEST IMPACT TO DATE IS IN A
COUPLE OF AREAS.

609
00:36:53,650 --> 00:36:55,691
ONE OF THOSE IS IN PROTEIN
CRYSTAL GROWTH, WHICH IS A

610
00:36:55,691 --> 00:36:59,250
WELL-ESTABLISHED AREA OF
RESEARCH THAT NASA HAS

611
00:36:59,250 --> 00:37:01,620
SUPPORTED, AND THERE'S BEEN
COMMERCIAL INTEREST BEFORE, BUT

612
00:37:01,620 --> 00:37:05,530
THERE IS A GROWING MARKET OF
RESEARCH FOR DRUG DISCOVERY THAT

613
00:37:05,530 --> 00:37:09,040
CAN BENEFIT ASPECTS OF
MICROGRAVITY.

614
00:37:09,040 --> 00:37:13,010
ON THE UPCOMING SPACEX-8
MISSION, WE ALSO HAVE A RESEARCH

615
00:37:13,010 --> 00:37:17,520
INVESTIGATION BY ELI LILY.
TWO PREVIOUS MISSIONS USED A

616
00:37:17,520 --> 00:37:20,770
RODENT RESEARCH MODEL SPONSORED
BY NOVARTIS.

617
00:37:20,770 --> 00:37:23,339
SO THERE'S A CONSIDERABLE AMOUNT
OF INTEREST FROM PHARMACEUTICAL

618
00:37:23,339 --> 00:37:29,010
COMPANIES WHO SEEK TO EXPOSE AND
MODEL ORGANISMS SUCH AS RODENTS

619
00:37:29,010 --> 00:37:32,190
TO THAT SPACE ENVIRONMENT TO
UNDERSTAND THE EFFECTS OF

620
00:37:32,190 --> 00:37:37,240
MICROGRAVITY UPON BONE MUSCLE
DENSITY LOSS AND MUSCLE ATROPHY.

621
00:37:37,240 --> 00:37:39,950
WE'VE ALSO SEEN A GREAT DEAL OF
INTEREST FROM COMPANIES WHO ARE

622
00:37:39,950 --> 00:37:44,050
INTERESTED IN MATERIALS TESTING.
SO THEY'RE PRIMARILY INTERESTED

623
00:37:44,050 --> 00:37:48,260
IN EXPOSING MATERIALS TO THE
RESEARCH PLATFORM OUTSIDE OF THE

624
00:37:48,260 --> 00:37:51,849
INTERNATIONAL SPACE STATION THAT
IS ACCESSIBLE THROUGH THE AIR

625
00:37:51,849 --> 00:37:57,280
LOCK IN THE JAPANESE MODULE.
WE'RE ALSO SEEING A LOT OF

626
00:37:57,280 --> 00:38:00,180
INTEREST IN POTENTIAL
APPLICATIONS FOR COMMERCIAL

627
00:38:00,180 --> 00:38:04,380
MANUFACTURING GOING FORWARD.
SO THE IDEA IS NOT TO USE THE

628
00:38:04,380 --> 00:38:06,520
INTERNATIONAL SPACE STATION
NATIONAL LAB NOW AS A

629
00:38:06,520 --> 00:38:10,260
MANUFACTURING FACILITY PER SE,
BUT UNDERSTAND THE BASICS OF

630
00:38:10,260 --> 00:38:13,940
WHAT PARTICULAR ADVANTAGES MAY
ARISE FROM MANUFACTURING IN THAT

631
00:38:13,940 --> 00:38:17,580
ENVIRONMENT AND THEN BUILD THAT
SO THAT IN THE FUTURE THE

632
00:38:17,580 --> 00:38:20,550
INTERNATIONAL SPACE STATION OR
PERHAPS COMMERCIAL PLATFORMS

633
00:38:20,550 --> 00:38:25,500
THAT COME AFTER IT CAN SUPPORT A
MANUFACTURING CAPABILITY IN

634
00:38:25,500 --> 00:38:30,560
LOW-EARTH ORBIT.
>> OVER HERE.

635
00:38:30,560 --> 00:38:35,080
>> JOSH NARY WITH THE
ORBITAL.SPACE.

636
00:38:35,080 --> 00:38:43,880
IS THERE ANY TIME LINE TO
INCORPORATE IT INTO THE

637
00:38:43,880 --> 00:38:48,060
MECHANICAL UTILITY ROBOT?
AND COULD THERE BE USE ON THE

638
00:38:48,060 --> 00:38:51,349
EXTERIOR OF THE SPACE STATION TO
REDUCE THE NUMBER OF NEEDED

639
00:38:51,349 --> 00:38:55,130
UBAs?
>> I WOULD SAY AS FAR AS THE

640
00:38:55,130 --> 00:38:57,650
SECOND QUESTION, YES, THERE IS A
LOT OF POTENTIAL FOR USING IT

641
00:38:57,650 --> 00:39:00,890
INSIDE AND OUTSIDE THE SPACE
STATION AND TO HELP ANSWER THE

642
00:39:00,890 --> 00:39:04,089
FIRST ONE, I'M GOING TO CHEAT.
WE'VE GOT AARON, THE SCIENTIST,

643
00:39:04,089 --> 00:39:07,080
IN THE BACK, ON THE LEFT SIDE OF
THE ROOM OVER HERE.

644
00:39:07,080 --> 00:39:13,549
YOU COULD ASK HIM THAT AFTER THE
BRIEFING TODAY.

645
00:39:13,549 --> 00:39:20,760
>> I BELIEVE THIS GOES TO PETE.
PETE, I WAS INTERESTED ABOUT

646
00:39:20,760 --> 00:39:23,380
SAPPHIRE-1.
WE KNOW THAT CYGNUS IS GOING TO

647
00:39:23,380 --> 00:39:27,850
SPEND ABOUT EIGHT DAYS ON ORBIT
AFTER IT LEAFS THE ISS.

648
00:39:27,850 --> 00:39:32,640
THEN IT'S GOING TO BE SAPPHIRE
WILL BE IN ITS OWN PACKAGE.

649
00:39:32,640 --> 00:39:35,880
I KNOW THEY USUALLY PACK
DEPARTING SPACECRAFT AND

650
00:39:35,880 --> 00:39:39,550
DISPOSABLE SPACECRAFT WITH USED
EXPERIMENTS AND WASTE PRODUCTS

651
00:39:39,550 --> 00:39:42,700
TO BURN UP IN THE ATMOSPHERE.
ARE THEY STILL GOING TO DO THAT

652
00:39:42,700 --> 00:39:45,540
AND JUST KEEP THE TWO SEPARATE,
OR WILL THERE BE SOME KIND OF

653
00:39:45,540 --> 00:39:47,670
MINGLING OF THE TWO?
CAN YOU GIVE US AN IDEA OF THE

654
00:39:47,670 --> 00:39:49,660
LAYOUT OF WHAT THAT'S GOING TO
LOOK LIKE?

655
00:39:49,660 --> 00:39:50,660
>> SURE.
THANKS.

656
00:39:50,660 --> 00:39:52,610
IT'S A GOOD QUESTION.
WE TRY TO FILL UP ALL OF OUR

657
00:39:52,610 --> 00:39:55,410
DEPARTING VEHICLES AS MUCH AS WE
CAN TO TAKE AWAY AS MUCH WASTE

658
00:39:55,410 --> 00:39:59,950
FROMAWAY FROM THE STATION.
THE CYGNUS, IT'S SO BIG, IT

659
00:39:59,950 --> 00:40:02,109
OFFERS A LOT OF ROOM.
THE CREW WILL BE GIVEN

660
00:40:02,109 --> 00:40:05,930
INSTRUCTIONS ON HOW TO PACCAR GO
WITHIN THE CYGNUS.

661
00:40:05,930 --> 00:40:08,980
IN THAT BOX I SHOWED YOU THERE'S
AN AIR INLET, AN AIR OUTLET.

662
00:40:08,980 --> 00:40:12,490
IT DOES DEPEND ON AIRFLOW AND
FANS SO THE CREW WILL BE GIVEN

663
00:40:12,490 --> 00:40:18,190
INSTRUCTIONS ON HOW NOT TO
OBSTRUCT THAT AREA.

664
00:40:18,190 --> 00:40:24,940
>> JAMES?
>> THANK YOU.

665
00:40:24,940 --> 00:40:30,349
GEORGE JAMES.
FIRST FOR MR.†TODD.

666
00:40:30,349 --> 00:40:33,089
TALK ABOUT THE GREAT SHAPE THE
CONSUMABLES ARE IN.

667
00:40:33,089 --> 00:40:37,880
IS THERE A POINT WITH THIS
MISSION OR THE NEXT ONE WHERE

668
00:40:37,880 --> 00:40:41,320
YOU'LL DECLARE YOURSELF FULLY
RECOVERED FROM THE FAILURES THAT

669
00:40:41,320 --> 00:40:42,349
HAPPENED?
I KNOW THERE'S DIFFERENT

670
00:40:42,349 --> 00:40:45,711
MEASUREMENTS THERE BUT WITH FOOD
OR WHATEVER KIND OF THE KEY ONE

671
00:40:45,711 --> 00:40:48,740
IS THERE, OR ARE HAVE YOU
ALREADY HIT THAT?

672
00:40:48,740 --> 00:40:51,300
ARE WE WHERE WE NEED TO BE?
>> SURE.

673
00:40:51,300 --> 00:40:55,260
WE TRACK THE CONSUMEABLES VERY
CLOSELY LEADING UP TO ALL THE

674
00:40:55,260 --> 00:40:59,020
UPCOMING MISSIONS TO TRY NOT TO
PUT OURSELVES IN POSITION WHERE

675
00:40:59,020 --> 00:41:03,320
THAT UPCOMING MISSION IS GOING
TO MAKE US OR BREAK US OR CAUSE

676
00:41:03,320 --> 00:41:07,580
US TO HAVE TO THINK DIFFERENTLY
ABOUT HOW WE CONSUME ON ORBIT.

677
00:41:07,580 --> 00:41:12,400
IN THOSE CRITICAL ONES WE KEEP
TRACK OF, WE'RE GOOD OUT

678
00:41:12,400 --> 00:41:16,720
THROUGH, YOU KNOW, THE DECEMBER
TIME FRAME ON THE ONE THAT

679
00:41:16,720 --> 00:41:21,230
BECOMES THE NEAREST PINCH POINT
FOR US.

680
00:41:21,230 --> 00:41:22,990
AND THEN MOST OF THEM ARE IN THE
NEXT YEAR.

681
00:41:22,990 --> 00:41:25,650
THIS JUST GIVES US A LITTLE
FURTHER DOWN THE ROAD.

682
00:41:25,650 --> 00:41:28,050
WE'RE LAUNCHING A LOT OF
DIFFERENT THINGS ON THIS

683
00:41:28,050 --> 00:41:30,300
PARTICULAR FLIGHT, A LOT OF
SPARES AND SO FORTH.

684
00:41:30,300 --> 00:41:33,359
WHEN YOU LOOK AT CONSUMEABLES,
IT'S USUALLY ADDING A MONTH OR

685
00:41:33,359 --> 00:41:38,359
TWO ONTO WHAT WE ALREADY HAVE.
CRS-4, AGAIN, JUST LEFT A MONTH

686
00:41:38,359 --> 00:41:42,030
AGO AND BROUGHT UP AN INCREDIBLE
AMOUNT OF CARGO, AND SO WE'RE IN

687
00:41:42,030 --> 00:41:47,340
REALLY GOOD SHAPE NOW.
SO, YOU KNOW, IF BAD THINGS WERE

688
00:41:47,340 --> 00:41:51,050
TO HAPPEN OR WHATEVER, WE GOT A
GOOD FULL FLIGHT PROGRAM BETWEEN

689
00:41:51,050 --> 00:41:54,130
NOW AND THE END OF THE YEAR,
MULTIPLE VEHICLES COMING TO

690
00:41:54,130 --> 00:41:58,329
STATION, AND OUR CONSUMEABLES
SUPPORT OUT THROUGH THE REST OF

691
00:41:58,329 --> 00:42:01,780
THE YEAR.
SO I FEEL VERY, VERY GOOD ABOUT

692
00:42:01,780 --> 00:42:04,869
THE CRITICAL CONSUMEABLES.
THE RESEARCH IS SOMETHING AGAIN,

693
00:42:04,869 --> 00:42:07,972
LIKE I SAID EARLIER, A LITTLE
BIT OF THE LIFEBLOOD AND

694
00:42:07,972 --> 00:42:10,970
CONTINUING TO HAVE THE RESEARCH
REFLESHED OVER AND OVER THROUGH

695
00:42:10,970 --> 00:42:13,839
THESE DIFFERENT FLIGHTS IS VERY
IMPORTANT TO US.

696
00:42:13,839 --> 00:42:17,760
AND SO YEAH, WE RELY LIVE ON
THOSE FLIGHTS BUT THOSE CRITICAL

697
00:42:17,760 --> 00:42:21,530
CONSUMEABLES THAT KEEP THE CREWS
SAFE, WE'RE IN GOOD SHAPE TILL

698
00:42:21,530 --> 00:42:25,070
THE END OF THE YEAR.
>> THANKS AGAIN.

699
00:42:25,070 --> 00:42:27,920
EXCUSE ME.
MR.†CULBERTSON, NICE TO SEE THE

700
00:42:27,920 --> 00:42:32,810
CANAVERAL LIGHTHOUSE REMITTED ON
YOUR MISSION PATCH.

701
00:42:32,810 --> 00:42:37,660
IS THIS FAREWELL FOR CYGNUS FROM
FLORIDA, OR WHAT DO YOU THINK IS

702
00:42:37,660 --> 00:42:42,130
THE LIKELIHOOD OF COMING BACK
DOWN HERE FOR LAUNCH PERHAPS

703
00:42:42,130 --> 00:42:44,980
UNDER CRS-2?
>> WELL, THIS IS THE LAST FLIGHT

704
00:42:44,980 --> 00:42:47,160
FOR THIS YEAR FOR THIS
PARTICULAR PROGRAM.

705
00:42:47,160 --> 00:42:51,600
WE HAVE RELATIONSHIPS ON OTHER
PROGRAMS WITH ULA, AND SO WE'LL

706
00:42:51,600 --> 00:42:55,780
BE BACK IN OTHER WAYS IN THE
FUTURE.

707
00:42:55,780 --> 00:42:58,700
HOWEVER, IT'S REALLY UP TO NASA
IN TERMS OF WHAT TYPE OF

708
00:42:58,700 --> 00:43:02,430
MISSIONS THEY ORDER IN THE
FUTURE UNDER THE NEW CONTRACT.

709
00:43:02,430 --> 00:43:05,730
WE'VE OFFERED BOTH ATLAS AND
OTHER MISSIONS AND IT DEPENDS ON

710
00:43:05,730 --> 00:43:11,410
WHAT THEY NEED AND WHAT TYPE OF
A DELIVERY THEY'D LIKE TO HAVE.

711
00:43:11,410 --> 00:43:14,750
SO WE'RE PREPARED TO DO BOTH.
>> HELLO.

712
00:43:14,750 --> 00:43:18,740
KYLE BROWN WITH U.S. LAUNCH
REPORT.

713
00:43:18,740 --> 00:43:22,141
THE SIERRA-7 WAS CARRYING UP AN
INTERNATIONAL DOCKING ADAPTER

714
00:43:22,141 --> 00:43:24,619
AND WITH MULTIPLE CAPSULES GOING
TO THE INTERNATIONAL SPACE

715
00:43:24,619 --> 00:43:28,611
STATION AT THE SAME TIME, WHAT
IS THE DOCKING ADAPTER

716
00:43:28,611 --> 00:43:32,150
PROCEDURE?
REPLACE THE DOCKING ADAPTER OR

717
00:43:32,150 --> 00:43:38,619
GOING TO DIFFERENT COMPANIES?
>> THE INTERNATIONAL DOCKING

718
00:43:38,619 --> 00:43:42,250
ADAPTER REALLY SUPPORTS WHENEVER
WE START FLYING CREWS TO THE

719
00:43:42,250 --> 00:43:44,970
INTERNATIONAL SPACE STATION ON
THOSE VEHICLES, WE'RE GOING TO

720
00:43:44,970 --> 00:43:49,119
FLY THAT ON THE SPACEX-9
MISSION.

721
00:43:49,119 --> 00:43:53,560
THAT PARTICULAR ADAPTER IS GOING
TO BE PUT ON WHAT I'D LIKE TO

722
00:43:53,560 --> 00:43:58,910
CALL THE FRONT END OF THE
STATION, WHICH IS OFF OF PMA-2.

723
00:43:58,910 --> 00:44:00,900
SO THAT'S WHERE THAT ONE'S GOING
TO GO.

724
00:44:00,900 --> 00:44:03,920
IT'S NOT A PORT TODAY THAT WE
USE FOR ANY OF THESE CARGO

725
00:44:03,920 --> 00:44:06,250
VEHICLES.
I'M NOT SURE IF THAT ANSWER YOUR

726
00:44:06,250 --> 00:44:08,010
QUESTION.
KIND OF WHERE WE'RE AT.

727
00:44:08,010 --> 00:44:11,760
TODAY IT'S AN OPEN AREA STATION.
WE HAVEN'T ACCESSED IT IN A

728
00:44:11,760 --> 00:44:16,329
WHILE, BUT THAT'S WHERE IT WILL
BE GOING WHEN IT COMES UP HERE

729
00:44:16,329 --> 00:44:18,540
THIS SUMMER.
>> RIGHT HERE TO KEN KREMER.

730
00:44:18,540 --> 00:44:21,750
>> HI.
KEN KREMER, UNIVERSE TODAY.

731
00:44:21,750 --> 00:44:25,930
MY QUESTION IS FOR PETE AND
MAYBE MIKE.

732
00:44:25,930 --> 00:44:29,079
YOU MENTIONED THE SCIENCES ABOUT
A QUARTER OF THE CARGO.

733
00:44:29,079 --> 00:44:33,730
I WONDER IF YOU COULD PUT THIS
IN CONTEXT WITH THE PREVIOUS

734
00:44:33,730 --> 00:44:35,400
MISSIONS OF WHAT MIGHT BE COMING
UP.

735
00:44:35,400 --> 00:44:38,450
IS THAT TYPICAL?
IS THERE A CHANCE TO PUT EVEN

736
00:44:38,450 --> 00:44:49,150
MORE SCIENCE ON HERE?
AND FOR POST AT THE ON DOCK, ARE

737
00:44:49,150 --> 00:44:54,700
YOU LOOKING AT MORE SCIENCE ON
THE CYGNUS AFTER UNDOCKS SINCE

738
00:44:54,700 --> 00:44:56,960
YOU HAVE A WHOLE HUGE VEHICLE
AVAILABLE?

739
00:44:56,960 --> 00:45:00,390
THANKS.
>> ISLE TAKE THE FIRST PART OF

740
00:45:00,390 --> 00:45:02,890
THAT.
THIS AMOUNT OF CARGO MAY BE A

741
00:45:02,890 --> 00:45:06,110
LITTLE BIGGER FOR US, BUT I
WOULD SAY IT'S IN FAMILY FOR THE

742
00:45:06,110 --> 00:45:09,410
AMOUNT OF CARGO THAT WE WANT TO
FLY ON A CYGNUS.

743
00:45:09,410 --> 00:45:12,670
IT'S BEEN A BIG FOCUS TO THE ISS
PROGRAM AND OUR CONTRACTS TO BE

744
00:45:12,670 --> 00:45:15,500
ABLE TO FLY AS MUCH AS WE CAN AS
SOON AS WE CAN HAVE THE PAYLOAD

745
00:45:15,500 --> 00:45:18,430
DEVELOPERS GET IT READY.
WE'RE WORKING REALLY HARD ON

746
00:45:18,430 --> 00:45:21,240
SHORTENING THAT TIME LINE FROM
WHEN SOMEBODY DECIDES, HEY, I'D

747
00:45:21,240 --> 00:45:24,300
LIKE TO THINK ABOUT FLYING
SOMETHING TO WHEN WE CAN GET IT

748
00:45:24,300 --> 00:45:27,890
IN A VEHICLE AND ON BOARD ISS.
SO THAT PART'S GOING REALLY WELL

749
00:45:27,890 --> 00:45:34,680
FOR US.
WANT TO TAKE THE NEXT PART?

750
00:45:34,680 --> 00:45:37,640
[†INAUDIBLE QUESTION†]
I THINK YES, WE COULD.

751
00:45:37,640 --> 00:45:41,570
I THINK THE CAPABILITY IS THERE
WITH THE CARGO VEHICLES.

752
00:45:41,570 --> 00:45:44,990
WE REALLY ARE TRYING TO DRUM UP
THE BUSINESS FOR THE STATION AND

753
00:45:44,990 --> 00:45:48,210
HAVE ANYBODY WHO'S GOT GOOD
IDEAS TO COME FORWARD WITH, LET

754
00:45:48,210 --> 00:45:52,349
US HELP YOU GET TO STATION.
>> PICKING UP ON THAT POINT, THE

755
00:45:52,349 --> 00:45:54,849
BUSINESS IS THERE.
I THINK THERE'S CERTAINLY

756
00:45:54,849 --> 00:45:57,410
GROWING INTEREST IN THE USE OF
THE INTERNATIONAL SPACE STATION

757
00:45:57,410 --> 00:46:00,780
NATIONAL LAB AS AN INNOVATION
PLATFORM.

758
00:46:00,780 --> 00:46:03,680
THE ONLY LIMITATION, THE PRIMARY
LIMITATION THAT WE HAVE RIGHT

759
00:46:03,680 --> 00:46:08,730
NOW IS CREW TIME.
THAT'S A MORE PRESSING CONCERN.

760
00:46:08,730 --> 00:46:13,970
ON THE LIFE SCIENCES SIDE, DOWN
MASS CAN BE A BIT OF A CONCERN.

761
00:46:13,970 --> 00:46:18,420
AS I MENTIONED, THERE'S A LOT OF
INTEREST IN THE MODEL FROM

762
00:46:18,420 --> 00:46:21,590
PHARMACEUTICAL COMPANIES.
THAT'S A RELATIVELY LONG LEAD

763
00:46:21,590 --> 00:46:23,960
ITEM.
IT CONSUMES A CONSIDERABLE

764
00:46:23,960 --> 00:46:26,690
AMOUNT OF TIME AND OTHER
RESOURCES TO DO RESEARCH

765
00:46:26,690 --> 00:46:31,060
EXPERIMENTS UP THERE.
BUT WHAT WE'RE SEEING IS A

766
00:46:31,060 --> 00:46:35,250
STEADY INCREASE IN INTEREST FOR
THAT.

767
00:46:35,250 --> 00:46:37,849
AND I DON'T THINK WE'RE GOING TO
HAVE ANY ISSUES AT ALL

768
00:46:37,849 --> 00:46:41,820
CONTINUING TO GROW THAT.
THERE CONTINUES TO BE A LOT OF

769
00:46:41,820 --> 00:46:44,339
INTEREST IN THE INTERNATIONAL
SPACE STATION NATIONAL LAB

770
00:46:44,339 --> 00:46:49,330
BECAUSE OF ITS UNIQUE POSITION
AS AN ORBITING NATIONAL

771
00:46:49,330 --> 00:46:52,050
LABORATORY.
AND THE ABILITY TO UTILIZE THAT

772
00:46:52,050 --> 00:46:57,180
PLATFORM AS AN OBSERVATION POST
FOR EARTH OBSERVATION AND THE

773
00:46:57,180 --> 00:47:02,220
ABILITY TO TEST NEW SENSORS, NEW
CONFIGURATIONS WITH CREW ACCESS

774
00:47:02,220 --> 00:47:05,060
SO THAT YOU CAN ACTUALLY RECOVER
THE SENSORS AT THE END AND NOT

775
00:47:05,060 --> 00:47:07,910
ONLY THE DATA, THAT'S A
SIGNIFICANT ADVANTAGE TO THAT

776
00:47:07,910 --> 00:47:10,359
ENVIRONMENT.
AND THEN HAVING THE ABILITY TO

777
00:47:10,359 --> 00:47:14,710
UTILIZE IT BOTH†-- FROM BOTH AN
INTERNAL AND EXTERNAL PER PECK

778
00:47:14,710 --> 00:47:18,110
STIF EYE OPENING TO A LOT OF
COMMERCIAL COMPANIES IN THE

779
00:47:18,110 --> 00:47:22,360
UNITED STATES THAT HADN'T
CONSIDERED SPACE AS A RESEARCH

780
00:47:22,360 --> 00:47:26,500
ENVIRONMENT FOR THEM TO TEST
LONGEVITY OR FUNCTIONALITY OF

781
00:47:26,500 --> 00:47:30,040
COMPONENTS OR SYSTEMS THAT THEY
MAKE IN THAT ENVIRONMENT.

782
00:47:30,040 --> 00:47:34,969
>> LET'S TAKE ONE MORE QUESTION
HERE, THEN GO TO THE PHONES.

783
00:47:34,969 --> 00:47:37,900
>> MARK GOC, HISTORICAL SPACE
IMAGERY.

784
00:47:37,900 --> 00:47:44,829
ANOTHER THOUGHT ON DOCKING.
AS WE LOOK FORWARD TO STARLINER

785
00:47:44,829 --> 00:47:49,599
AND WE LOOK FORWARD TO DREAM
CHASER, WE LOOK FORWARD TO

786
00:47:49,599 --> 00:47:56,210
MANNED SPACE FLIGHT, IS THE
CURRENT DOCKING FACILITIES AND

787
00:47:56,210 --> 00:48:01,490
HARDWARE THAT ARE IN PLACE IN
THE SPACE STATION GOING TO WORK

788
00:48:01,490 --> 00:48:05,490
WITH THOSE TYPE OF CRAFT OR WILL
THERE BE A DIFFERENCE MADE AND

789
00:48:05,490 --> 00:48:09,750
EVEN FURTHER IN THIS QUESTION,
WHEN THEY TALK ABOUT REFUELING,

790
00:48:09,750 --> 00:48:14,140
WILL THIS BE LOOKED AT SOONER
THAN LATER?

791
00:48:14,140 --> 00:48:18,490
COULD YOU TELL ME THAT, PLEASE?
>> WELL, RELATIVE TO THE DOCKING

792
00:48:18,490 --> 00:48:21,240
FOR THE VEHICLES, ABSOLUTELY.
THE DOCKING ADAPTERS THAT WE'RE

793
00:48:21,240 --> 00:48:28,700
PUTTING ON WITH IDA-2 AND 3,
THOSE WERE DESIGNED BASICALLY

794
00:48:28,700 --> 00:48:31,370
WITH THE THOUGHT IN MIND OF THE
VEHICLES THAT WILL BE COMING.

795
00:48:31,370 --> 00:48:36,229
IN FACT, WE PARTNERED, BUILT AN
ICD-TYPE DOCUMENT SO, IT IS

796
00:48:36,229 --> 00:48:38,579
CLEAR WHAT THE DOCKING STANDARD
IS GOING TO BE.

797
00:48:38,579 --> 00:48:41,599
NOT JUST†-- I MEAN ACROSS THE
PARTNERSHIP.

798
00:48:41,599 --> 00:48:45,660
SO THAT'S BEEN†-- THAT'S
SOMETHING FROM VERY EARLY ON

799
00:48:45,660 --> 00:48:47,970
THAT WE NEEDED TO GET EVERYBODY
ON THE SAME PAGE.

800
00:48:47,970 --> 00:48:50,750
WE DON'T WANT TO BUILD SOMETHING
THAT PEOPLE CAN'T DOCK TO, AND

801
00:48:50,750 --> 00:48:54,400
SO, YEAH, THERE WAS A LOT OF
EFFORT EARLY ON TO MAKE THAT

802
00:48:54,400 --> 00:48:57,450
BEFORE WE EVER STARTED BENDING
METAL.

803
00:48:57,450 --> 00:49:01,609
SO WE FEEL VERY CONFIDENT THAT
MOVING FORWARD AS A PROGRAM THAT

804
00:49:01,609 --> 00:49:05,080
WE'LL BE IN GOOD SHAPE AND READY
TO SUPPORT THE VISITING VEHICLES

805
00:49:05,080 --> 00:49:07,190
THAT ARE GOING TO BE COMING TO
SPACE STATION.

806
00:49:07,190 --> 00:49:11,040
>> ALL RIGHT.
LET'S TAKE ANY QUESTIONS THAT WE

807
00:49:11,040 --> 00:49:14,930
HAVE ON THE PHONE AND REMEMBER
TO HIT STAR 1 BEFORE YOU ASK

808
00:49:14,930 --> 00:49:17,349
YOUR QUESTION.
ARE YOU STILL ON THE LINE?

809
00:49:17,349 --> 00:49:18,380
>> WE HAVE IRENE.
>> I AM.

810
00:49:18,380 --> 00:49:20,900
I'M RIGHT HERE.
THANK YOU.

811
00:49:20,900 --> 00:49:24,930
CAN YOU HEAR ME?
>> YOU'RE LOUD AND CLEAR.

812
00:49:24,930 --> 00:49:26,950
>> OKAY.
THANKS VERY MUCH.

813
00:49:26,950 --> 00:49:38,940
I HAVE TWO QUESTIONS.
THE FIRST IS FOR MR.†TODD.

814
00:49:38,940 --> 00:49:51,560
COULD YOU TELL US, PLEA, IF
THERE IS ANYTHING FLYING UP ON

815
00:49:51,560 --> 00:50:00,110
THE CYGNUS RELEVANT TO TISSUE
WITH THE U.S. SPACE SUIT?

816
00:50:00,110 --> 00:50:02,170
AND IN GENERAL, WHAT'S THE
STATUS OF THAT ISSUE?

817
00:50:02,170 --> 00:50:03,720
AND THEN FOR FRANK, IF YOU'RE
ABLE TO GIVE US A STATUS ON THE

818
00:50:03,720 --> 00:50:04,990
REENGINED AND WHAT'S KIND OF
COMING UP BETWEEN NOW AND WHEN

819
00:50:04,990 --> 00:50:05,990
THAT ROCKET WILL BE READY TO
FLY.

820
00:50:05,990 --> 00:50:06,990
THANK YOU.
>> OKAY, IRENE.

821
00:50:06,990 --> 00:50:07,990
RELATIVE TO THE EBA FLIGHT,
NOTHING THAT'S GOING TO HELP US

822
00:50:07,990 --> 00:50:12,200
MAKE ANY FORWARD PROGRESS
RELATIVE TO WHAT HAPPENED ON THE

823
00:50:12,200 --> 00:50:16,329
EBA BACK IN JANUARY.
A LOT OF SPARE PARTS ARE GOING

824
00:50:16,329 --> 00:50:17,480
UP.
WE'RE GOING TO FLY ANOTHER FAN

825
00:50:17,480 --> 00:50:22,010
PUMP SEPARATOR, SOME LAG
ASSEMBLY, SOME OTHER THINGS,

826
00:50:22,010 --> 00:50:25,250
ABOUT 400 POUNDS WORTH OF STUFF
GOING UP.

827
00:50:25,250 --> 00:50:30,290
NOTHING THAT AGAIN WOULD BE OF
SIGNIFICANT INTEREST RELATIVE TO

828
00:50:30,290 --> 00:50:32,869
THE ISSUES WE'VE HAD WITH THE
SUIT.

829
00:50:32,869 --> 00:50:38,970
AS FAR AS THE SUIT ITSELF GOES,
THE SUIT WE REFERRED TO AS 3011,

830
00:50:38,970 --> 00:50:44,950
WE'LL BRING THAT HOME ON THE
DRAGON HERE LATER THIS SPRING,

831
00:50:44,950 --> 00:50:48,810
AND I THINK THAT WILL BE ABLE TO
GET A LITTLE DEEPER INTO YOUR

832
00:50:48,810 --> 00:50:52,290
FALL TREAT DISCUSSION AND RUN
SOME TESTS WITH THAT SUIT AND

833
00:50:52,290 --> 00:50:56,599
SEE IF WE CAN'T GET A LITTLE
MORE CLARITY WITH EXACTLY WHAT'S

834
00:50:56,599 --> 00:51:02,069
GOING ON.
WITH THE RETURN OF THE 44-S CREW

835
00:51:02,069 --> 00:51:08,220
LAST WEEK, A COUPLE WEEKS AGO
NOW, WE DID GET A LITTLE BIT OF

836
00:51:08,220 --> 00:51:09,880
STUFF BACK.
WE GOT SOME WATER SAMPLES.

837
00:51:09,880 --> 00:51:14,550
WE GOT THE HELMET ABSORPTION PAD
THAT TIM WAS WEARING IN THE

838
00:51:14,550 --> 00:51:19,250
HELMET TO GIVE US AN OPPORTUNITY
TO KIND OF TAKE A LOOK AT THE

839
00:51:19,250 --> 00:51:21,660
AMOUNT OF WATER THAT HE HAD
THERE.

840
00:51:21,660 --> 00:51:26,230
WE'RE STARTING TO DISSECT THESE
PIECES OF DATA WE'RE GETTING

841
00:51:26,230 --> 00:51:29,319
FROM ORBIT.
BUT THE REALITY IS UNTIL WE GET

842
00:51:29,319 --> 00:51:32,859
THAT SUIT ON THE GROUND WE'RE
GOING TO HAVE SOME LEGS OPEN ON

843
00:51:32,859 --> 00:51:36,810
THE FALL TREE THAT WILL TAKE A
LITTLE BIT OF TIME.

844
00:51:36,810 --> 00:51:41,520
WITH ALL THAT SAY, IF WE HAD TO
GO OUT THE HATCH THIS WEEK OR

845
00:51:41,520 --> 00:51:45,710
NEXT WEEK I FEEL CONFIDENT THAT
WE COULD DO THAT.

846
00:51:45,710 --> 00:51:52,940
OBVIOUSLY OUR INTENTION WOULD
NOT BE TO BE USING 3011 BUT WHAT

847
00:51:52,940 --> 00:51:56,220
WE DID AFTER THE JANUARY
INCIDENT WAS WE SAT DOWN AND WE

848
00:51:56,220 --> 00:52:00,950
LOOKED AT ALL OF THE MITIGATIONS
THAT WE HAD IN PLACE PRIOR TO

849
00:52:00,950 --> 00:52:03,109
THIS EVENT AND SAID DID THEY
WORK?

850
00:52:03,109 --> 00:52:05,369
DID WE FEEL LIKE THAT THE CREW
WAS SAFE?

851
00:52:05,369 --> 00:52:09,180
DID WE HAVE ALL THE OPERATIONAL
SCENARIOS THOUGHT THROUGH?

852
00:52:09,180 --> 00:52:12,020
AND THE REALITY WAS IS, YES, WE
DID.

853
00:52:12,020 --> 00:52:15,569
AND THERE WAS AN INTEGRATED
CROSS SECTION OF THE COMMUNITY

854
00:52:15,569 --> 00:52:19,650
WITHIN THE PROGRAM AND A LITTLE
BIT OUTSIDE AS WELL, AND THERE

855
00:52:19,650 --> 00:52:22,560
WASN'T ANYTHING WE SAID WE
NEEDED TO GO DO DIFFERENT.

856
00:52:22,560 --> 00:52:25,240
FROM A CONTINGENCY PERSPECTIVE,
IF THERE WAS SOMETHING WERE TO

857
00:52:25,240 --> 00:52:30,200
GO WRONG TOMORROW, I FEEL
CONFIDENT WE COULD THROUGH OUR

858
00:52:30,200 --> 00:52:35,869
NORMAL PROCESSES GO EXECUTE A
CONTINGENCY AND NOT HAVE ANY

859
00:52:35,869 --> 00:52:39,839
CONCERNS THAT WE COULDN'T TAKE
CARE OF THE CREW.

860
00:52:39,839 --> 00:52:44,660
CERTAINLY GIVE THAN FEEDBACK ON
THE GROUND WILL HELP GET US MORE

861
00:52:44,660 --> 00:52:49,010
DATA AND WE'RE PREPARING LIKE
WE'RE GOING TO BE READY TO DO

862
00:52:49,010 --> 00:52:55,600
THESE UBAs IN A COUPLE MOS WHEN
WE GET THE IDA ON BOARD.

863
00:52:55,600 --> 00:52:58,650
WE'RE LEANING FORWARD AND
LEARNING EVERYTHING WE CAN ABOUT

864
00:52:58,650 --> 00:53:05,040
THE SUITS EVERY DAY, AND WE'LL
KEEP WORKING TO GET READY TO GO

865
00:53:05,040 --> 00:53:10,869
TO THESE EBAs THIS SUMMER.
>> IRENE, AS FAR AS THE RETURN

866
00:53:10,869 --> 00:53:14,300
FLIGHT, IT'S BASICALLY A
THREE-PHASE OR A THREE-STEP

867
00:53:14,300 --> 00:53:17,450
PROCESS, FIRST PHASE OF COURSE
WAS THE GREAT WORK THE

868
00:53:17,450 --> 00:53:22,410
COMMONWEALTH OF VIRGINIA AND
THROUGH THEIR MARS ORGANIZATION

869
00:53:22,410 --> 00:53:25,819
IN REFURBISHING THE PAD AND
GETTING IT READY FOR OPERATIONS,

870
00:53:25,819 --> 00:53:28,520
THAT'S BEEN COMPLETED.
THEN WE HAD TO TEST THAT SYSTEM

871
00:53:28,520 --> 00:53:32,470
JOINTLY BETWEEN OURSELVES, NASA,
AND MARS TO MAKE SURE EVERYTHING

872
00:53:32,470 --> 00:53:35,310
WAS WORKING CORRECTLY AS IT
SHOULD BE IN PREPARATION FOR

873
00:53:35,310 --> 00:53:38,119
LAUNCH OPERATIONS.
THE THIRD PHASE WILL BE COMING

874
00:53:38,119 --> 00:53:42,030
UP LATER THIS SPRING, WHICH WILL
BE A HOT FIRE OR TEST FIRING OF

875
00:53:42,030 --> 00:53:46,609
THE NEWLY REENGINED VEHICLE.
WE HAVE ALL THE HARDWARE

876
00:53:46,609 --> 00:53:50,569
NECESSARY FOR THAT HOT FIRE AS
WELL AS FOR THE FIRST LAUNCH OF

877
00:53:50,569 --> 00:53:53,000
ANTARIS, WHICH WILL COME
SOMETIME THIS SUMMER.

878
00:53:53,000 --> 00:53:56,000
THE EXACT DATE WILL DEPEND ON
NASA'S NEED, AND THEY'LL TELL

879
00:53:56,000 --> 00:53:59,620
US, WE HOPE SOON, WHEN THEY
WOULD LIKE TO ACTUALLY LAUNCH

880
00:53:59,620 --> 00:54:03,369
THAT VEHICLE.
WE'LL BE READY IN EARLY SUMMER

881
00:54:03,369 --> 00:54:06,800
FOR LAUNCH ANYTIME THAT THEY
NEED IT.

882
00:54:06,800 --> 00:54:08,900
AND SO THINGS HAVE GONE VERY
WELL THERE.

883
00:54:08,900 --> 00:54:12,270
I REALLY APPRECIATE THE HARD
WORK THE TEAM HAS PUT IT IN TO

884
00:54:12,270 --> 00:54:15,550
RETURNING US TO FLIGHT AND WE
LOOK FORWARD TO FLYING OUT OF

885
00:54:15,550 --> 00:54:20,359
THERE AND HAVING A TWO-LAUNCH
SITE CAPABILITY FOR THE CYGNUS,

886
00:54:20,359 --> 00:54:23,800
WHICH OF COURSE THE TEAM HAS
CONTINUED TO OPERATE VERY WELL

887
00:54:23,800 --> 00:54:28,590
STARTING WITH OA-4 AND NOW INTO
OA-6, AND THAT MISSION, BY THE

888
00:54:28,590 --> 00:54:32,550
WAY, IS OA-5 COMING OUT OF CAL
LOPS.

889
00:54:32,550 --> 00:54:34,499
DON'T ASK.
>> THANKS.

890
00:54:34,499 --> 00:54:36,700
>> ANY FURTHER QUESTIONS ON THE
PHONE?

891
00:54:36,700 --> 00:54:40,020
ALL RIGHT.
HOW ABOUT ON SOCIAL MEDIA?

892
00:54:40,020 --> 00:54:44,430
ALL RIGHT.
NO QUESTIONS ON SOCIAL MEDIA.

893
00:54:44,430 --> 00:54:46,530
LET'S TAKE A COUPLE MORE
QUESTIONS BACK HERE AND WE'LL

894
00:54:46,530 --> 00:54:49,039
WRAP UP.
KEN?

895
00:54:49,039 --> 00:54:55,440
>> KEN KREMER.
YEAH, WE JUST HAD SCOT KELLY

896
00:54:55,440 --> 00:54:56,760
COME BACK FROM HIS ONE-YEAR
MISSION.

897
00:54:56,760 --> 00:55:00,190
I WONDER IF YOU COULD TALK A
LITTLE BIT ABOUT THAT AND HAVE

898
00:55:00,190 --> 00:55:04,390
YOU SEEN SOME DIFFERENCES
BETWEEN THE SIX-YEAR AND THE†--

899
00:55:04,390 --> 00:55:05,450
SIX-MONTH AND THE ONE-YEAR
MISSION?

900
00:55:05,450 --> 00:55:09,050
I THINK HE HAS HAD SOME
EXPERIENCES WITH ITCHING AND

901
00:55:09,050 --> 00:55:10,460
STOM OTHER STUFF.
I'M WONDERING IF YOU COULD TALK

902
00:55:10,460 --> 00:55:12,880
ABOUT THAT.
AND WHEN WILL WE SEE THE NEXT

903
00:55:12,880 --> 00:55:16,109
ONE-YEAR MISSION?
BECAUSE IT'S CRITICAL FOR THE

904
00:55:16,109 --> 00:55:18,059
JOURNEY TO MARS.
THANKS.

905
00:55:18,059 --> 00:55:20,450
>> OKAY.
WELL, PETE, DO YOU HAVE ANYTHING

906
00:55:20,450 --> 00:55:24,440
ON THE RESULTS SO FAR?
AND I CAN TALK TO†--

907
00:55:24,440 --> 00:55:27,790
>> I'LL TAKE PART OF IT.
SCOTT DID A GREAT JOB AND

908
00:55:27,790 --> 00:55:30,240
MIKHAIL DID A GREAT JOB ON THEIR
ONE-YEAR MISSION.

909
00:55:30,240 --> 00:55:32,900
WE'RE REALLY GLAD TO HAVE THEM
BACK.

910
00:55:32,900 --> 00:55:36,190
PART OF THE ONE-YEAR MISSION
INVESTIGATIONS INCLUDED THE TWIN

911
00:55:36,190 --> 00:55:39,340
STUDY, WHICH IS ANOTHER AREA
THAT WE'RE EXCITED TO GET DATA

912
00:55:39,340 --> 00:55:42,300
BACK THERE.
THAT'S†-- EACH OF THOSE, THE

913
00:55:42,300 --> 00:55:45,780
ONE-YEAR MISSION ON ISS AND THE
TWIN STUDY IS ONLY TWO SUBJECTS

914
00:55:45,780 --> 00:55:48,530
SO WE'RE VERY CAREFUL.
IN FACT, YOU CAN'T REALLY MAKE

915
00:55:48,530 --> 00:55:51,480
CONCLUSIONS OUT OF JUST TWO
SUBJECTS AND APPLY IT TO THE

916
00:55:51,480 --> 00:55:53,650
REST OF US.
ALSO THE FACT THAT THESE ARE

917
00:55:53,650 --> 00:55:58,150
MEDICAL-RELATED INVESTIGATIONS,
YOU WON'T SEE THE TYPE OF

918
00:55:58,150 --> 00:56:01,809
DETAILS IN THE RESULTS THAT
MAYBE WE'RE ALL HOPING TO SEE

919
00:56:01,809 --> 00:56:05,380
DOWN INTO THE DETAILS.
THE STATION PROGRAM IS WORKING

920
00:56:05,380 --> 00:56:09,000
WITH OUR PARTNERS, THE HUMAN RNL
PROGRAM DOES WANT TO DO

921
00:56:09,000 --> 00:56:12,160
ADDITIONAL ONE-YEAR MISSIONS.
THAT'S SOMETHING THAT ISN'T JUST

922
00:56:12,160 --> 00:56:15,140
SOMETHING ONE AGENCY COULD GO
DO, SO WE WORK THAT WITH OUR

923
00:56:15,140 --> 00:56:18,740
INTERNATIONAL PARTNERS.
I KNOW THAT THAT'S BEING

924
00:56:18,740 --> 00:56:21,540
DISCUSSED AT MUCH HIGHER LEVELS
THAN I'M PRIVY TO, BUT WE ALL

925
00:56:21,540 --> 00:56:24,839
HOPE WE WILL BE ABLE TO GET
ANOTHER, SHOOT, SIX OR EIGHT

926
00:56:24,839 --> 00:56:26,839
DIFFERENT SUBJECTS.
THAT'S REALLY WHAT IT TAKES TO

927
00:56:26,839 --> 00:56:31,009
GET A GOOD LONG-TERM
INVESTIGATION LIKE THAT.

928
00:56:31,009 --> 00:56:35,869
>> SO THAT IS†-- PETE'S RIGHT.
I MEAN, WE'RE HAVING THOSE

929
00:56:35,869 --> 00:56:37,690
DISCUSSIONS WITH ALL OUR
PARTNERS, PARTICULARLY OUR

930
00:56:37,690 --> 00:56:41,050
RUSSIAN COLLEAGUES.
IT'S VERY IMPORTANT THAT WE

931
00:56:41,050 --> 00:56:43,160
UNDERSTAND WHAT LEVEL OF
PARTICIPATION THEY WOULD LIKE TO

932
00:56:43,160 --> 00:56:47,309
HAVE IN IT.
AND WE'LL BE FINALIZING THAT

933
00:56:47,309 --> 00:56:50,450
HOPEFULLY IN THE NEAR FUTURE AND
GET US ALL ON THE SAME PAGE AND

934
00:56:50,450 --> 00:56:55,540
WE'LL BE PASSING THAT ON.
>>†-- BETWEEN SIX MONTHS AND A

935
00:56:55,540 --> 00:56:57,110
YEAR.
IT SEEMS LIKE THERE MIGHT BE

936
00:56:57,110 --> 00:57:01,099
SOME ISSUE OR NOT?
WHAT ARE YOU SAYING?

937
00:57:01,099 --> 00:57:04,890
>> I'M SORRY.
I GUESS I DIDN'T FOLLOW YOUR

938
00:57:04,890 --> 00:57:06,320
QUESTION.
>> THE DIFFERENCE BETWEEN A

939
00:57:06,320 --> 00:57:08,800
SIX-MONTH MISSION AND A ONE-YEAR
MISSION.

940
00:57:08,800 --> 00:57:12,220
IT SEEMS LIKE SCOTT KELLY MAYBE
HAD A FEW MORE PHYSICAL

941
00:57:12,220 --> 00:57:16,810
DISCOMFORTS WITH ITCHINESS AFTER
THE ONE-YEAR COMPARED TO HIS

942
00:57:16,810 --> 00:57:20,180
SIX-MONTH MISSION.
IS THAT REAL OR NOT?

943
00:57:20,180 --> 00:57:22,260
>> I WISH I COULD TELL YOU.
I HAVEN'T PERSONALLY BEEN PART

944
00:57:22,260 --> 00:57:24,800
OF ANY OF THOSE DISCUSSIONS WITH
HIM ABOUT WHAT HE'S FEELING

945
00:57:24,800 --> 00:57:27,829
THERE.
SO, YEAH, I COULDN'T HAZARD

946
00:57:27,829 --> 00:57:30,819
GUESS ON THAT ONE.
>> ONE MORE QUESTION RIGHT HERE

947
00:57:30,819 --> 00:57:35,990
AND WE'LL WRAP UP.
>> I WAS HOPING TO HEAR MORE

948
00:57:35,990 --> 00:57:39,819
ABOUT THE SAPPHIRE EXPERIMENT
AND WHERE THIS DATA IS GOING TO

949
00:57:39,819 --> 00:57:42,690
BE SPECIFICALLY APPLIED.
SAFETY MEASURES?

950
00:57:42,690 --> 00:57:45,630
MISSION TO MARS?
>> YEAH.

951
00:57:45,630 --> 00:57:48,710
SO THE SAPPHIRE EXPERIMENT IS
ACTUALLY†-- THIS ONE WILL BE THE

952
00:57:48,710 --> 00:57:50,849
FIRST IN A SERIES THAT THEY WANT
TO DO.

953
00:57:50,849 --> 00:57:54,040
THERE'S AT LEAST THREE COMING UP
ON THE CYGNUS AND ANOTHER SET OF

954
00:57:54,040 --> 00:57:58,010
THREE AFTER THAT TO STUDY
DIFFERENT KINDS OF SAMPLES.

955
00:57:58,010 --> 00:58:01,559
THE SAMPLE THAT WAS SHARED WITH
US TODAY IS ABOUT A METER TALL

956
00:58:01,559 --> 00:58:05,550
OF CLOTH.
AS FAR AS THE†-- HOW THAT'S

957
00:58:05,550 --> 00:58:09,190
GOING TO HELP US, IT'S GOING TO
HELP US UNDERSTAND A LARGE FIRE

958
00:58:09,190 --> 00:58:11,599
PROPAGATING IN SPACE.
THE EXPERIMENTS THAT WE'RE ABLE

959
00:58:11,599 --> 00:58:15,300
TO DO, EVEN IF YOU LOOK AT AS
BIG A RACK AS WE HAVE, ABOUT

960
00:58:15,300 --> 00:58:18,220
THIS BIG A PHONE BOOTH, YOUR
CHAMBER FOR COMBUSTION IS VERY

961
00:58:18,220 --> 00:58:23,280
SMALL SO, YOU'RE LIMITED TO SIZE
AND IN SOME EXTENT IN THE

962
00:58:23,280 --> 00:58:25,280
SAMPLES.
WHAT WE WANT TO THIS TO SHOW IS

963
00:58:25,280 --> 00:58:29,349
HOW DOES A FIRE PROPAGATE IN A
BIGGER OPEN VOLUME AND WHAT

964
00:58:29,349 --> 00:58:31,680
WOULD WE NEED TO BE CONCERNED
ABOUT, ARE THERE THINGS THAT

965
00:58:31,680 --> 00:58:34,579
WOULD SURPRISE US.
WE THINK WE UNDERSTAND FIRES TO

966
00:58:34,579 --> 00:58:37,440
SOME EXTENT IN SPACE, BUT
MICROGRAVITY, WHERE YOU DON'T

967
00:58:37,440 --> 00:58:40,460
HAVE CONVECTION AND YOU DON'T
HAVE THE WARM AIR RISING AND THE

968
00:58:40,460 --> 00:58:43,319
COOL AIR BRINGING IN NEW OXYGEN,
IT'S A WHOLE DIFFERENT

969
00:58:43,319 --> 00:58:46,480
ENVIRONMENT.
AND SO, HOW MANY YEARS IT WILL

970
00:58:46,480 --> 00:58:49,930
TAKE TO BE ABLE TO APPLY THAT TO
FUTURE SPACECRAFT, I REALLY

971
00:58:49,930 --> 00:58:53,960
DON'T KNOW, THAT BUT IT WILL BE
FACTORED INTO THE DESIGNS WE'RE

972
00:58:53,960 --> 00:58:56,849
DOING AT NASA AS WELL AS WHAT
THE COMMERCIAL COMPANIES ARE

973
00:58:56,849 --> 00:59:00,210
DOING FOR THEIR DESIGNS.
>> ALL RIGHT.

974
00:59:00,210 --> 00:59:03,849
THAT'S GOING TO CONCLUDE OUR
BRIEFING, OUR LAUNCH COVERAGE

975
00:59:03,849 --> 00:59:08,160
TOMORROW NIGHT BEGINNING AT
10:00 P.M. EASTERN TIME LEADING

976
00:59:08,160 --> 00:59:12,059
TO A LAUNCH TARGET FOR 11:05 AT
THE OPENING OF THE WINDOW.