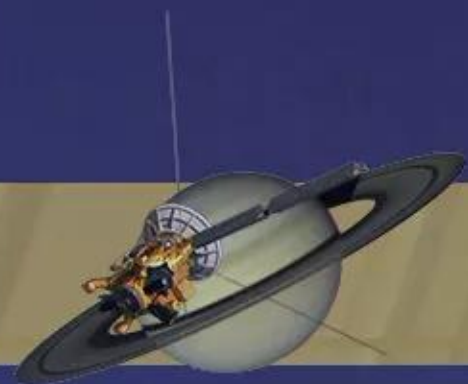


Linda Spilker  
Cassini Project Scientist



1  
00:00:09,175 --> 00:00:12,679  
>> HELLO AND WELCOME TO NASA'S

2  
00:00:12,746 --> 00:00:16,750  
JET PROPULSION LABORATORY IN

3  
00:00:16,816 --> 00:00:17,684  
PASADENA, CALIFORNIA.

4  
00:00:17,751 --> 00:00:19,619  
I'M GOING TO BE THE MODERATOR

5  
00:00:19,686 --> 00:00:22,922  
TODAY FOR OUR WRAP-UP NEWS

6  
00:00:22,989 --> 00:00:27,761  
BRIEFING FOR THE CASSINI MISSION

7  
00:00:27,827 --> 00:00:31,364  
TO SATURN.

8  
00:00:31,431 --> 00:00:40,140  
WE BID FAREWELL TO THE CASSINI

9  
00:00:40,206 --> 00:00:40,540  
SPACECRAFT.

10  
00:00:40,607 --> 00:00:42,308  
WE HAVE KEY TEAM MEMBERS WITH US

11  
00:00:42,375 --> 00:00:43,510  
TODAY TO SHARE THEIR THOUGHTS.

12  
00:00:43,576 --> 00:00:45,078  
WE HAVE REPORTERS ON THE PHONE,

13  
00:00:45,145 --> 00:00:47,280

SO IF YOU HAVE QUESTIONS, YOU

14

00:00:47,347 --> 00:00:49,048

SHOULD PRESS STAR ONE ON YOUR

15

00:00:49,115 --> 00:00:49,449

TELEPHONE.

16

00:00:49,516 --> 00:00:52,452

WE'RE ALSO GOING TO BE TRACKING

17

00:00:52,519 --> 00:00:54,454

QUESTIONS VIA SOCIAL MEDIA, AND

18

00:00:54,521 --> 00:00:58,658

YOU CAN USE THE HASHTAG

19

00:00:58,725 --> 00:01:00,126

HASHTAG #ASKNASA.

20

00:01:00,193 --> 00:01:04,264

I'M GOING TO INTRODUCE TO YOU

21

00:01:04,330 --> 00:01:04,764

MICHAEL WATKINS.

22

00:01:04,831 --> 00:01:14,674

[ APPLAUSE ]

23

00:01:14,741 --> 00:01:18,745

>> THANK YOU, AND WELCOME TO

24

00:01:18,812 --> 00:01:20,480

JPL.

25

00:01:20,547 --> 00:01:24,217

JPL DESIGNED, BUILT, AND

26  
00:01:24,284 --> 00:01:27,554  
OPERATED THE CASSINI SPACECRAFT

27  
00:01:27,620 --> 00:01:27,921  
FOR NASA.

28  
00:01:27,987 --> 00:01:29,689  
AS YOU HEARD, IT TRANSMITTED ITS

29  
00:01:29,756 --> 00:01:31,791  
FINAL SIGNALS FROM SATURN AND

30  
00:01:31,858 --> 00:01:35,261  
THEN BECAME PART OF THE PLANET

31  
00:01:35,328 --> 00:01:39,199  
THAT IT HAD BEEN STUDYING FOR

32  
00:01:39,265 --> 00:01:40,900  
SEVEN YEARS. CONTINUING THE

33  
00:01:40,967 --> 00:01:42,202  
LEGEND OF CASSINI, IT TURNED

34  
00:01:42,268 --> 00:01:44,337  
THAT EVENT INTO AN EVENT OF

35  
00:01:44,404 --> 00:01:44,637  
HOPE.

36  
00:01:44,704 --> 00:01:46,673  
NOT AN END, BUT REALLY A

37  
00:01:46,739 --> 00:01:47,040  
BEGINNING.

38  
00:01:47,106 --> 00:01:50,276

AND THE DISCOVERIES THAT CASSINI

39

00:01:50,343 --> 00:01:52,345  
HAS MADE OVER THE PAST 13 YEARS

40

00:01:52,412 --> 00:01:54,914  
IN ORBIT HAVE REWRITEN THE

41

00:01:54,981 --> 00:01:56,883  
TEXTBOOKS OF SATURN, HAVE

42

00:01:56,950 --> 00:01:58,952  
DISCOVERED WORLDS THAT COULD BE

43

00:01:59,018 --> 00:02:00,086  
HABITABLE, AND CAN GUARANTEE

44

00:02:00,153 --> 00:02:01,855  
THAT WE WILL RETURN TO THAT

45

00:02:01,921 --> 00:02:02,388  
RINGED WORLD.

46

00:02:02,455 --> 00:02:04,324  
SO THE FANTASTIC DISCOVERIES

47

00:02:04,390 --> 00:02:06,259  
THAT CONTINUE TO BE MADE WITH

48

00:02:06,326 --> 00:02:09,195  
THE LAST SET OF RING-CROSSING

49

00:02:09,262 --> 00:02:11,397  
ORBITS IN THE GRAND FINALE OF

50

00:02:11,464 --> 00:02:13,233  
CASSINI HASN'T REALLY EVEN BEEN

51  
00:02:13,299 --> 00:02:14,334  
STUDIED YET.

52  
00:02:14,400 --> 00:02:20,139  
THE LAST FEW SECONDS OF THE

53  
00:02:20,206 --> 00:02:20,840  
CASSINI MISSION ARE OUR FIRST

54  
00:02:20,907 --> 00:02:29,249  
TASTE OF THE ATMOSPHERE OF

55  
00:02:29,315 --> 00:02:29,582  
SATURN.

56  
00:02:29,649 --> 00:02:30,316  
EVEN THE LAST FEW SECONDS,

57  
00:02:30,383 --> 00:02:32,352  
CASSINI MANAGED TO CONTINUE ITS

58  
00:02:32,418 --> 00:02:34,687  
REWRITING OF THE TEXTBOOKS AND

59  
00:02:34,754 --> 00:02:35,522  
ITS LEGEND.

60  
00:02:35,588 --> 00:02:37,457  
AND TO TALK MORE ABOUT CASSINI

61  
00:02:37,524 --> 00:02:39,559  
AND ABOUT THE PROGRAM, I'D LIKE

62  
00:02:39,626 --> 00:02:44,964  
TO INTRODUCE THE HEAD OF THE

63  
00:02:45,031 --> 00:02:45,632

SCIENCE DIRECTIVE AT NASA.

64

00:02:45,698 --> 00:02:56,609

[ APPLAUSE ]

65

00:02:56,676 --> 00:03:01,548

>> WE'RE HERE WITH A MAGNIFICENT

66

00:03:01,614 --> 00:03:03,449

MISSION THAT HAD AN AMAZING END.

67

00:03:03,516 --> 00:03:05,552

I WOULD LIKE TO ASK YOU TO PULL

68

00:03:05,618 --> 00:03:07,153

UP THE FIRST PICTURE.

69

00:03:07,220 --> 00:03:11,057

THERE IT IS! ONE OF THE MOST

70

00:03:11,124 --> 00:03:14,761

BEAUTIFUL PLANETS WE CAN

71

00:03:14,827 --> 00:03:15,128

IMAGINE.

72

00:03:15,194 --> 00:03:18,031

IT BORDERS ON SCI-FI FROM TIME

73

00:03:18,097 --> 00:03:18,431

TO TIME.

74

00:03:18,498 --> 00:03:22,201

WE LOOK AT THE IMAGES, AND WE

75

00:03:22,268 --> 00:03:23,002

WONDER, WOW, IS THAT REALLY HOW

76

00:03:23,069 --> 00:03:23,503

NATURE IS?

77

00:03:23,570 --> 00:03:24,437

AND YES IT IS.

78

00:03:24,504 --> 00:03:25,772

NATURE IS REALLY BEAUTIFUL.

79

00:03:25,838 --> 00:03:27,740

THIS IMAGE, OF COURSE, TAKEN

80

00:03:27,807 --> 00:03:32,011

ROUGHLY A YEAR AGO, SHOWS THE

81

00:03:32,078 --> 00:03:35,081

AMAZING PLANET, THE RESEARCH

82

00:03:35,148 --> 00:03:36,749

THAT THIS SPACECRAFT HAD.

83

00:03:36,816 --> 00:03:39,118

THIS IS CASSINI.

84

00:03:39,185 --> 00:03:41,154

NEXT PICTURE.

85

00:03:41,220 --> 00:03:44,157

THIS IS ALSO CASSINI.

86

00:03:44,223 --> 00:03:45,358

[ APPLAUSE ]

87

00:03:45,425 --> 00:03:51,331

THIS IS CASSINI.

88

00:03:51,397 --> 00:03:53,066

A DIVERSE SET OF PEOPLE FROM ALL

89

00:03:53,132 --> 00:03:53,833

WALKS OF LIFE.

90

00:03:53,900 --> 00:03:56,502

YOU SEE AT THE TOP THERE, THE

91

00:03:56,569 --> 00:03:57,670

SCIENCE TEAM AT THEIR LAST

92

00:03:57,737 --> 00:04:00,039

MEETING JUST A FEW DAYS AGO,

93

00:04:00,106 --> 00:04:02,742

WAVING AT THE CAMERA AND REALLY

94

00:04:02,809 --> 00:04:03,776

CELEBRATING WHAT THEY'RE

95

00:04:03,843 --> 00:04:06,379

LEARNING AND RECOGNIZING THAT

96

00:04:06,446 --> 00:04:07,680

THEY'RE NOWHERE NEAR DONE.

97

00:04:07,747 --> 00:04:10,083

SCIENCE WILL GO ON AND MORE

98

00:04:10,149 --> 00:04:11,117

DISCOVERIES WILL BE MADE WITH

99

00:04:11,184 --> 00:04:14,487

THE DATA, NOT JUST FROM THE LAST

100

00:04:14,554 --> 00:04:16,089

BIT, BUT THE LAST MONTHS.

101  
00:04:16,155 --> 00:04:17,991  
YOU SEE AT THE BOTTOM, MANY

102  
00:04:18,057 --> 00:04:19,626  
MEMBERS OF THE ENGINEERING TEAM,

103  
00:04:19,692 --> 00:04:21,394  
WHICH ARE A REALLY IMPORTANT

104  
00:04:21,461 --> 00:04:22,862  
PART OF THIS AS WELL, TOGETHER

105  
00:04:22,929 --> 00:04:26,833  
AS WE ADDED THEM UP, CLOSE TO

106  
00:04:26,899 --> 00:04:27,900  
5,000 OR SO, YOU KNOW,

107  
00:04:27,967 --> 00:04:30,603  
INDIVIDUALS, PUTTING THEIR HEART

108  
00:04:30,670 --> 00:04:32,505  
AND SOUL INTO THIS MAGNIFICENT

109  
00:04:32,572 --> 00:04:32,839  
MISSION.

110  
00:04:32,905 --> 00:04:33,573  
THIS IS, LADIES AND GENTLEMEN,

111  
00:04:33,640 --> 00:04:33,906  
CASSINI.

112  
00:04:33,973 --> 00:04:41,080  
[ APPLAUSE ]

113  
00:04:41,147 --> 00:04:44,083

WHAT YOU DON'T SEE THERE IS THAT

114

00:04:44,150 --> 00:04:45,985

THESE PEOPLE ARE REPRESENTATIVE

115

00:04:46,052 --> 00:04:49,889

OF 26 COUNTRIES OR SO, AND OF

116

00:04:49,956 --> 00:04:53,726

COURSE, YOU KNOW AT THAT -- THE

117

00:04:53,793 --> 00:04:56,362

ENTIRE MISSION INVOLVED THREE

118

00:04:56,429 --> 00:04:56,863

SPACE AGENCIES.

119

00:04:56,929 --> 00:05:00,733

I JUST REALLY WANT TO CALL OUT

120

00:05:00,800 --> 00:05:01,501

MY COLLEAGUES AND FRIENDS FROM

121

00:05:01,567 --> 00:05:03,636

OUR SISTER AGENCIES, AND I WANT

122

00:05:03,703 --> 00:05:04,837

TO WELCOME YOU HERE AND THANK

123

00:05:04,904 --> 00:05:07,674

YOU FOR COMING HERE.

124

00:05:07,740 --> 00:05:08,675

YOU'RE HERE.

125

00:05:08,741 --> 00:05:10,943

THE DIRECTOR OF SCIENCE, MY

126  
00:05:11,010 --> 00:05:12,211  
COUNTER PART AT THE EUROPEAN

127  
00:05:12,278 --> 00:05:12,645  
SPACE AGENCY.

128  
00:05:12,712 --> 00:05:13,112  
THANKS SO MUCH.

129  
00:05:13,179 --> 00:05:21,187  
[ APPLAUSE ]

130  
00:05:21,254 --> 00:05:25,725  
AND ROBERTO, THE PRESIDENT FROM

131  
00:05:25,792 --> 00:05:27,627  
ITALY, AND A REALLY IMPORTANT

132  
00:05:27,694 --> 00:05:28,161  
PART OF THIS DESIGN.

133  
00:05:28,227 --> 00:05:28,628  
THANKS SO MUCH.

134  
00:05:28,695 --> 00:05:38,604  
[ APPLAUSE ]

135  
00:05:38,671 --> 00:05:42,208  
I LEARNED A LITTLE BIT OF

136  
00:05:42,275 --> 00:05:44,143  
ITALIAN IN SWITZERLAND.

137  
00:05:44,210 --> 00:05:45,978  
THE REST I FORGOT.

138  
00:05:46,045 --> 00:05:48,581

FOR PA YEARS, YOU ALL HAVE COME

139

00:05:48,648 --> 00:05:50,516

TOGETHER AND WORKED TO SHED

140

00:05:50,583 --> 00:05:51,851

LIGHT ON THIS MOST MAGNIFICENT

141

00:05:51,918 --> 00:05:54,921

WORK, AND I WOULD SAY THAT THE

142

00:05:54,987 --> 00:05:57,523

WORKS OF FORMER GOVERNOR HERE,

143

00:05:57,590 --> 00:06:00,393

WE WILL BE BACK.

144

00:06:00,460 --> 00:06:03,129

THANKS TO CASSINI, THAT WE KNOW

145

00:06:03,196 --> 00:06:05,932

TO BE A WORLD THAT HAS SO MANY

146

00:06:05,998 --> 00:06:08,668

FACETS TO IT, AND MANY FACETS

147

00:06:08,735 --> 00:06:10,770

ACTUALLY WE DID NOT EXPECT.

148

00:06:10,837 --> 00:06:13,072

WITH TODAY'S END OF THIS

149

00:06:13,139 --> 00:06:17,143

MISSION, WE NOW KNOW THE

150

00:06:17,210 --> 00:06:21,647

PLANET'S MOON WILL REMAIN

151  
00:06:21,714 --> 00:06:22,749  
PRISTINE. WE PROTECTED SCIENCE

152  
00:06:22,815 --> 00:06:24,884  
TO BE DONE IN THE FUTURE, AND WE

153  
00:06:24,951 --> 00:06:26,819  
CAN AND WILL OVER TIME FIND WAYS

154  
00:06:26,886 --> 00:06:28,221  
TO GO BACK TO THESE MOONS AND

155  
00:06:28,287 --> 00:06:29,789  
EXPLORE THEM.

156  
00:06:29,856 --> 00:06:31,924  
THE QUESTIONS THERE HAVE MADE US

157  
00:06:31,991 --> 00:06:34,060  
ASK, KEEP US UP AT NIGHT.

158  
00:06:34,127 --> 00:06:35,962  
QUESTIONS THAT ARE SO DEEP, SO

159  
00:06:36,028 --> 00:06:38,698  
SIMPLE THAT EVERY ONE OF US CAN

160  
00:06:38,765 --> 00:06:39,465  
UNDERSTAND WHETHER OR NOT WE

161  
00:06:39,532 --> 00:06:42,235  
HAVE THE PHD OR SOME KIND OF

162  
00:06:42,301 --> 00:06:44,203  
STEM EDUCATION.

163  
00:06:44,270 --> 00:06:47,240

QUESTIONS THAT ARE AT THE HEART

164

00:06:47,306 --> 00:06:51,644

OF THE POPULAS OF HUMANITY AS A

165

00:06:51,711 --> 00:06:57,416

WHOLE.

166

00:06:57,483 --> 00:06:59,719

MY SHOUTOUT TO THE TEAM.

167

00:06:59,786 --> 00:07:00,787

WHAT WILL STICK WITH ME ABOUT

168

00:07:00,853 --> 00:07:04,390

CASSINI IS THE TEAM IN THAT ROOM

169

00:07:04,457 --> 00:07:07,560

WORKING TOGETHER AS ONE UNTIL

170

00:07:07,627 --> 00:07:10,029

THE VERY END OF THIS MAGNIFICENT

171

00:07:10,096 --> 00:07:12,198

MISSION.

172

00:07:12,265 --> 00:07:26,245

CONGRATS TO THE CASSINI TEAM.

173

00:07:26,312 --> 00:07:27,647

>> THANK YOU.

174

00:07:27,713 --> 00:07:30,116

NOWLY INTRODUCE OUR PANELISTS.

175

00:07:30,183 --> 00:07:33,352

FIRST IS THE CASSINI PROGRAM

176  
00:07:33,419 --> 00:07:37,557  
MANAGER.

177  
00:07:37,623 --> 00:07:39,258  
NEXT WE HAVE LINDA, THE CASSINI

178  
00:07:39,325 --> 00:07:39,759  
PROJECT SCIENTIST.

179  
00:07:39,826 --> 00:07:45,865  
[ APPLAUSE ]

180  
00:07:45,932 --> 00:07:48,935  
NEXT TO HER WE HAVE JULIE

181  
00:07:49,001 --> 00:07:49,669  
WEBSTER, THE CASSINI SPACECRAFT

182  
00:07:49,735 --> 00:07:50,203  
OPERATIONS MANAGER.

183  
00:07:50,269 --> 00:07:57,210  
[ APPLAUSE ]

184  
00:07:57,276 --> 00:07:59,946  
SO I'LL NOW TURN IT OVER TO

185  
00:08:00,012 --> 00:08:00,246  
EARL.

186  
00:08:00,313 --> 00:08:01,681  
>> THANKS.

187  
00:08:01,747 --> 00:08:03,449  
MAYBE WE COULD JUST RECREATE THE

188  
00:08:03,516 --> 00:08:07,420

LAST FEW MOMENTS IN THE MSA.

189

00:08:07,486 --> 00:08:10,523

>> ARE YOU CRYING?

190

00:08:10,590 --> 00:08:16,596

>> WE ARE IN THE ATMOSPHERE.

191

00:08:16,662 --> 00:08:21,534

>> WE HAVE LOSS OF SIGNAL.

192

00:08:21,601 --> 00:08:24,770

>> PROJECT MANAGER, FLIGHT

193

00:08:24,837 --> 00:08:25,137

DIRECTOR.

194

00:08:25,204 --> 00:08:25,605

>> GO AHEAD.

195

00:08:25,671 --> 00:08:30,009

>> WE CALL LOSS OF SIGNAL AT

196

00:08:30,076 --> 00:08:30,376

11:55:46.

197

00:08:30,443 --> 00:08:35,348

>> PROJECT MANAGER ON FSO COORD?

198

00:08:35,414 --> 00:08:37,283

>> MAYBE A TRICKLE LEFT, BUT

199

00:08:37,350 --> 00:08:39,719

JUST HEARD THE SIGNAL FROM THE

200

00:08:39,785 --> 00:08:40,987

SPACECRAFT IS GONE AND WITHIN

201  
00:08:41,053 --> 00:08:42,922  
THE NEXT 45 SECONDS, SO WILL BE

202  
00:08:42,989 --> 00:08:44,724  
THE SPACECRAFT.

203  
00:08:44,790 --> 00:08:47,360  
I HOPE YOU'RE ALL AS DEEPLY

204  
00:08:47,426 --> 00:08:49,662  
PROUD OF THIS AMAZING

205  
00:08:49,729 --> 00:08:50,630  
ACCOMPLISHMENT.

206  
00:08:50,696 --> 00:08:52,498  
CONGRATULATIONS TO YOU ALL.

207  
00:08:52,565 --> 00:08:54,533  
THIS HAS BEEN AN INCREDIBLE

208  
00:08:54,600 --> 00:08:56,302  
MISSION, INCREDIBLE SPACECRAFT,

209  
00:08:56,369 --> 00:08:58,204  
AND YOU'RE ALL AN INCREDIBLE

210  
00:08:58,271 --> 00:08:58,804  
TEAM.

211  
00:08:58,871 --> 00:09:00,973  
I'M GOING TO CALL THIS THE END

212  
00:09:01,040 --> 00:09:02,608  
OF MISSION.

213  
00:09:02,675 --> 00:09:03,276

PROJECT MANAGER OFF THE NET.

214

00:09:03,342 --> 00:09:16,055

[ APPLAUSE ]

215

00:09:16,122 --> 00:09:18,057

>> THERE ARE TIMES IN THIS WORLD

216

00:09:18,124 --> 00:09:21,827

WHEN THINGS JUST LINE UP, WHEN

217

00:09:21,894 --> 00:09:24,096

EVERYTHING IS JUST ABOUT

218

00:09:24,163 --> 00:09:24,430

PERFECT.

219

00:09:24,497 --> 00:09:27,633

A CHILD'S LAUGH, A DESERT

220

00:09:27,700 --> 00:09:29,302

SUNSET, AND THIS MORNING.

221

00:09:29,368 --> 00:09:32,171

IT JUST COULDN'T HAVE BEEN

222

00:09:32,238 --> 00:09:32,505

BETTER.

223

00:09:32,571 --> 00:09:34,273

AND IF YOU THINK ABOUT THAT

224

00:09:34,340 --> 00:09:36,842

MOMENT THAT WE'VE BEEN WAITING

225

00:09:36,909 --> 00:09:39,912

FOR THIS ENTIRE SEVEN YEARS,

226  
00:09:39,979 --> 00:09:41,447  
EVERYTHING LINED UP JUST RIGHT.

227  
00:09:41,514 --> 00:09:43,816  
YOU CAN STEP BACK AND SAY THE

228  
00:09:43,883 --> 00:09:46,886  
SAME THING ABOUT THE CASSINI

229  
00:09:46,953 --> 00:09:47,219  
MISSION.

230  
00:09:47,286 --> 00:09:48,654  
A SUPERB MACHINE DOING

231  
00:09:48,721 --> 00:09:49,956  
EVERYTHING WE COULD DO TO REVEAL

232  
00:09:50,022 --> 00:09:52,758  
THE MYSTERIES AND SECRETS OF OUR

233  
00:09:52,825 --> 00:09:54,126  
SOLAR SYSTEM.

234  
00:09:54,193 --> 00:09:56,963  
THIS MORNING, A MACHINE MADE BY

235  
00:09:57,029 --> 00:10:00,166  
HUMAN KIND FINISHED ITS MISSION

236  
00:10:00,232 --> 00:10:02,568  
900 MILLION MILES AWAY.

237  
00:10:02,635 --> 00:10:05,037  
A MERE OBSERVER WOULDN'T KNOW

238  
00:10:05,104 --> 00:10:07,206

UNTIL 84 MINUTES LATER THAT

239

00:10:07,273 --> 00:10:08,074

CASSINI WAS GONE.

240

00:10:08,140 --> 00:10:11,711

TO THE END, THE SPACECRAFT DID

241

00:10:11,777 --> 00:10:19,251

EVERYTHING WE ASKED.

242

00:10:19,318 --> 00:10:21,087

GROUND SYSTEMS SUPPORT WAS SUE

243

00:10:21,153 --> 00:10:22,688

SUPERB, AND WE BELIEVE WE GOT

244

00:10:22,755 --> 00:10:23,990

EVERY LAST BIT OF DATA.

245

00:10:24,056 --> 00:10:26,792

WE HAVE, INDEED, ACCOMPLISHED

246

00:10:26,859 --> 00:10:28,861

EXACTLY WHAT WE SET OUT TO DO.

247

00:10:28,928 --> 00:10:31,330

COMPLETE THIS MISSION WITH A

248

00:10:31,397 --> 00:10:34,166

SATURN PROBE.

249

00:10:34,233 --> 00:10:35,735

MAYBE JUST A LITTLE ABOUT THE

250

00:10:35,801 --> 00:10:48,547

LEGACY OF THIS MISSION.

251  
00:10:48,614 --> 00:10:50,383  
EUROPA AND THE INSTRUMENTS THAT

252  
00:10:50,449 --> 00:10:52,184  
WE HAVE DEVELOPED FOR CASSINI,

253  
00:10:52,251 --> 00:10:55,421  
30 YEARS LATER, ALMOST, WILL BE

254  
00:10:55,488 --> 00:10:56,622  
THAT MUCH BETTER AND

255  
00:10:56,689 --> 00:10:59,592  
SOPHISTICATED TO THE

256  
00:10:59,658 --> 00:11:05,164  
ENVIRONMENTS THAT WE'RE IN.

257  
00:11:05,231 --> 00:11:07,767  
THIS COLLABORATION WILL BE A

258  
00:11:07,833 --> 00:11:11,070  
HALLMARK FOR FUTURE MISSIONS.

259  
00:11:11,137 --> 00:11:12,938  
CASSINI PRESENTED A UNIQUE SET

260  
00:11:13,005 --> 00:11:14,907  
OF CHALLENGES. OF COURSE,

261  
00:11:14,974 --> 00:11:17,076  
THERE'S THE EVER LASTING TENSION

262  
00:11:17,143 --> 00:11:20,279  
BETWEEN SCIENCE GOALS AND

263  
00:11:20,346 --> 00:11:22,048

ENGINEERING CONSERVATISM.

264

00:11:22,114 --> 00:11:25,351

BUT ALSO, THE SCIENTISTS IN

265

00:11:25,418 --> 00:11:26,352

CONTENTION WITH EACH OTHER.

266

00:11:26,419 --> 00:11:29,088

AND WITH THE ENGINEERS.

267

00:11:29,155 --> 00:11:32,458

AND THE MIX OF THIS AS AN

268

00:11:32,525 --> 00:11:36,629

EXPERIMENT IN SOCIOLOGY WAS AN

269

00:11:36,695 --> 00:11:37,163

ASTONISHING SUCCESS.

270

00:11:37,229 --> 00:11:38,364

I BELIEVE THAT THE FUTURE

271

00:11:38,431 --> 00:11:42,068

MISSIONS ARE ULTIMATELY LEARNING

272

00:11:42,134 --> 00:11:47,706

HOW TO COOPERATE AND GET THE

273

00:11:47,773 --> 00:11:48,340

BEST FROM THEIR MISSIONS.

274

00:11:48,407 --> 00:11:50,943

AS YOU JUST SAW A LITTLE WHILE

275

00:11:51,010 --> 00:11:53,446

AGO, TURNED IT INTO AN

276  
00:11:53,512 --> 00:11:55,915  
ATMOSPHERIC PROBE. EVERY PIECE

277  
00:11:55,981 --> 00:11:57,917  
OF IT HAS BEEN USED FOR THE

278  
00:11:57,983 --> 00:12:00,252  
BENEFIT OF EXPLORATION.

279  
00:12:00,319 --> 00:12:02,021  
I'VE GOT TO THANK THE MANY

280  
00:12:02,088 --> 00:12:03,789  
THOUSANDS OF PEOPLE.

281  
00:12:03,856 --> 00:12:08,427  
WE HAD TWO SPACE AGENCIES, 17

282  
00:12:08,494 --> 00:12:10,096  
NATIONS CONTRIBUTING TO THE

283  
00:12:10,162 --> 00:12:11,497  
LAUNCH, THE HARDWARE OF THE

284  
00:12:11,564 --> 00:12:11,897  
MISSION.

285  
00:12:11,964 --> 00:12:14,967  
HUNDREDS OF CONTRACTORS,

286  
00:12:15,034 --> 00:12:15,968  
THOUSANDS OF INDIVIDUALS IN

287  
00:12:16,035 --> 00:12:19,338  
SCIENCE AND ENGINEERING. WE HAD

288  
00:12:19,405 --> 00:12:20,306

TO REACH ALL THE WAY BACK TO THE

289

00:12:20,372 --> 00:12:23,375

EARLY '80s FOR THE FOLKS WHO DID

290

00:12:23,442 --> 00:12:25,411

THE THANKLESS COST EXERCISES

291

00:12:25,478 --> 00:12:27,346

OVER AND OVER AGAIN ALL THE WAY

292

00:12:27,413 --> 00:12:29,482

TO THE PEOPLE WHO SENT THE VERY

293

00:12:29,548 --> 00:12:30,483

FINAL COMMANDS.

294

00:12:30,549 --> 00:12:30,916

THANK YOU.

295

00:12:30,983 --> 00:12:37,223

AND THE GRATITUDE, I BELIEVE, OF

296

00:12:37,289 --> 00:12:37,990

THE WORLD IS SHOULD BE BESTOWED

297

00:12:38,057 --> 00:12:40,559

BONN YOU FOR ACCOMPLISHING THIS

298

00:12:40,626 --> 00:12:40,926

MISSION.

299

00:12:40,993 --> 00:12:42,461

WE ALSO NEED TO THANK OUR MANY

300

00:12:42,528 --> 00:12:43,696

MILLIONS OF FANS.

301  
00:12:43,762 --> 00:12:45,698  
THE HEARTWARMING BUZZ THAT WE'VE

302  
00:12:45,764 --> 00:12:49,468  
GOTTEN FROM SOCIAL MEDIA, FROM

303  
00:12:49,535 --> 00:12:55,841  
EDUCATION OF REGIONS, THE MEDIA

304  
00:12:55,908 --> 00:12:58,177  
HAS JUST BEEN GREAT TELLING

305  
00:12:58,244 --> 00:12:59,879  
CASSINI'S STORY, INSPIRING THE

306  
00:12:59,945 --> 00:13:03,949  
NEXT SET OF EXPLORERS IS JUST

307  
00:13:04,016 --> 00:13:07,153  
ABSOLUTELY IMPORTANT TO US AND

308  
00:13:07,219 --> 00:13:07,920  
THE SCIENTIFIC RESULTS WE'VE

309  
00:13:07,987 --> 00:13:08,220  
FOUND.

310  
00:13:08,287 --> 00:13:10,489  
SO THANK YOU SO MUCH FOR THAT.

311  
00:13:10,556 --> 00:13:13,893  
THE CASSINI MISSION ENDED THIS

312  
00:13:13,959 --> 00:13:16,095  
MORNING, IN THE CLOUDS OF

313  
00:13:16,162 --> 00:13:16,462

SATURN.

314

00:13:16,529 --> 00:13:19,698

THE SPACECRAFT IS GONE.

315

00:13:19,765 --> 00:13:27,406

THANKS AND FAREWELL, FATEFUL

316

00:13:27,473 --> 00:13:27,773

EXPLORER.

317

00:13:27,840 --> 00:13:28,507

BUT THE LEGACY OF CASSINI AS

318

00:13:28,574 --> 00:13:28,974

JUST BEGUN.

319

00:13:29,041 --> 00:13:30,843

IT WILL GO ON FOR DECADES.

320

00:13:30,910 --> 00:13:31,477

THANK YOU, AND LONG LIVE

321

00:13:31,544 --> 00:13:31,810

CASSINI.

322

00:13:31,877 --> 00:13:46,559

[ APPLAUSE ]

323

00:13:46,625 --> 00:13:47,693

>> ALL RIGHT.

324

00:13:47,760 --> 00:13:53,499

NEXT UP WEAVE JULIE WEBSTER.

325

00:13:53,566 --> 00:13:54,033

>> OKAY.

326

00:13:54,099 --> 00:13:56,969

THANK YOU.

327

00:13:57,036 --> 00:13:59,438

I ALMOST HAVE NO WORDS. I WAS

328

00:13:59,505 --> 00:14:00,673

SUPPOSED TO GIVE THE CHRONOLOGY.

329

00:14:00,739 --> 00:14:03,842

I HAVE BEEN ON THIS MISSION

330

00:14:03,909 --> 00:14:06,812

SINCE IT WAS BUILT.

331

00:14:06,879 --> 00:14:11,450

AND AS I GAVE SEVERAL INTERVIEWS

332

00:14:11,517 --> 00:14:12,985

YESTERDAY, ONE OF THE PRIVILEGE

333

00:14:13,052 --> 00:14:18,357

FEW THAT ACTUALLY SAT INSIDE THE

334

00:14:18,424 --> 00:14:20,693

SPACECRAFT BEFORE IT LEFT.

335

00:14:20,759 --> 00:14:27,566

MY LAST IMAGE WAS INSIDE OF THE

336

00:14:27,633 --> 00:14:30,169

PARTS AND THE WIRING.

337

00:14:30,236 --> 00:14:33,372

WE HAD -- WE'VE HAD 13 YEARS AT

338

00:14:33,439 --> 00:14:36,542

SATURN, BUT 20 YEARS OF AN

339

00:14:36,609 --> 00:14:39,745

INCREDIBLE SPACECRAFT THAT WAS

340

00:14:39,812 --> 00:14:42,047

DESIGNED BY PEOPLE, AND I CAN'T

341

00:14:42,114 --> 00:14:43,782

EMPHASIZE THIS ENOUGH, THAT HAD

342

00:14:43,849 --> 00:14:45,150

30 YEARS OF EXPERIENCE.

343

00:14:45,217 --> 00:14:46,885

WHEN THEY DESIGNED IT, THEY TOOK

344

00:14:46,952 --> 00:14:52,324

ALL THE LESSONS LEARNED FROM THE

345

00:14:52,391 --> 00:14:57,229

VOYAGERS AND GALILEOS AND

346

00:14:57,296 --> 00:15:00,266

MAGELLONS AND MARS OBSERVER.

347

00:15:00,332 --> 00:15:03,802

AND BUILD A PERFECT SPACECRAFT.

348

00:15:03,869 --> 00:15:05,671

YOU KNOW?

349

00:15:05,738 --> 00:15:08,374

RIGHT TO THE LAST END.

350

00:15:08,440 --> 00:15:11,343

THE WHOLE ELECTRONIC SYSTEM IN

351  
00:15:11,410 --> 00:15:12,745  
THE SPACECRAFT RAN AT ONE

352  
00:15:12,811 --> 00:15:13,445  
TEMPERATURE.

353  
00:15:13,512 --> 00:15:16,448  
IT'S AN AMAZING ACCOMPLISHMENT.

354  
00:15:16,515 --> 00:15:19,285  
AND THAT SPEAKS TO ALL THE

355  
00:15:19,351 --> 00:15:22,421  
INDIVIDUAL ENGINEERS THAT BUILT

356  
00:15:22,488 --> 00:15:25,457  
THE SPACECRAFT TO LAST.

357  
00:15:25,524 --> 00:15:27,593  
THE MISSIONS MANNING TEAM AND

358  
00:15:27,660 --> 00:15:28,961  
THE NAVIGATION TEAM THAT

359  
00:15:29,028 --> 00:15:31,430  
DESIGNED THE TRAJECTORY TO GET

360  
00:15:31,497 --> 00:15:32,798  
THE BEST BANG FOR THE BUCK FOR

361  
00:15:32,865 --> 00:15:35,734  
THE SCIENTISTS, AND MISSION

362  
00:15:35,801 --> 00:15:36,869  
PLANNERS GOING BACK AND FORTH

363  
00:15:36,935 --> 00:15:39,605

WITH THE SCIENTISTS, YOU KNOW,

364

00:15:39,672 --> 00:15:41,407

LIKE SEVEN DIFFERENT

365

00:15:41,473 --> 00:15:42,608

TRAJECTORIES CHOSEN AT THIS

366

00:15:42,675 --> 00:15:42,908

POINT.

367

00:15:42,975 --> 00:15:44,677

AND I THINK THE GOAL WAS TO MAKE

368

00:15:44,743 --> 00:15:49,148

ALL SCIENTISTS EQUALLY UNHAPPY.

369

00:15:49,214 --> 00:15:49,548

[ LAUGHTER ]

370

00:15:49,615 --> 00:15:51,684

AND THE GOAL FOR OUR TEAM, MY

371

00:15:51,750 --> 00:15:52,751

TEAM, AND THE NAVIGATION TEAM

372

00:15:52,818 --> 00:15:54,119

WAS TO MAKE IT LAST.

373

00:15:54,186 --> 00:15:57,156

AND I THINK YOU SAW THIS MORNING

374

00:15:57,222 --> 00:15:58,357

THAT WE DID.

375

00:15:58,424 --> 00:16:02,428

WE GOT ACTUALLY ALMOST 30

376

00:16:02,494 --> 00:16:04,930  
SECONDS LONGER THAN WE

377

00:16:04,997 --> 00:16:05,297  
PRODICTED.

378

00:16:05,364 --> 00:16:06,432  
IT DIDN'T SEEM LIKE IT TO ME

379

00:16:06,498 --> 00:16:08,067  
BECAUSE IT WAS IN THE FLASH OF

380

00:16:08,133 --> 00:16:09,101  
AN EYE.

381

00:16:09,168 --> 00:16:11,437  
ALL NIGHT LONG, THE MINUTES

382

00:16:11,503 --> 00:16:12,538  
SEEMED LIKE A LONG TIME.

383

00:16:12,604 --> 00:16:17,609  
ALL OF THE SUDDEN IT WAS OVER.

384

00:16:17,676 --> 00:16:20,179  
CASSINI AS A SPACECRAFT COULD

385

00:16:20,245 --> 00:16:21,547  
HAVE GONE ON A LONG TIME.

386

00:16:21,613 --> 00:16:24,116  
BUT IT ACCOMPLISHED ITS MISSION

387

00:16:24,183 --> 00:16:24,750  
AT SATURN.

388

00:16:24,817 --> 00:16:26,118

WE DID EVERYTHING THAT THE

389

00:16:26,185 --> 00:16:30,389

SCIENTISTS ASKED US TO DO, AND

390

00:16:30,456 --> 00:16:33,926

DURING THAT TIME WE TRAVELED 4.9

391

00:16:33,992 --> 00:16:39,431

BILLION MILES. WE DID 292 AND A

392

00:16:39,498 --> 00:16:42,935

HALF, 293 UNIQUE ORBITS AROUND

393

00:16:43,001 --> 00:16:45,637

SATURN SHAPED BY THE NAVIGATION

394

00:16:45,704 --> 00:16:48,741

AND SPACECRAFT TEAM, POINT HERE

395

00:16:48,807 --> 00:16:52,144

AND GO CHANGE YOUR SPEED THIS

396

00:16:52,211 --> 00:16:53,212

WAY.

397

00:16:53,278 --> 00:16:56,982

THE SPACECRAFT PERFORMING

398

00:16:57,049 --> 00:16:57,383

FLAWLESSLY.

399

00:16:57,449 --> 00:17:02,254

WE DID 360 BURNS. WE PLANNED

400

00:17:02,321 --> 00:17:02,521

472.

401  
00:17:02,588 --> 00:17:05,357  
WE EXECUTED 360, A LITTLE MORE

402  
00:17:05,424 --> 00:17:08,594  
THAN HALF OF THOSE ON THE MAIN

403  
00:17:08,660 --> 00:17:08,927  
ENGINE.

404  
00:17:08,994 --> 00:17:14,900  
THE OTHER HALF ON THE OTHER PART

405  
00:17:14,967 --> 00:17:15,200  
PART.

406  
00:17:15,267 --> 00:17:16,802  
YOU KNOW, THE LAST 22 -- THE

407  
00:17:16,869 --> 00:17:20,572  
LAST 21 WEEKS, SINCE APRIL, I

408  
00:17:20,639 --> 00:17:23,809  
WAS A LOT MORE NERVOUS IN APRIL

409  
00:17:23,876 --> 00:17:25,811  
WHEN WE DOVE THROUGH THE FIRST

410  
00:17:25,878 --> 00:17:26,111  
TIME.

411  
00:17:26,178 --> 00:17:27,579  
I COULD BARELY SPEAK.

412  
00:17:27,646 --> 00:17:29,248  
I COULD BARELY BREATHE, WHEN WE

413  
00:17:29,314 --> 00:17:31,116

WERE WAITING FOR THAT SIGNAL TO

414

00:17:31,183 --> 00:17:34,219

SAY THAT WE GOT THROUGH INSIDE

415

00:17:34,286 --> 00:17:35,721

THE RINGS.

416

00:17:35,788 --> 00:17:38,757

AND THIS LAST TIME, I HAD NO

417

00:17:38,824 --> 00:17:42,361

WORDS BECAUSE IT DID EXACTLY

418

00:17:42,428 --> 00:17:43,862

WHAT IT SAID IT WAS SUPPOSED TO

419

00:17:43,929 --> 00:17:44,129

DO.

420

00:17:44,196 --> 00:17:44,997

>> EVEN BETTER.

421

00:17:45,063 --> 00:17:47,399

>> EVEN BETTER, AS IT ALWAYS

422

00:17:47,466 --> 00:17:49,902

DID, AS IT ALWAYS DID.

423

00:17:49,968 --> 00:17:52,037

I CAN'T -- AT RADIO SCIENCE,

424

00:17:52,104 --> 00:17:55,174

MADE THE CALL FOR THE END OF

425

00:17:55,240 --> 00:17:58,377

MISSION, AND I CAN'T TELL YOU

426

00:17:58,444 --> 00:18:01,747

GUYS, RADIO SCIENCE DOES -- THEY

427

00:18:01,814 --> 00:18:04,917

DO THESE 30 HOUR LONG DAYS, AND

428

00:18:04,983 --> 00:18:08,587

I SEE THEM STAY IN DAY AFTER DAY

429

00:18:08,654 --> 00:18:09,755

AFTER DAY.

430

00:18:09,822 --> 00:18:11,990

DOCTORS WOULD REFER TO THE FACT

431

00:18:12,057 --> 00:18:13,125

THAT CASSINI WILL HAVE QUESTIONS

432

00:18:13,192 --> 00:18:14,793

FOR THE SCIENTISTS THAT WILL

433

00:18:14,860 --> 00:18:17,162

KEEP THEM UP AT NIGHT.

434

00:18:17,229 --> 00:18:20,466

WELL, I NO LONGER HAVE A

435

00:18:20,532 --> 00:18:22,701

SPACECRAFT TO KEEP ME UP AT

436

00:18:22,768 --> 00:18:23,101

NIGHT.

437

00:18:23,168 --> 00:18:26,805

AND I THINK AFTER A FEW DAYS, I

438

00:18:26,872 --> 00:18:31,343

THINK I'M GOING TO MISS THAT.

439

00:18:31,410 --> 00:18:33,345

DON'T ASK ME TOMORROW IF I'M

440

00:18:33,412 --> 00:18:35,113

READY TO BUILD ANOTHER ONE, BUT

441

00:18:35,180 --> 00:18:38,750

YOU CAN ASK ME NEXT MONTH.

442

00:18:38,817 --> 00:18:42,554

[ LAUGHTER ]

443

00:18:42,621 --> 00:18:45,624

WE'VE GOT THREE YEARS OF TEST

444

00:18:45,691 --> 00:18:48,660

LABS AND FLIGHT HARDWARE AND

445

00:18:48,727 --> 00:18:52,364

SUPPORT HARDWARE AND A POOL OF

446

00:18:52,431 --> 00:18:56,201

150 PEOPLE TO DISPERSE AND BREAK

447

00:18:56,268 --> 00:18:56,502

DOWN.

448

00:18:56,568 --> 00:18:59,037

BUT RIGHT UNTIL THE END, IT DID

449

00:18:59,104 --> 00:18:59,438

EVERYTHING.

450

00:18:59,505 --> 00:19:00,806

AND YOU KNOW, A LOT OF THE TEAM

451  
00:19:00,873 --> 00:19:03,408  
IS IN HERE RIGHT NOW, AND I WANT

452  
00:19:03,475 --> 00:19:07,212  
TO THANK AGAIN THE REALTIME

453  
00:19:07,279 --> 00:19:08,280  
OPERATIONS THAT ALSO WORKED THE

454  
00:19:08,347 --> 00:19:10,649  
THANKLESS HOURS, WHO WERE THE

455  
00:19:10,716 --> 00:19:12,584  
ONES WHO CALLED ME IN THE MIDDLE

456  
00:19:12,651 --> 00:19:15,053  
OF THE NIGHT.

457  
00:19:15,120 --> 00:19:17,656  
IT WENT PERFECT.

458  
00:19:17,723 --> 00:19:19,525  
IT DID EVERYTHING YOU'D ASK US

459  
00:19:19,591 --> 00:19:20,058  
TO DO.

460  
00:19:20,125 --> 00:19:21,660  
WHEN WE DIDN'T DO IT, IT WAS

461  
00:19:21,727 --> 00:19:24,096  
BECAUSE OF WHAT WE TOLD IT TO

462  
00:19:24,162 --> 00:19:24,730  
DO.

463  
00:19:24,796 --> 00:19:28,000

IT STILL WAS OUR FAULT.

464

00:19:33,205 --> 00:19:30,402

IT'S PERFECT.

465

00:19:33,272 --> 00:19:40,212

AND IT'S A PLACE THAT BLOWS MY

466

00:19:40,279 --> 00:19:41,613

WILDEST DREAMS.

467

00:19:41,680 --> 00:19:43,549

I'D BLAST IT IN THE CAR GOING

468

00:19:43,615 --> 00:19:45,684

HOME AND BLAST IT COMING BACK

469

00:19:45,751 --> 00:19:46,018

IN.

470

00:19:46,084 --> 00:19:49,621

THIS HAS TRULY BEEN BEYOND MY

471

00:19:49,688 --> 00:19:50,088

WILDEST DREAMS.

472

00:19:50,155 --> 00:19:50,622

>> THANK YOU, JULIE.

473

00:19:50,689 --> 00:20:01,600

[ APPLAUSE ]

474

00:20:01,667 --> 00:20:02,200

>> OKAY.

475

00:20:02,267 --> 00:20:05,203

AND NOW OVER TO LINDA.

476  
00:20:05,270 --> 00:20:07,739  
>> FOR ME, THIS HAS BEEN AN

477  
00:20:07,806 --> 00:20:09,107  
INCREDIBLE JOURNEY WITH CASSINI

478  
00:20:09,174 --> 00:20:11,076  
THAT SPANNED 40 YEARS.

479  
00:20:11,143 --> 00:20:12,945  
I WAS WITH THE MISSION FROM WHEN

480  
00:20:13,011 --> 00:20:15,414  
IT WAS JUST AN IDEA, AFTER THE

481  
00:20:15,480 --> 00:20:17,382  
VOYAGE OF FLY-BYES, AND NOW TO

482  
00:20:17,449 --> 00:20:18,984  
SEE IT THROUGH TO THE END IS

483  
00:20:19,051 --> 00:20:19,952  
TRULY AMAZING.

484  
00:20:20,018 --> 00:20:21,620  
AND TO SHARE THAT WITH MY

485  
00:20:21,687 --> 00:20:23,655  
FAMILY, MY PERSONAL FAMILY AND

486  
00:20:23,722 --> 00:20:26,658  
MY CASSINI FAMILY, WHAT A

487  
00:20:26,725 --> 00:20:27,459  
WONDERFUL EXPERIENCE.

488  
00:20:27,526 --> 00:20:28,894

LOOKING BACK ON THE MISSION, I

489

00:20:28,961 --> 00:20:31,730

SEE A MISSION THAT WAS RUNNING A

490

00:20:31,797 --> 00:20:35,133

13-YEAR MARATHON OF SCIENTIFIC

491

00:20:35,200 --> 00:20:35,534

DISCOVERY.

492

00:20:35,601 --> 00:20:39,171

AND THIS LAST ORBIT WAS JUST THE

493

00:20:39,237 --> 00:20:39,938

LAST LAP.

494

00:20:40,005 --> 00:20:43,809

SO WE STOOD IN CELEBRATION OF

495

00:20:43,875 --> 00:20:45,177

SUCCESSFULLY COMPLETING THE

496

00:20:45,243 --> 00:20:46,478

RACE.

497

00:20:46,545 --> 00:20:48,847

I STOOD THERE WITH A MIXTURE OF

498

00:20:48,914 --> 00:20:50,716

APPLAUSE AND TEARS, BECAUSE IT

499

00:20:50,782 --> 00:20:52,718

FELT SO MUCH LIKE LOSING A

500

00:20:52,784 --> 00:20:56,088

FRIEND, A SPACECRAFT I HAD

501  
00:20:56,154 --> 00:20:57,990  
GOTTEN TO KNOW SO WELL.

502  
00:20:58,056 --> 00:20:59,658  
LOOKING AT THE END AND

503  
00:20:59,725 --> 00:21:01,526  
BEGINNING, THERE'S SO MUCH LEFT,

504  
00:21:01,593 --> 00:21:03,328  
SO MUCH INCREDIBLE SCIENCE LEFT

505  
00:21:03,395 --> 00:21:06,932  
TO FIGURE OUT AND UNDERSTAND,

506  
00:21:06,999 --> 00:21:10,135  
DECADES' WORTH, SCIENCE THAT

507  
00:21:10,202 --> 00:21:10,869  
WILL SPAN A GENERATION. WHEN I

508  
00:21:10,936 --> 00:21:11,737  
THINK ABOUT CASSINI GOING IN, I

509  
00:21:11,803 --> 00:21:13,205  
KNOW THERE'S A PIECE OF ME THERE

510  
00:21:13,271 --> 00:21:14,272  
IN HEART AND SOUL.

511  
00:21:14,339 --> 00:21:17,209  
I KNOW THAT WE SIGNED UP, OUR

512  
00:21:17,275 --> 00:21:18,910  
SIGNATURES ON A LIST OF SHEETS.

513  
00:21:18,977 --> 00:21:20,512

THOSE SHEETS WERE SCANNED IN,

514

00:21:20,579 --> 00:21:24,650

PUT ON A CD, AND THAT CD IS ON

515

00:21:24,716 --> 00:21:25,417

BOARD CASSINI.

516

00:21:25,484 --> 00:21:28,420

SO A LITTLE PIECE OF ME WENT

517

00:21:28,487 --> 00:21:31,256

INTO SATURN'S ATMOSPHERE ALONG

518

00:21:31,323 --> 00:21:31,923

WITH CASSINI.

519

00:21:31,990 --> 00:21:33,792

SO WHAT AN INCREDIBLE RIDE.

520

00:21:33,859 --> 00:21:35,127

JUST LASTING FOR SO LONG.

521

00:21:35,193 --> 00:21:36,728

I WANT TO STEP BACK JUST A

522

00:21:36,795 --> 00:21:38,597

LITTLE BIT, IF WE COULD GO TO

523

00:21:38,664 --> 00:21:40,365

THE FIRST SLIDE, PLEASE.

524

00:21:40,432 --> 00:21:47,039

THIS IS AN IMAGE PUT TOGETHER BY

525

00:21:47,105 --> 00:21:53,578

A VISUAL INFRARED SPECTRONOMY

526  
00:21:53,645 --> 00:21:53,879  
TEAM.

527  
00:21:53,945 --> 00:21:56,448  
THIS IS VIEW AT FIVE MICRONS YOU

528  
00:21:56,515 --> 00:21:57,916  
CAN SEE THE HEAT ENERGY COMING

529  
00:21:57,983 --> 00:22:02,421  
OUT OF SATURN, AND THIS IS THE

530  
00:22:02,487 --> 00:22:03,255  
PLACE WHERE CASSINI TOOK ITS

531  
00:22:03,321 --> 00:22:04,956  
FINAL PLUNGE.

532  
00:22:05,023 --> 00:22:07,626  
IF YOU GO TO THE NEXT GRAPHIC,

533  
00:22:07,693 --> 00:22:08,660  
THAT'S WHERE WE THINK CASSINI

534  
00:22:08,727 --> 00:22:11,163  
WENT INTO THE ATMOSPHERE OF

535  
00:22:11,229 --> 00:22:11,496  
SATURN.

536  
00:22:11,563 --> 00:22:16,134  
WHAT AN INCREDIBLE RIDE.

537  
00:22:16,201 --> 00:22:16,868  
TO GET THAT VERY LAST SET OF

538  
00:22:16,935 --> 00:22:18,303

IMAGES THAT CAME BACK FROM

539

00:22:18,370 --> 00:22:20,138

CASSINI, SO HERE IT IS TURNED

540

00:22:20,205 --> 00:22:21,707

AROUND VERY QUICKLY FOR YOU TO

541

00:22:21,773 --> 00:22:22,207

SEE.

542

00:22:22,274 --> 00:22:24,943

IF WE GO ON TO THE NEXT SET, IF

543

00:22:25,010 --> 00:22:27,079

WE HAD A LAST LOOK AT IMAGES,

544

00:22:27,145 --> 00:22:29,281

LOOK AT THIS, AND YOU CAN SHARE

545

00:22:29,347 --> 00:22:32,617

WHAT WE SAW FOR OUR FINAL SET OF

546

00:22:32,684 --> 00:22:36,354

IMAGES AND DATA.

547

00:22:36,421 --> 00:22:39,825

SATURN, SETTING BEHIND SATURN.

548

00:22:39,891 --> 00:22:41,526

HOW BEAUTIFUL.

549

00:22:41,593 --> 00:22:44,029

THE MOSAIC OF SATURN AND THE

550

00:22:44,096 --> 00:22:45,797

RINGS IN COLOR, OUR LAST LOOK AT

551  
00:22:45,864 --> 00:22:47,332  
THIS INCREDIBLE SYSTEM.

552  
00:22:47,399 --> 00:22:47,632  
TITAN.

553  
00:22:47,699 --> 00:22:51,169  
YOU CAN SEE THE LAKES AND SEAS

554  
00:22:51,236 --> 00:22:53,371  
AT THE NTH POLE AND THE HAZE.

555  
00:22:53,438 --> 00:22:57,175  
AND AN EVEN BETTER VIEW OF THE

556  
00:22:57,242 --> 00:22:57,843  
LAKES.

557  
00:22:57,909 --> 00:22:59,578  
THERE'S DAFTNESS CREATING ITS

558  
00:22:59,644 --> 00:23:01,246  
WEIGHT ALONG THE EDGE OF THE

559  
00:23:01,313 --> 00:23:04,216  
GAP, AND THE BEAUTIFUL STRUCTURE

560  
00:23:04,282 --> 00:23:07,419  
IN THE RINGS.

561  
00:23:07,486 --> 00:23:09,154  
ANOTHER VIEW LOOKING OUT ACROSS

562  
00:23:09,221 --> 00:23:13,692  
THE RINGS, A BRIGHT RING, DARK

563  
00:23:13,759 --> 00:23:16,528

DIVISION, SMUGGLED NEXT TO IT.

564

00:23:16,595 --> 00:23:18,263

VIEWS THAT WE'RE GOING TO MISS

565

00:23:18,330 --> 00:23:19,631

FOR A LONG TIME TO COME.

566

00:23:19,698 --> 00:23:24,503

A TINY PROPELLER, THE ROCKET

567

00:23:24,569 --> 00:23:26,304

JUST ABOVE THE DARK GAP.

568

00:23:26,371 --> 00:23:28,774

LARGE SET OF RINGS TOGETHER

569

00:23:28,840 --> 00:23:32,043

TRAPPED OPEN GAS. HERE'S

570

00:23:32,110 --> 00:23:37,682

CASSINI'S FINAL IMAGE.

571

00:23:37,749 --> 00:23:39,451

WHAT A WONDERFUL SET OF DATA.

572

00:23:39,518 --> 00:23:41,286

AS WE WENT INTO THE ATMOSPHERE,

573

00:23:41,353 --> 00:23:44,689

WE HAD EIGHT, INCLUDING THE EYE

574

00:23:44,756 --> 00:23:51,830

OF THE SPECTROMETER AND

575

00:23:51,897 --> 00:23:53,598

NUETROMETER TO ANSWER QUESTIONS.

576  
00:23:53,665 --> 00:23:55,267  
BUT IN PARTICULAR, TRYING TO

577  
00:23:55,333 --> 00:23:57,169  
UNDERSTAND AS WE PROBED DEEPER,

578  
00:23:57,235 --> 00:24:01,239  
THE HYDROGEN TO HELIUM RATIO.

579  
00:24:01,306 --> 00:24:03,074  
YOU CAN'T MEASURE HELIUM UNLESS

580  
00:24:03,141 --> 00:24:04,376  
YOU DIRECTLY MEASURE IT.

581  
00:24:04,442 --> 00:24:06,478  
YOU CAN INFER IT AND MODEL IT,

582  
00:24:06,545 --> 00:24:07,946  
BUT TO BE THERE AND DIRECTLY

583  
00:24:08,013 --> 00:24:10,782  
MEASURE AND SAMPLE, THAT WAS

584  
00:24:10,849 --> 00:24:11,116  
AMAZING.

585  
00:24:11,183 --> 00:24:13,385  
SO THAT WAS HARD AT WORK RIGHT

586  
00:24:13,451 --> 00:24:15,220  
NOW LOOKING AT THEIR DATA AND

587  
00:24:15,287 --> 00:24:16,288  
TRYING TO ASSESS WHAT THEY SAW

588  
00:24:16,354 --> 00:24:20,192

IN THE MOMENTS, AND I'M SURE

589

00:24:20,258 --> 00:24:27,532

THEY'LL BE VERY HAPPY.

590

00:24:27,599 --> 00:24:29,167

AND THE LONGER TERM ANALYSIS

591

00:24:29,234 --> 00:24:30,869

THAT WILL GO ON FOR YEARS.

592

00:24:30,936 --> 00:24:32,804

AND I WANT TO THANK EVERYONE AS

593

00:24:32,871 --> 00:24:35,240

WELL, AND PARTICULARLY THE

594

00:24:35,307 --> 00:24:36,174

INTERNATIONAL SCIENCE TEAM.

595

00:24:36,241 --> 00:24:38,743

WE HAD TOO MANY TO TRY AND FIT

596

00:24:38,810 --> 00:24:40,212

ALL AT JPL.

597

00:24:40,278 --> 00:24:44,316

THEY'RE DONE AND THEY'VE BEEN

598

00:24:44,382 --> 00:24:45,016

CELEBRATING, AND I'VE HEARD,

599

00:24:45,083 --> 00:24:46,985

HAVING A GREAT TIME FROM THE

600

00:24:47,052 --> 00:24:47,552

REPORTS I'VE HEARD.

601  
00:24:47,619 --> 00:24:49,654  
AND ALSO TO THANK THE PUBLIC, AS

602  
00:24:49,721 --> 00:24:52,224  
I'VE SAID, WHO HAVE COME ALONG

603  
00:24:52,290 --> 00:24:54,259  
WITH US.

604  
00:24:54,326 --> 00:24:56,695  
WHEN I THINK ABOUT CASSINI, I

605  
00:24:56,761 --> 00:24:58,029  
THINK THE FINAL GIFT IS THE FACT

606  
00:24:58,096 --> 00:24:59,598  
THAT WE KNEW THE DAY, THE HOUR,

607  
00:24:59,664 --> 00:25:01,533  
THE MINUTE, AND NOW THE SECOND

608  
00:25:01,600 --> 00:25:02,868  
OF THE PLUNGE.

609  
00:25:02,934 --> 00:25:04,269  
SO WE COULD GATHER TOGETHER WITH

610  
00:25:04,336 --> 00:25:07,105  
THE SCIENTISTS, THE ENGINEERS,

611  
00:25:07,172 --> 00:25:09,241  
WITH THE PUBLIC, WITH OUR OWN

612  
00:25:09,307 --> 00:25:09,608  
FAMILIES.

613  
00:25:09,674 --> 00:25:15,580

YOU CAN THINK OF US AS A GIANT

614

00:25:15,647 --> 00:25:16,648

WORLDWIDE CASSINI FAMILY.

615

00:25:16,715 --> 00:25:18,183

AND SHARED THE FINAL MOMENT OF

616

00:25:18,250 --> 00:25:20,819

THE PLUNGE, AND HAVE THAT MEMORY

617

00:25:20,886 --> 00:25:22,420

TO ADD TO OUR CASSINI

618

00:25:22,487 --> 00:25:22,821

SCRAPBOOKS.

619

00:25:22,888 --> 00:25:26,191

IF I HAD ONE THING I COULD SAY,

620

00:25:26,258 --> 00:25:28,326

I'D SAY GOOD-BYE CASSINI.

621

00:25:28,393 --> 00:25:31,263

THANKS FOR THE WINGSIDE SEAT AT

622

00:25:31,329 --> 00:25:31,596

SATURN.

623

00:25:31,663 --> 00:25:32,364

AND AS THOMAS SAID, WE'LL BE

624

00:25:32,430 --> 00:25:32,664

BACK.

625

00:25:32,731 --> 00:25:33,031

THANK YOU.

626

00:25:33,098 --> 00:25:44,876

[ APPLAUSE ]

627

00:25:44,943 --> 00:25:46,278

>> THANK YOU, LINDA.

628

00:25:46,344 --> 00:25:47,913

NOW TO THE QUESTION AND ANSWER

629

00:25:47,979 --> 00:25:49,314

PART OF OUR BRIEFING.

630

00:25:49,381 --> 00:25:51,816

A REMINDER FOR REPORTERS ON THE

631

00:25:51,883 --> 00:25:53,218

PHONE, PRESS STAR ONE, AND

632

00:25:53,285 --> 00:25:55,186

YOU'LL GET PUT INTO THE QUEUE.

633

00:25:55,253 --> 00:25:58,590

WE'LL HAVE SOCIAL MEDIA

634

00:25:58,657 --> 00:26:00,959

QUESTIONS WITH #ASKNASA, AND

635

00:26:01,026 --> 00:26:02,661

ANYONE IN THE ROOM, RAISE YOUR

636

00:26:02,727 --> 00:26:04,596

HAND AND WE'LL BRING THE MIC

637

00:26:04,663 --> 00:26:05,931

AROUND AND YOU CAN STAND UP AND

638

00:26:05,997 --> 00:26:06,665

ASK A QUESTION.

639

00:26:06,731 --> 00:26:08,700

ANY QUESTIONS IN THE ROOM?

640

00:26:08,767 --> 00:26:09,301

RIGHT THERE.

641

00:26:09,367 --> 00:26:12,337

>> HI, THANK YOU ALL.

642

00:26:12,404 --> 00:26:15,640

AND CONGRATULATIONS.

643

00:26:15,707 --> 00:26:17,208

I KNOW IT WAS A LONG SHOT.

644

00:26:17,275 --> 00:26:19,411

I WONDER IF ANY OF THE

645

00:26:19,477 --> 00:26:21,146

TELESCOPES OVER BY AUSTRALIA IN

646

00:26:21,212 --> 00:26:24,149

AND IN THAT AREA ACTUALLY SAW

647

00:26:24,215 --> 00:26:26,117

THE FLASH OF CASSINI GOING INTO

648

00:26:26,184 --> 00:26:26,451

SATURN.

649

00:26:26,518 --> 00:26:28,086

>> I HAVEN'T HEARD ANY REPORTS

650

00:26:28,153 --> 00:26:29,888

BACK ABOUT THAT YET, AND IT WAS

651  
00:26:29,955 --> 00:26:33,858  
A LONG SHOT, AND MAYBE WE'LL SEE

652  
00:26:33,925 --> 00:26:34,225  
SOMETHING.

653  
00:26:34,292 --> 00:26:36,861  
>> I WAS WONDERING IF YOU COULD

654  
00:26:36,928 --> 00:26:37,896  
MENTION THE SCIENCE INSTRUMENTS

655  
00:26:37,963 --> 00:26:39,664  
GOING INTO THE PLANET.

656  
00:26:39,731 --> 00:26:41,132  
HOW MUCH HOPE DO YOU HAVE THAT

657  
00:26:41,199 --> 00:26:42,667  
THE MEASUREMENTS ARE GOING TO

658  
00:26:42,734 --> 00:26:46,438  
HELP YOU FINALLY FIGURE OUT THE

659  
00:26:46,504 --> 00:26:48,139  
INTERNAL ROTATION RATE OF SATURN

660  
00:26:48,206 --> 00:26:49,908  
AND THE LENGTH OF A DAY?

661  
00:26:49,975 --> 00:26:51,776  
>> WELL, MICHELLE IS HERE, AND

662  
00:26:51,843 --> 00:26:53,645  
LOOKING GRIM, BUT I KNOW SHE'S

663  
00:26:53,712 --> 00:26:57,115

GOING TO WORK REALLY HARD TO

664

00:26:57,182 --> 00:27:04,689

FIGURE THAT OUT.

665

00:27:04,756 --> 00:27:06,591

>> WE TAKE DATA FOR AS LONG AS

666

00:27:06,658 --> 00:27:07,993

POSSIBLE ON THE WAY IN, THAT

667

00:27:08,059 --> 00:27:09,961

WILL GET US CLOSER TO THE PLANET

668

00:27:10,028 --> 00:27:11,162

THAN ANYTHING HAS EVER BEEN, AND

669

00:27:11,229 --> 00:27:13,999

WE NEED TO DO THAT TO RESOLVE

670

00:27:14,065 --> 00:27:14,799

THE TILT.

671

00:27:14,866 --> 00:27:16,668

I'M HOPING WE CAN DO IT.

672

00:27:16,735 --> 00:27:18,503

I'M NOT GOING TO PROMISE. BUT

673

00:27:18,570 --> 00:27:20,038

ASK ME IN THREE MONTH'S TIME.

674

00:27:20,105 --> 00:27:23,508

GIVE US TIME TO ANALYZE THE

675

00:27:23,575 --> 00:27:24,609

DATA.

676

00:27:24,676 --> 00:27:28,046

>> WE HAVE OTHER QUESTIONS OVER

677

00:27:28,113 --> 00:27:28,880

HERE.

678

00:27:28,947 --> 00:27:29,180

EMILY?

679

00:27:29,247 --> 00:27:32,984

>> WE WERE WATCHING TWO GRAPHS

680

00:27:33,051 --> 00:27:34,352

RIGHT DOWN TOWARDS THE END.

681

00:27:34,419 --> 00:27:36,021

ONE OF THEM FLAT LINED A LITTLE

682

00:27:36,087 --> 00:27:37,322

EARLIER THAN THE OTHER.

683

00:27:37,389 --> 00:27:38,723

AND THE BOTTOM ONE SEEMED TO GO

684

00:27:38,790 --> 00:27:41,159

UP AND DOWN A LITTLE?

685

00:27:41,226 --> 00:27:42,260

WHAT WERE THE TWO DIFFERENTS AND

686

00:27:42,327 --> 00:27:43,328

WHAT WAS HAPPENING?

687

00:27:43,395 --> 00:27:45,296

>> YOU WERE WATCHING RADIO

688

00:27:45,363 --> 00:27:47,999

SCIENCE SIGNAL THE CARRIER, THE

689

00:27:48,066 --> 00:27:50,435

X BAND CARRIER WAS THE TOP ONE.

690

00:27:50,502 --> 00:27:56,441

THAT'S THE ONE THAT'S THE 8 GIG

691

00:27:56,508 --> 00:27:59,310

HERTZ SIGNAL AND THE OTHER WAS A

692

00:27:59,377 --> 00:28:06,184

RADIO SCIENCE SIGNAL COHERENT AT

693

00:28:06,251 --> 00:28:07,318

2GIGAHERTZ DOWN LOWER THAN THAT.

694

00:28:07,385 --> 00:28:09,721

WE EXPECKEDED THAT THE S WOULD

695

00:28:09,788 --> 00:28:12,223

LAST LONGER THAN THE X.

696

00:28:12,290 --> 00:28:15,527

BUT BECAUSE THE X HAS A WIDER

697

00:28:15,593 --> 00:28:18,696

BAND WIDTH PATTERN, THAT IT

698

00:28:18,763 --> 00:28:19,731

WOULD LAST.

699

00:28:19,798 --> 00:28:22,434

I DON'T KNOW, BUT YOU MAY HAVE

700

00:28:22,500 --> 00:28:24,269

SEEN A COUPLE OF SIDE BANDS

701  
00:28:24,335 --> 00:28:27,272  
COMING DOWN FOR THE S BAND.

702  
00:28:27,338 --> 00:28:29,240  
THEY HAVE PRETTY DRAMATIC AND

703  
00:28:29,307 --> 00:28:31,009  
YOU MIGHT HAVE SEEN A LITTLE ON

704  
00:28:31,076 --> 00:28:33,711  
THE X, BUT IT GOES WAY DOWN INTO

705  
00:28:33,778 --> 00:28:35,747  
A FIRST NULL IN LESS THAN A

706  
00:28:35,814 --> 00:28:36,147  
DEGREE.

707  
00:28:36,214 --> 00:28:42,153  
THEN IT MIGHT HAVE BOUNCED UP

708  
00:28:42,220 --> 00:28:49,627  
AFTER THAT.

709  
00:28:49,694 --> 00:28:53,765  
>> THE INFRARED IMAGE OF THE

710  
00:28:53,832 --> 00:28:55,567  
SPOT WHERE CASSINI PROBABLY

711  
00:28:55,633 --> 00:28:56,000  
DISINTEGRATED.

712  
00:28:56,067 --> 00:28:57,535  
CAN YOU TELL US ANYTHING ABOUT

713  
00:28:57,602 --> 00:29:00,505

THAT SPOT AND WHERE IT'S

714

00:29:00,572 --> 00:29:00,872

SITUATED?

715

00:29:00,939 --> 00:29:02,373

>> MAYBE BOB BROWN WHO'S BACK

716

00:29:02,440 --> 00:29:03,475

HERE, DO YOU KNOW ANYTHING ABOUT

717

00:29:03,541 --> 00:29:14,986

THAT REGION OF THE ATMOSPHERE?

718

00:29:15,053 --> 00:29:18,490

>> AROUND 10 DEGREES OF

719

00:29:18,556 --> 00:29:18,890

LATITUDE.

720

00:29:18,957 --> 00:29:20,825

WE FOUND OUT WE HAD AN

721

00:29:20,892 --> 00:29:22,861

OPPORTUNITY TO IMAGE THAT SITE A

722

00:29:22,927 --> 00:29:26,397

FEW MONTHS BACK, AND BECAUSE THE

723

00:29:26,464 --> 00:29:31,035

IMPACT TOOK PLACE, WHAT YOU SEE

724

00:29:31,102 --> 00:29:34,205

THERE IS THE THERMAL HEAT IMAGE

725

00:29:34,272 --> 00:29:36,341

FROM SATURN, THE HEAT LEAKING

726  
00:29:36,407 --> 00:29:36,608  
OUT.

727  
00:29:36,674 --> 00:29:40,211  
WE TOOK A SHOT AND LUCKILY WE

728  
00:29:40,278 --> 00:29:44,916  
GOT IT.

729  
00:29:44,983 --> 00:29:48,419  
>> WHEN WAS THAT IMAGE TAKEN?

730  
00:29:48,486 --> 00:29:49,988  
>> ABOUT 15 HOURS AGO.

731  
00:29:50,054 --> 00:29:51,489  
>> ANYMORE QUESTIONS IN THE

732  
00:29:51,556 --> 00:29:51,789  
ROOM?

733  
00:29:51,856 --> 00:29:53,725  
WE'RE GOING TO GO TO THE PHONE.

734  
00:29:53,791 --> 00:29:56,294  
WE HAVE MARSHA DUNN AS THE AP ON

735  
00:29:56,361 --> 00:29:57,028  
THE LINE.

736  
00:29:57,095 --> 00:29:59,097  
>> HELLO AND THANK YOU.

737  
00:29:59,164 --> 00:30:03,401  
I'M JUST WONDERING IF THE TOASTS

738  
00:30:03,468 --> 00:30:04,235

HAVE BEGUN YET.

739

00:30:04,302 --> 00:30:06,171

IS THERE CHAMPAGNE IN STORE FOR

740

00:30:06,237 --> 00:30:12,076

THE TEAM MORNING OR AFTERNOON?

741

00:30:12,143 --> 00:30:13,778

>> THE SCIENCE TEAM'S GOING TO

742

00:30:13,845 --> 00:30:16,814

GET TOGETHER LATER THIS

743

00:30:16,881 --> 00:30:22,387

AFTERNOON.

744

00:30:22,453 --> 00:30:25,723

>> THE FLICKED TEAM IS GOING TO

745

00:30:25,790 --> 00:30:27,325

GET SOME SLEEP.

746

00:30:27,392 --> 00:30:29,661

[ LAUGHTER ]

747

00:30:29,727 --> 00:30:33,064

I DON'T THINK WE'RE GOING TO

748

00:30:33,131 --> 00:30:34,866

WAIT UNTIL THEN TO OPEN THE

749

00:30:34,933 --> 00:30:35,266

CHAMPAGNE.

750

00:30:35,333 --> 00:30:35,900

>> OKAY.

751  
00:30:35,967 --> 00:30:39,671  
LET'S GO TO SOME SOCIAL MEDIA

752  
00:30:39,737 --> 00:30:41,573  
QUESTIONS.

753  
00:30:41,639 --> 00:30:44,442  
>> AS CASSINI'S JOURNEY ENDS,

754  
00:30:44,509 --> 00:30:45,910  
WHAT QUESTIONS DO YOU HAVE LEFT

755  
00:30:45,977 --> 00:30:48,346  
THAT YOU WOULD LIKE TO SEE

756  
00:30:48,413 --> 00:30:50,215  
EXPLORED ON FUTURE MISSIONS TO

757  
00:30:50,281 --> 00:30:50,548  
SATURN?

758  
00:30:50,615 --> 00:30:52,083  
>> FOR FUTURE MISSIONS, I THINK

759  
00:30:52,150 --> 00:30:53,718  
THERE ARE A LOT OF

760  
00:30:53,785 --> 00:30:56,554  
POSSIBILITIES. ONE CERTAINLY

761  
00:30:56,621 --> 00:31:00,992  
INVOLVES THE ENCELADUS.

762  
00:31:01,059 --> 00:31:03,061  
IS THERE LIFE IN THAT OCEAN TO

763  
00:31:03,127 --> 00:31:04,529

GO BACK WITH THE INSTRUMENTS TO

764

00:31:04,596 --> 00:31:06,197

SAMPLE THROUGH THE PLUME.

765

00:31:06,264 --> 00:31:08,399

TITAN, THE POTENTIAL FOR ASTRO

766

00:31:08,466 --> 00:31:10,268

BIOLOGY AND THE OCEANS ON TITAN.

767

00:31:10,335 --> 00:31:11,836

DO WE HAVE SOMETHING TO LAND AND

768

00:31:11,903 --> 00:31:13,171

FIGURE THAT OUT?

769

00:31:13,238 --> 00:31:15,073

AND ALSO THE SOURCE OF METHANE

770

00:31:15,139 --> 00:31:17,408

THAT KEEPS THE ATMOSPHERE AS

771

00:31:17,475 --> 00:31:18,843

EXPANSIVE AS IT IS.

772

00:31:18,910 --> 00:31:19,911

THE HEXAGON.

773

00:31:19,978 --> 00:31:23,014

WHAT'S KEEPING IT GOING AND

774

00:31:23,081 --> 00:31:27,285

GOING LIKE THE ENERGIZER BUNNY.

775

00:31:27,352 --> 00:31:29,654

AND THE RINGS, CAN WE GET CLOSER

776  
00:31:29,721 --> 00:31:31,489  
AND LOOK AT THE INDIVIDUAL RING

777  
00:31:31,556 --> 00:31:32,323  
PARTICLES TO TRY AND UNDERSTAND

778  
00:31:32,390 --> 00:31:33,191  
WHAT'S GOING ON?

779  
00:31:33,258 --> 00:31:34,993  
LOTS OF QUESTIONS REMAIN, AND

780  
00:31:35,059 --> 00:31:39,597  
THAT'S WHY I SAY WE HAVE TO GO

781  
00:31:39,664 --> 00:31:39,897  
BACK.

782  
00:31:39,964 --> 00:31:42,967  
>> LET'S TAKE ANOTHER SOCIAL

783  
00:31:43,034 --> 00:31:43,635  
MEDIA QUESTION.

784  
00:31:43,701 --> 00:31:48,506  
>> WHAT'S THE NEXT PROBE OR

785  
00:31:48,573 --> 00:31:50,174  
SPACECRAFT THAT WOULD BE SENT TO

786  
00:31:50,241 --> 00:31:52,443  
SATURN?

787  
00:31:52,510 --> 00:31:58,249  
>> WE'LL HAVE TO ASK NASA ABOUT

788  
00:31:58,316 --> 00:31:58,549

THAT.

789

00:31:58,616 --> 00:32:01,386

>> HERE WE GO.

790

00:32:01,452 --> 00:32:03,521

>> DIRECTOR OF PLANETARY SCIENCE

791

00:32:03,588 --> 00:32:06,457

AT NASA, AND CURRENTLY WE'RE

792

00:32:06,524 --> 00:32:07,258

CONDUCTING A COMPETITION WE CALL

793

00:32:07,325 --> 00:32:09,060

NEW FRONTIERS.

794

00:32:09,127 --> 00:32:12,330

AND IN THAT CALL FOR PROPOSALS,

795

00:32:12,397 --> 00:32:17,502

WE INCLUDED ENCELADUS AND TITAN.

796

00:32:17,568 --> 00:32:18,002

HANG TIGHT.

797

00:32:18,069 --> 00:32:19,304

GOING THROUGH EVALUATIONS NOW

798

00:32:19,370 --> 00:32:21,406

AND BY THE END OF THE YEAR,

799

00:32:21,472 --> 00:32:22,774

WE'LL START ANNOUNCING SOME OF

800

00:32:22,840 --> 00:32:25,310

THE FINALISTS THAT WE'LL LOOK IN

801  
00:32:25,376 --> 00:32:26,210  
GREATER DETAIL AT.

802  
00:32:26,277 --> 00:32:30,281  
>> THERE'S ALSO A SATURN PROBE

803  
00:32:30,348 --> 00:32:30,648  
MISSION.

804  
00:32:30,715 --> 00:32:31,282  
>> THANK YOU VERY MUCH.

805  
00:32:31,349 --> 00:32:32,583  
THERE IS, INDEED, SATURN ALREADY

806  
00:32:32,650 --> 00:32:35,953  
FOR DECADES IN TERMS OF BEING

807  
00:32:36,020 --> 00:32:41,392  
ABLE TO GET INTO THE CLOUDS AND

808  
00:32:41,459 --> 00:32:42,026  
REALLY UNDERSTAND THE

809  
00:32:42,093 --> 00:32:45,296  
COMPOSITION AND MUCH MORE ABOUT

810  
00:32:45,363 --> 00:32:45,763  
IT.

811  
00:32:45,830 --> 00:32:51,336  
>> RIGHT.

812  
00:32:51,402 --> 00:32:55,006  
THIS CAN GO MUCH DEEPER LIKE THE

813  
00:32:55,073 --> 00:32:55,473

GALILEO PROBE.

814

00:32:55,540 --> 00:32:56,741

>> JUST A REMINDER, STAR ONE FOR

815

00:32:56,808 --> 00:32:57,942

REPORTER QUESTIONS.

816

00:32:58,009 --> 00:32:59,477

IF YOU'RE IN HERE RAISE YOUR

817

00:32:59,544 --> 00:32:59,777

HAND.

818

00:32:59,844 --> 00:33:02,680

WE HAVE A FOLLOW-UP QUESTION

819

00:33:02,747 --> 00:33:07,185

HERE.

820

00:33:07,251 --> 00:33:10,455

>> WHAT DOES IT MEAN THAT YOU

821

00:33:10,521 --> 00:33:14,425

HAD THE SIGNAL FOR 30 SECONDS

822

00:33:14,492 --> 00:33:14,759

LONGER?

823

00:33:14,826 --> 00:33:16,561

DOES IT MEAN THAT THE SPACECRAFT

824

00:33:16,627 --> 00:33:18,029

WAS ABLE TO FIGHT THE ATMOSPHERE

825

00:33:18,096 --> 00:33:18,696

FOR LONGER?

826

00:33:18,763 --> 00:33:21,566

>> I THINK IT'S A LITTLE BIT OF

827

00:33:21,632 --> 00:33:21,966

EVERYTHING.

828

00:33:22,033 --> 00:33:23,601

THE SPACECRAFT, WE DID COME IN A

829

00:33:23,668 --> 00:33:27,305

LITTLE LATER THAN WE THOUGHT.

830

00:33:27,372 --> 00:33:29,340

AND THAT JUST DIDN'T DELAY THE

831

00:33:29,407 --> 00:33:31,075

DEMISE, IT JUST DELAYED THE

832

00:33:31,142 --> 00:33:33,277

START OF IT.

833

00:33:33,344 --> 00:33:41,519

BUT WE THOUGHT THE.

834

00:33:41,586 --> 00:33:42,920

WE DON'T HAVE ANY REAL WORLD

835

00:33:42,987 --> 00:33:44,422

EXPERIENCE WITH THIS.

836

00:33:44,489 --> 00:33:47,658

SO TO BE WITHIN 13 SECONDS, FOR

837

00:33:47,725 --> 00:33:50,294

US, THAT'S A BIG THING.

838

00:33:50,361 --> 00:33:51,195

>> OKAY.

839

00:33:51,262 --> 00:33:53,398

OH, WE HAVE ANOTHER REPORTER

840

00:33:53,464 --> 00:33:55,767

QUESTION HERE.

841

00:33:55,833 --> 00:33:57,502

COMING RIGHT BEHIND YOU.

842

00:33:57,568 --> 00:33:58,369

>> THANK YOU.

843

00:33:58,436 --> 00:34:02,273

CAN YOU JUST CONFIRM WHAT THE

844

00:34:02,340 --> 00:34:05,810

ACTUAL TIMES WERE FOR THE

845

00:34:05,877 --> 00:34:08,513

ATMOSPHERE INSERTION AND LOSS OF

846

00:34:08,579 --> 00:34:08,846

SIGNAL?

847

00:34:08,913 --> 00:34:11,616

ARE THEY DIFFERENT FROM WHAT WAS

848

00:34:11,682 --> 00:34:12,049

PROJECTED?

849

00:34:12,116 --> 00:34:17,655

>> 11:55:39 FOR THE X BAND

850

00:34:17,722 --> 00:34:20,057

SIGNAL, WHICH CAUSED THE

851  
00:34:20,124 --> 00:34:23,828  
TELEMETRY, AND 11:55:36 FOR S.

852  
00:34:23,895 --> 00:34:25,463  
LOSS OF SIGNAL.

853  
00:34:25,530 --> 00:34:29,500  
>> WE HAD PREDICTED, MUCH TO MY

854  
00:34:29,567 --> 00:34:30,034  
EMBARRASSMENT --

855  
00:34:30,101 --> 00:34:35,206  
>> THAT'S UTC, ALSO.

856  
00:34:35,273 --> 00:34:43,815  
>> WE CALLED 55:16.

857  
00:34:43,881 --> 00:34:46,551  
AND WE LOST X BAND AT 55:39, AND

858  
00:34:46,617 --> 00:34:48,953  
THAT ESSENTIALLY IS WHEN WE LOST

859  
00:34:49,020 --> 00:34:49,821  
DATA.

860  
00:34:49,887 --> 00:34:51,556  
SPACECRAFT, OF COURSE, IS GOING

861  
00:34:51,622 --> 00:34:52,757  
TO LAST AROUND FOR AT LEAST

862  
00:34:52,824 --> 00:34:54,091  
ANOTHER MINUTE.

863  
00:34:54,158 --> 00:34:56,461

AND OF COURSE THE S BAND DID GO

864

00:34:56,527 --> 00:34:56,794

LONGER.

865

00:34:56,861 --> 00:34:57,395

>> OKAY.

866

00:34:57,462 --> 00:34:59,130

>> LET'S TAKE ANOTHER QUESTION

867

00:34:59,197 --> 00:35:00,765

FROM SOCIAL MEDIA.

868

00:35:00,832 --> 00:35:02,800

>> SURE.

869

00:35:02,867 --> 00:35:08,172

THIS QUESTION IS FROM O 'RYAN.

870

00:35:08,239 --> 00:35:10,274

I WOULD LIKE TO KNOW IF THERE

871

00:35:10,341 --> 00:35:11,776

ARE OTHER IDEAS BEING

872

00:35:11,843 --> 00:35:12,176

CONSIDERED.

873

00:35:12,243 --> 00:35:13,778

>> WE HAD LOTS OF DIFFERENT

874

00:35:13,845 --> 00:35:15,079

IDEAS. WHAT REALLY CAME DOWN TO

875

00:35:15,146 --> 00:35:19,750

IT, LET ME GIVE YOU A FEW OF THE

876

00:35:19,817 --> 00:35:20,451

DIFFERENT FLAVORS. WE COULD

877

00:35:20,518 --> 00:35:22,820

HAVE LEFT THE SATURN SYSTEM ALL

878

00:35:22,887 --> 00:35:24,689

TOGETHER AND GONE TO JUPITER.

879

00:35:24,755 --> 00:35:26,958

THOSE WERE VERY LONG MISSIONS,

880

00:35:27,024 --> 00:35:29,227

AND WE WOULD NOT BE CHATTING

881

00:35:29,293 --> 00:35:30,294

ABOUT THEM AND PROBABLY OUR

882

00:35:30,361 --> 00:35:31,929

CHILDREN WOULD NOT BE CHATTING

883

00:35:31,996 --> 00:35:33,030

ABOUT THEM.

884

00:35:33,097 --> 00:35:33,898

THEY'RE VERY LONG.

885

00:35:33,965 --> 00:35:35,466

THERE WERE SEVERAL OPTIONS.

886

00:35:35,533 --> 00:35:37,668

THOSE WERE DISCARDED PRETTY MUCH

887

00:35:37,735 --> 00:35:38,102

IMMEDIATELY.

888

00:35:38,169 --> 00:35:41,873

BUT AS AN EXERCISE, COULD WE

889

00:35:41,939 --> 00:35:46,277

LEAVE THE MISSION?

890

00:35:46,344 --> 00:35:48,679

STAYING WITH SATURN, WE COULD

891

00:35:48,746 --> 00:35:52,817

HAVE GONE -- IF WE STAY AT

892

00:35:52,884 --> 00:35:56,621

SATURN, CASSINI SPACECRAFT MUST

893

00:35:56,687 --> 00:35:57,655

BE PUT INTO A SAFE PLACE.

894

00:35:57,722 --> 00:36:01,292

THE INTERNATIONAL TREATIES THAT

895

00:36:01,359 --> 00:36:03,261

REQUIRE US NOT TO LEAVE AN

896

00:36:03,327 --> 00:36:05,997

UNTENDED SPACECRAFT IN THE

897

00:36:06,063 --> 00:36:12,937

SYSTEM WHERE IT MAY COLLIDE WITH

898

00:36:13,004 --> 00:36:13,671

ENCELADUS, WHICH WE KNOW IS RIPE

899

00:36:13,738 --> 00:36:14,839

FOR ALL THE PARTICLES FOR LIFE.

900

00:36:14,906 --> 00:36:17,308

WE HAD TO DISPOSE OF THE

901  
00:36:17,375 --> 00:36:17,875  
SPACECRAFT SOMEHOW.

902  
00:36:17,942 --> 00:36:19,510  
THEN IT BECOMES, WHERE'S THE

903  
00:36:19,577 --> 00:36:20,311  
BEST SCIENCE?

904  
00:36:20,378 --> 00:36:22,480  
IT'S INSIDE THE SATURN SYSTEM.

905  
00:36:22,547 --> 00:36:24,949  
IT'S NOT WAY OUT AT THE EDGES.

906  
00:36:25,016 --> 00:36:28,486  
SO TEN YEARS AGO WE BEGAN THE

907  
00:36:28,553 --> 00:36:30,955  
MISSION THAT PLAN TO USE EVERY

908  
00:36:31,022 --> 00:36:33,457  
LAST KILOGRAM OF OUR PROPELLANT

909  
00:36:33,524 --> 00:36:36,627  
AND FINISH UP EXACTLY THE WAY WE

910  
00:36:36,694 --> 00:36:36,894  
DID.

911  
00:36:36,961 --> 00:36:38,429  
VERY RISKY, SO YOU DIDN'T WANT

912  
00:36:38,496 --> 00:36:40,264  
TO PUT THEM IN THE MIDDLE,

913  
00:36:40,331 --> 00:36:41,532

BECAUSE MAYBE THEY WOULD NOT

914

00:36:41,599 --> 00:36:42,633

COME BACK OUT.

915

00:36:42,700 --> 00:36:45,169

THEY WERE NOT NEARLY AS RISKY AS

916

00:36:45,236 --> 00:36:46,871

WE THOUGHT SO WE COUGH DONE A

917

00:36:46,938 --> 00:36:49,941

LOT MORE, SO THAT'S ALL

918

00:36:50,007 --> 00:36:50,308

HINDSIGHT.

919

00:36:50,374 --> 00:36:54,879

BUT THIS WAS, BY FAR, THE BEST,

920

00:36:54,946 --> 00:36:56,781

CASSINI GOING OUT AT THE VERY

921

00:36:56,847 --> 00:36:59,784

TOP OF ITS GAME, AND THE

922

00:36:59,850 --> 00:37:01,819

SCIENTIFICALLY UNEXPLORED

923

00:37:01,886 --> 00:37:02,353

ENVIRONMENT.

924

00:37:02,420 --> 00:37:03,020

>> GREAT.

925

00:37:03,087 --> 00:37:04,956

WE HAVE ANOTHER REPORTER

926

00:37:05,022 --> 00:37:06,891

QUESTION IN THE ROOM.

927

00:37:06,958 --> 00:37:08,159

>> STEVE FROM CBS NEWS.

928

00:37:08,225 --> 00:37:10,394

I WANT TO ASK THE THREE OF YOU A

929

00:37:10,461 --> 00:37:11,696

QUESTION THAT'S NOT REALLY

930

00:37:11,762 --> 00:37:14,465

CONCERNS THE DATA OR WHAT YOU

931

00:37:14,532 --> 00:37:15,466

DISCOVERED, BUT JUST THE HUMAN

932

00:37:15,533 --> 00:37:18,169

SIDE OF THIS MISSION, THIS

933

00:37:18,235 --> 00:37:19,837

SPACECRAFT, WE ALL KNOW THE

934

00:37:19,904 --> 00:37:25,776

STORY OF PINOCCHIO, THE WOODEN

935

00:37:25,843 --> 00:37:27,178

DOLL THAT BECOMES HUMAN.

936

00:37:27,244 --> 00:37:29,814

WHAT WAS GOING THROUGH YOUR

937

00:37:29,880 --> 00:37:33,551

HEART AND SOUL AS IT CAME TO THE

938

00:37:33,618 --> 00:37:33,818

END.

939

00:37:33,884 --> 00:37:36,187

WHAT DID CASSINI MEAN TO YOU?

940

00:37:36,253 --> 00:37:38,322

DID IT HURT TODAY?

941

00:37:38,389 --> 00:37:41,926

>> YES, YES IT DOES HURT.

942

00:37:41,993 --> 00:37:44,161

WE'VE BEEN WITH THE SPACECRAFT

943

00:37:44,228 --> 00:37:44,929

ON AND OFF.

944

00:37:44,996 --> 00:37:47,198

I HAVEN'T BEEN ON THE MISSION

945

00:37:47,264 --> 00:37:50,167

THE ENTIRE TIME.

946

00:37:50,234 --> 00:37:53,904

I HOPE -- I HELPED LAUNCH IT.

947

00:37:53,971 --> 00:37:57,241

IT IS AN EXTENSION OF OURSELVES

948

00:37:57,308 --> 00:38:01,746

AND AN EXTENSION.

949

00:38:01,812 --> 00:38:03,914

AND ALSO, WE ARE OUT AT SATURN.

950

00:38:03,981 --> 00:38:07,752

EVERY DAY WE GET A CALL BACK

951  
00:38:07,818 --> 00:38:26,037  
HOME.

952  
00:38:26,103 --> 00:38:27,772  
YOU KNOW, THAT, OF COURSE,

953  
00:38:27,838 --> 00:38:29,440  
THERE'S AN ELEMENT OF TRUTH THAT

954  
00:38:29,507 --> 00:38:29,740  
THAT.

955  
00:38:29,807 --> 00:38:31,976  
THERE'S AN ELEMENT OF TRUTH THAT

956  
00:38:32,043 --> 00:38:35,913  
HAS BEEN OUR COMPANION AND OUR

957  
00:38:35,980 --> 00:38:39,316  
DUTY DUTIFUL SERVANT.

958  
00:38:39,383 --> 00:38:41,018  
THERE'S A SENSE OF PEACE WITH

959  
00:38:41,085 --> 00:38:42,620  
THAT, BECAUSE WE'VE DONE EXACTLY

960  
00:38:42,687 --> 00:38:45,890  
WHAT WE BELIEVE IS THE CORRECT

961  
00:38:45,956 --> 00:38:46,557  
THING.

962  
00:38:46,624 --> 00:38:52,029  
SO THERE'S A WHOLE POTPURRI.

963  
00:38:52,096 --> 00:38:52,663

YOU NAME IT.

964

00:38:52,730 --> 00:38:55,066

>> THERE'S A CORE OF SADDENS.

965

00:38:55,132 --> 00:38:56,867

PART OF THE BREAK UP OF THE

966

00:38:56,934 --> 00:38:58,402

CASSINI FAMILY COMING INTO WORK

967

00:38:58,469 --> 00:39:00,071

MONDAY MORNING AND KNOWING THERE

968

00:39:00,137 --> 00:39:01,806

WILL BE EMPTY OFFICES THERE, AND

969

00:39:01,872 --> 00:39:05,109

THE PEOPLE I COULD JUST STOP BY

970

00:39:05,176 --> 00:39:14,085

AND CHAT WITH.

971

00:39:14,151 --> 00:39:15,486

I FEEL A TREMENDOUS SENSE OF

972

00:39:15,553 --> 00:39:16,754

PRIDE TO WORK ON THE MISSION

973

00:39:16,821 --> 00:39:19,657

OVER SO MANY DECADES AND SEE THE

974

00:39:19,724 --> 00:39:21,292

FRUITION OF THIS PARTICULAR

975

00:39:21,358 --> 00:39:21,625

MISSION.

976  
00:39:21,692 --> 00:39:23,561  
PART OF THE SADNESS IS THINKING

977  
00:39:23,627 --> 00:39:26,330  
ABOUT CASSINI HAS REVEALED

978  
00:39:26,397 --> 00:39:28,332  
SATURN AS FAMILIAR AS OUR OWN

979  
00:39:28,399 --> 00:39:28,933  
NEIGHBORHOOD MIGHT BE.

980  
00:39:28,999 --> 00:39:32,036  
AND NOW FOR A TIME, UNTIL WE GO

981  
00:39:32,103 --> 00:39:37,942  
BACK THAT'S A DISTANT WORLD SO

982  
00:39:38,008 --> 00:39:40,711  
LONG.

983  
00:39:40,778 --> 00:39:43,314  
TINY MOVES SNUGGLED IN SO CLOSE.

984  
00:39:43,380 --> 00:39:45,449  
THOSE ARE ALL GONE UNTIL WE GO

985  
00:39:45,516 --> 00:39:45,750  
BACK.

986  
00:39:45,816 --> 00:39:52,556  
>> I THINK IT'S THE LOSS.

987  
00:39:52,623 --> 00:39:53,724  
REALLY IN THE TRENCHES WORKING

988  
00:39:53,791 --> 00:39:56,894

THIS ALL THE TIME.

989

00:39:56,961 --> 00:39:57,661

A CORE TEAM OF PEOPLE THAT YOU

990

00:39:57,728 --> 00:40:01,065

SEE EVERY DAY FOR EIGHT HOURS,

991

00:40:01,132 --> 00:40:04,368

PLUS, AND SOMETIMES A LOT LONGER

992

00:40:04,435 --> 00:40:07,271

THAN THAT.

993

00:40:07,338 --> 00:40:11,242

WE STEPPED ON THE CELESTIAL

994

00:40:11,308 --> 00:40:15,045

MECHANICS DOES NOT RECOGNIZE YOU

995

00:40:15,112 --> 00:40:16,947

AS HOLIDAYS.

996

00:40:17,014 --> 00:40:20,451

EVERY CHRISTMAS, EVERY

997

00:40:20,518 --> 00:40:27,358

THANKSGIVING.

998

00:40:27,424 --> 00:40:29,260

MAYBE THEY WOULD BE GLAD NOT TO

999

00:40:29,326 --> 00:40:30,661

HAVE THE PAGER GO OFF IN THE

1000

00:40:30,728 --> 00:40:32,196

MIDDLE OF THE NIGHT OR IN THE

1001  
00:40:32,263 --> 00:40:34,064  
MIDDLE OF DINNER SAYING SORRY, I

1002  
00:40:34,131 --> 00:40:34,698  
GOT TO RUN.

1003  
00:40:34,765 --> 00:40:38,636  
GOT TO TAKE CARE OF THIS.

1004  
00:40:38,702 --> 00:40:40,171  
IT'S THE LOSS OF THAT

1005  
00:40:40,237 --> 00:40:40,571  
CAMARADERIE.

1006  
00:40:40,638 --> 00:40:42,506  
I THINK FOR ME, I REALLY THOUGHT

1007  
00:40:42,573 --> 00:40:44,208  
I WAS GOING TO BE MORE SAD ABOUT

1008  
00:40:44,275 --> 00:40:45,209  
THE SPACECRAFT.

1009  
00:40:45,276 --> 00:40:48,012  
BUT YOU CAN'T -- I'M NOT.

1010  
00:40:48,078 --> 00:40:49,613  
THE SPACECRAFT DID EVERYTHING WE

1011  
00:40:49,680 --> 00:40:51,182  
ASKED IT TO DO.

1012  
00:40:51,248 --> 00:40:51,582  
EVERYTHING.

1013  
00:40:51,649 --> 00:40:56,187

RIGHT UNTIL THE VERY END.

1014

00:40:56,253 --> 00:40:57,254

THAT'S ALL YOU CAN DO FOR

1015

00:40:57,321 --> 00:40:57,788

ANYBODY.

1016

00:40:57,855 --> 00:40:59,490

THAT'S ALL YOU WANT FOR ANY

1017

00:40:59,557 --> 00:41:00,524

HUMAN.

1018

00:41:00,591 --> 00:41:10,434

LET ALONE, YOU KNOW, A ROBOT.

1019

00:41:10,501 --> 00:41:14,538

[ LAUGHTER ]

1020

00:41:14,605 --> 00:41:16,507

>> I THINK WE MESSED IT UP A

1021

00:41:16,574 --> 00:41:16,974

LITTLE BIT.

1022

00:41:17,041 --> 00:41:19,276

IT WAS A VERY EMOTIONAL MOMENT.

1023

00:41:19,343 --> 00:41:21,879

>> YEAH, I THINK TEARS AND

1024

00:41:21,946 --> 00:41:23,214

APPLAUSE AT THE SAME TIME.

1025

00:41:23,280 --> 00:41:25,616

I HAD A PURPLE HANKIE THERE TO

1026

00:41:25,683 --> 00:41:26,283  
BE ABLE TO USE. TEARS AND

1027

00:41:26,350 --> 00:41:33,057  
APPLAUSE.

1028

00:41:33,123 --> 00:41:36,961  
>> WE'RE GOING TO GO BACK TO THE

1029

00:41:37,027 --> 00:41:37,328  
PHONE.

1030

00:41:37,394 --> 00:41:39,830  
GO AHEAD.

1031

00:41:39,897 --> 00:41:43,801  
>> I WONDER, COULD I ASK A

1032

00:41:43,868 --> 00:41:44,168  
QUESTION?

1033

00:41:44,235 --> 00:41:50,608  
>> COME UP TO THE PODIUM HERE.

1034

00:41:50,674 --> 00:41:53,611  
>> THANK YOU VERY MUCH.

1035

00:41:53,677 --> 00:41:57,982  
WHAT I WANTED TO KNOW, WE LOOKED

1036

00:41:58,048 --> 00:42:01,452  
A HUBBLE, WE LOOK AT ALL OF

1037

00:42:01,518 --> 00:42:03,954  
THESE GREAT COLLABORATIVE

1038

00:42:04,021 --> 00:42:05,422

## MISSIONS BETWEEN THE UNITED

1039

00:42:05,489 --> 00:42:06,190  
STATES AND EUROPE.

1040

00:42:06,257 --> 00:42:08,792  
I WONDER WHAT IS THE PROSPECT OF

1041

00:42:08,859 --> 00:42:12,863  
US EVER, FRANKLY, DOING THESE

1042

00:42:12,930 --> 00:42:16,200  
SORT OF GREAT COLLABORATIONS

1043

00:42:16,267 --> 00:42:20,738  
AGAIN.

1044

00:42:20,804 --> 00:42:23,874  
WOULD TAKE SLIGHTLY MORE

1045

00:42:23,941 --> 00:42:24,708  
INDEPENDENT PATHS.

1046

00:42:24,775 --> 00:42:27,311  
>> WE ARE VERY PROUD OF ACTUALLY

1047

00:42:27,378 --> 00:42:32,983  
HAVING COLLABORATED WITH NASA IN

1048

00:42:33,050 --> 00:42:34,018  
THIS GREAT MISSION.

1049

00:42:34,084 --> 00:42:36,053  
AND WE -- WE ARE CONVINCED THIS

1050

00:42:36,120 --> 00:42:37,288  
IS THE WAY TO GO.

1051  
00:42:37,354 --> 00:42:39,023  
WE HAVE TO WORK TOGETHER TO

1052  
00:42:39,089 --> 00:42:41,625  
REALLY BE AMBITIOUS AND ACHIEVE

1053  
00:42:41,692 --> 00:42:43,294  
MISSIONS LIKE THIS ONE.

1054  
00:42:43,360 --> 00:42:45,596  
THIS COULD BE IN DIFFERENT

1055  
00:42:45,663 --> 00:42:49,934  
FIELDS. WE HAVE NOW, WE HAVE

1056  
00:42:50,000 --> 00:42:51,035  
MENTION ED

1057  
00:42:51,101 --> 00:42:52,336  
MENTIONED ANOTHER GREAT MISSION

1058  
00:42:52,403 --> 00:42:55,406  
WHERE EUROPE IS DEEPLY INVOLVED

1059  
00:42:55,472 --> 00:43:00,644  
WITH NASA.

1060  
00:43:00,711 --> 00:43:03,414  
WE HAVE -- A LITTLE BIT OF A

1061  
00:43:03,480 --> 00:43:06,951  
CHANGE WHERE LED BY -- BUT NASA

1062  
00:43:07,017 --> 00:43:11,588  
IS PARTICIPATING LIKE JUPITER.

1063  
00:43:11,655 --> 00:43:15,459

AND WE ARE LOOKING INTO ALL

1064

00:43:15,526 --> 00:43:38,248

KINDS OF POSSIBILITIES. HOW THE

1065

00:43:38,315 --> 00:43:40,150

MISSION IS LED, HOW IT IS PUT IN

1066

00:43:40,217 --> 00:43:41,719

PLACE, AND MAKING A SUCCESS. SO

1067

00:43:41,785 --> 00:43:43,854

I'M REALLY MAKING SURE, BECAUSE

1068

00:43:43,921 --> 00:43:45,489

WE HAVE -- AND THIS IS SOMETHING

1069

00:43:45,556 --> 00:43:47,858

YOU CAN SEE IN EUROPE AND IN THE

1070

00:43:47,925 --> 00:43:48,158

U.S.

1071

00:43:48,225 --> 00:43:52,162

OUR SCIENTISTS, THE SCIENTIFIC

1072

00:43:52,229 --> 00:43:55,632

COMMUNITY IS TOTALLY MIXED.

1073

00:43:55,699 --> 00:43:57,568

THEY'RE WORKING TOGETHER

1074

00:43:57,634 --> 00:43:59,870

ALREADY, REGARDLESS OF WHAT THE

1075

00:43:59,937 --> 00:44:00,337

AGENCIES DO.

1076  
00:44:00,404 --> 00:44:01,772  
AND THEY WORK TOGETHER.

1077  
00:44:01,839 --> 00:44:03,540  
AND WE ARE SERVICES OUR

1078  
00:44:03,607 --> 00:44:06,310  
SCIENTIFIC COMMUNITY.

1079  
00:44:06,377 --> 00:44:16,620  
WE HAVE TO WORK TOGETHER.

1080  
00:44:16,687 --> 00:44:17,388  
>> THANK YOU.

1081  
00:44:17,454 --> 00:44:20,491  
SO WHY DON'T WE GO BACK TO

1082  
00:44:20,557 --> 00:44:21,358  
SOCIAL MEDIA.

1083  
00:44:21,425 --> 00:44:22,860  
>> SURE.

1084  
00:44:22,926 --> 00:44:24,595  
WHAT WAS THE MOST SURPRISING

1085  
00:44:24,661 --> 00:44:24,895  
VIEW?

1086  
00:44:24,962 --> 00:44:28,265  
AND HAVE ANY OF YOU NAMED A

1087  
00:44:28,332 --> 00:44:32,202  
CHILD OR PET AFTER CASSINI?

1088  
00:44:32,269 --> 00:44:32,603

[ LAUGHTER ]

1089

00:44:36,507 --> 00:44:35,939

>> NO.

1090

00:44:36,573 --> 00:44:39,376

>> WE HAVE NAMED SOME OF THE

1091

00:44:39,443 --> 00:44:41,845

FEATURES IN THE RINGS AFTER OUR

1092

00:44:41,912 --> 00:44:42,146

PETS.

1093

00:44:42,212 --> 00:44:44,415

>> TRUE.

1094

00:44:44,481 --> 00:44:52,122

LARRY RAISES A GOOD POINT.

1095

00:44:52,189 --> 00:44:54,324

>> I DO REMEMBER HEARING ONE OF

1096

00:44:54,391 --> 00:45:25,756

THE ENGINEERS TELLING

1097

00:45:25,823 --> 00:45:27,991

MECHANICS, MISSION DESIGN, AND

1098

00:45:28,058 --> 00:45:30,027

ENGINEERING AND AS I MENTIONED

1099

00:45:30,094 --> 00:45:33,630

IN MY EARLIER REMARKS, JUST

1100

00:45:33,697 --> 00:45:36,900

BEING ABLE TO MANAGE AN

1101  
00:45:36,967 --> 00:45:38,469  
EXTREMELY COMPLEX SYSTEM TO THE

1102  
00:45:38,535 --> 00:45:40,471  
ULTIMATE OF ITS CAPABILITIES.

1103  
00:45:40,537 --> 00:45:43,006  
AND I MIGHT ALSO ADD THE

1104  
00:45:43,073 --> 00:45:46,210  
IMPORTANCE OF A FLAGSHIP, A

1105  
00:45:46,276 --> 00:45:49,046  
MISSION THAT HAS A FULL SUITE OF

1106  
00:45:49,113 --> 00:45:52,549  
INSTRUMENTS READY TO DEAL WITH

1107  
00:45:52,616 --> 00:45:56,120  
WHATEVER IT FINDS.

1108  
00:45:56,186 --> 00:45:57,521  
SOMETHING THAT'S READY TO DEAL

1109  
00:45:57,588 --> 00:45:59,123  
WITH WHATEVER IT FINDS, AND THEN

1110  
00:45:59,189 --> 00:45:59,923  
GO BACK AGAIN.

1111  
00:45:59,990 --> 00:46:02,793  
AND WE HAVE STORIES OVER AND

1112  
00:46:02,860 --> 00:46:03,460  
OVER AGAIN.

1113  
00:46:03,527 --> 00:46:05,295

ONE INSTRUMENT HAS REVEALED

1114

00:46:05,362 --> 00:46:08,532

SOMETHING AT SATURN OR ITS

1115

00:46:08,599 --> 00:46:08,832

MOONS.

1116

00:46:08,899 --> 00:46:11,135

AND WE GET FROM A LITTLE

1117

00:46:11,201 --> 00:46:13,537

SNIPPET, A FULL PICTURE OF THE

1118

00:46:13,604 --> 00:46:14,938

ENTIRE THING.

1119

00:46:15,005 --> 00:46:17,341

SO THE VALUE OF FLAGSHIP, THE

1120

00:46:17,407 --> 00:46:20,444

ENGINEERING TECHNIQUES AND

1121

00:46:20,511 --> 00:46:21,745

MANAGEMENT TECHNIQUES THAT HAVE

1122

00:46:21,812 --> 00:46:24,882

BEEN EXPLORED, I THINK LEAD

1123

00:46:24,948 --> 00:46:26,483

US -- LEAD THE WAY.

1124

00:46:26,550 --> 00:46:30,487

>> I WOULD CERTAINLY AGREE TO

1125

00:46:30,554 --> 00:46:31,155

HAVE THAT FULL TOOL BOX OF

1126  
00:46:31,221 --> 00:46:33,090  
INSTRUMENTS AVAILABLE TO FOLLOW

1127  
00:46:33,157 --> 00:46:37,261  
UP ON THE UNEXPECTED

1128  
00:46:37,327 --> 00:46:40,097  
DISCOVERIES. I THINK ONE OF THE

1129  
00:46:40,164 --> 00:46:40,831  
BIGGEST LEGACIES IS THE FACT

1130  
00:46:40,898 --> 00:46:43,133  
THAT WE NOW KNOW THERE ARE OCEAN

1131  
00:46:43,200 --> 00:46:45,102  
WORLDS AROUND JUPITER BUT ALSO

1132  
00:46:45,169 --> 00:46:46,603  
AROUND SATURN.

1133  
00:46:46,670 --> 00:46:48,705  
TITAN, SORT OF OPENING UP OUR

1134  
00:46:48,772 --> 00:46:50,207  
VIEW OF WHERE COULD WE FIND LIFE

1135  
00:46:50,274 --> 00:46:52,042  
IN OUR SOLAR SYSTEM.

1136  
00:46:52,109 --> 00:46:55,679  
IT DOESN'T HAVE TO BE IN THAT

1137  
00:46:55,746 --> 00:47:00,117  
NARROW ZONE, THE GOLDIE LOCKS

1138  
00:47:00,184 --> 00:47:00,751

ZONE.

1139

00:47:00,817 --> 00:47:03,187  
THE IMLY OCCASION FOR EXO

1140

00:47:03,253 --> 00:47:03,754  
PLANETS AS WELL.

1141

00:47:03,820 --> 00:47:05,422  
>> WE HAVE A COUPLE OF OTHER

1142

00:47:05,489 --> 00:47:06,657  
QUESTIONS. THE GENTLEMAN IN THE

1143

00:47:06,723 --> 00:47:07,257  
BACK THERE.

1144

00:47:07,324 --> 00:47:08,392  
HOLD ON.

1145

00:47:08,458 --> 00:47:11,395  
WAIT FOR THE MIC.

1146

00:47:11,461 --> 00:47:14,331  
HERE IT COMES.

1147

00:47:14,398 --> 00:47:15,866  
>> HI.

1148

00:47:15,933 --> 00:47:17,401  
YOU HAD ON BOARD CASSINI

1149

00:47:17,467 --> 00:47:19,036  
SOMETHING THAT COULD, QUOTE

1150

00:47:19,102 --> 00:47:20,938  
UNQUOTE, SNIFF IS ATMOSPHERE.

1151  
00:47:21,004 --> 00:47:22,973  
WAS IT A HOPE OR AN ABSOLUTE

1152  
00:47:23,040 --> 00:47:24,308  
PLAN THAT YOU WOULD BE ABLE TO

1153  
00:47:24,374 --> 00:47:24,975  
UTILIZE THAT?

1154  
00:47:25,042 --> 00:47:29,146  
>> IT WITH US PLANNED TO USE

1155  
00:47:29,213 --> 00:47:30,814  
THAT.

1156  
00:47:30,881 --> 00:47:34,051  
WE HAVE USED IT VERY

1157  
00:47:34,117 --> 00:47:35,385  
SUCCESSFULLY FOR LOOKING IN THE

1158  
00:47:35,452 --> 00:47:44,361  
GAS FROM THE PLUMES FROM

1159  
00:47:44,428 --> 00:47:44,761  
ENCELADUS.

1160  
00:47:44,828 --> 00:47:46,129  
WE KNEW IT WOULD WORK AND WOULD

1161  
00:47:46,196 --> 00:47:47,264  
CONTINUE TO WORK.

1162  
00:47:47,331 --> 00:47:49,833  
WE WANTED TO KEEP GETTING DATA

1163  
00:47:49,900 --> 00:47:54,137

BACK AS LONG AS WE COULD.

1164

00:47:54,204 --> 00:47:57,074

>> LET ME JUST PILE IT UP A

1165

00:47:57,140 --> 00:47:59,109

SECOND. WE LAUNCHED THE MASS

1166

00:47:59,176 --> 00:48:00,310

SPECTROMETER WAS GOING TO BE

1167

00:48:00,377 --> 00:48:01,044

USED FOR TITAN.

1168

00:48:01,111 --> 00:48:02,079

>> RIGHT.

1169

00:48:02,145 --> 00:48:03,080

THAT'S IT.

1170

00:48:03,146 --> 00:48:06,283

>> WITHOUT ENCELADUS.

1171

00:48:06,350 --> 00:48:08,785

AND BECAUSE OF THE FACT THAT WE

1172

00:48:08,852 --> 00:48:11,421

WERE ABLE TO FIND THESE

1173

00:48:11,488 --> 00:48:13,857

MYSTERIES OF OTHER INSTRUMENTS

1174

00:48:13,924 --> 00:48:17,894

AND USE MASS SPEC IN A DIFFERENT

1175

00:48:25,569 --> 00:48:25,269

WAY

1176  
00:48:25,636 --> 00:48:29,039  
>> THAT'S KIND OF MY QUESTION.

1177  
00:48:29,106 --> 00:48:31,475  
YOU'RE BUILDING INTO THESE

1178  
00:48:31,541 --> 00:48:33,443  
MISSIONS SIR WREN DIPTY, WITH

1179  
00:48:33,510 --> 00:48:35,746  
THE ANTICIPATION THAT IT COULD

1180  
00:48:35,812 --> 00:48:36,947  
MAYBE GO IN ANOTHER WAY.

1181  
00:48:37,014 --> 00:48:38,348  
>> ABSOLUTELY.

1182  
00:48:38,415 --> 00:48:40,017  
EVEN A VERY TACTICAL MISSION

1183  
00:48:40,083 --> 00:48:42,653  
WITH A SINGLE OBJECTIVE, SINGLE

1184  
00:48:42,719 --> 00:48:44,388  
INSTRUMENT, STILL HAS GOT TO BE

1185  
00:48:44,454 --> 00:48:47,557  
READY TO ROLL WITH THE PUNCHES

1186  
00:48:47,624 --> 00:48:53,130  
OF THE SURPRISES. IF YOU SEE

1187  
00:48:53,196 --> 00:48:54,665  
SOMETHING WITH AN INSTRUMENT,

1188  
00:48:54,731 --> 00:48:56,533

THEN THE ENTIRE SPACECRAFT COULD

1189

00:48:56,600 --> 00:48:59,303

BE BROUGHT ON TO IT AND

1190

00:48:59,369 --> 00:49:00,704

REVEAL -- I DON'T HAVE THE TIME

1191

00:49:00,771 --> 00:49:02,606

TO GO INTO THE STORY, BUT HOW

1192

00:49:02,673 --> 00:49:04,875

MANY INSTRUMENTS IT TOOK TO

1193

00:49:04,941 --> 00:49:06,710

REVEAL THAT ENTIRE STORY, THE

1194

00:49:06,777 --> 00:49:07,844

ENTIRE SPACECRAFT.

1195

00:49:07,911 --> 00:49:09,279

>> I THINK IT TOOK EVERY

1196

00:49:09,346 --> 00:49:12,516

INSTRUMENT ON THE SPACECRAFT

1197

00:49:12,582 --> 00:49:15,919

WORKING TOGETHER TO REVEAL WHAT

1198

00:49:15,986 --> 00:49:17,921

WE KNOW TODAY ABOUT ENCELADUS.

1199

00:49:17,988 --> 00:49:19,056

EVERY SINGLE ONE.

1200

00:49:19,122 --> 00:49:20,824

>> OTHER QUESTIONS IN THE ROOM.

1201  
00:49:20,891 --> 00:49:26,563  
THE GENTLEMAN HERE IN THE FRONT.

1202  
00:49:26,630 --> 00:49:27,764  
>> HI.

1203  
00:49:27,831 --> 00:49:29,299  
I'M HERE WITH THE NASA SOCIAL.

1204  
00:49:29,366 --> 00:49:31,468  
A LOT OF THE PICTURES FROM

1205  
00:49:31,535 --> 00:49:34,104  
CASSINI WERE UPLOADED ONLINE IN

1206  
00:49:34,171 --> 00:49:35,939  
REALTIME, THE RAW IMAGES, AND

1207  
00:49:36,006 --> 00:49:37,908  
WERE TAKEN BY AMATEURS AND

1208  
00:49:37,974 --> 00:49:39,876  
PEOPLE ONLINE AND STITCHED

1209  
00:49:39,943 --> 00:49:41,411  
TOGETHER AND ALMOST FINISHED

1210  
00:49:41,478 --> 00:49:42,746  
BEFORE THE SCIENTISTS GOT A

1211  
00:49:42,813 --> 00:49:43,947  
CHANCE TO DO SO.

1212  
00:49:44,014 --> 00:49:46,583  
I WONDER IF THAT WAS AN EXPECTED

1213  
00:49:46,650 --> 00:49:48,719

OUTCOME, AND IF THAT IMPACTS THE

1214

00:49:48,785 --> 00:49:50,687

WAY AND THE DECISIONS MADE

1215

00:49:50,754 --> 00:49:52,089

DURING THE MISSION AND PERHAPS

1216

00:49:52,155 --> 00:49:53,890

FUTURE MISSIONS FOR SUCH IMAGES?

1217

00:49:53,957 --> 00:49:58,095

>> WE LOVE IT. WE LOVE THE

1218

00:49:58,161 --> 00:50:08,105

AMATEURS TO GET OUT HERE.

1219

00:50:08,171 --> 00:50:09,005

WE LOVE IT.

1220

00:50:09,072 --> 00:50:11,541

WE WANT TO INVOLVE THE

1221

00:50:11,608 --> 00:50:11,942

COMMUNITY.

1222

00:50:12,008 --> 00:50:13,176

>> THERE'S A SMALL COMMUNITY

1223

00:50:13,243 --> 00:50:15,278

THAT'S BEEN DOING THIS TO US FOR

1224

00:50:15,345 --> 00:50:18,682

YEARS. WE DON'T EVEN TRY TO GET

1225

00:50:18,749 --> 00:50:22,686

AHEAD OF IT.

1226  
00:50:22,753 --> 00:50:24,654  
GET THE IMAGES OUT.

1227  
00:50:24,721 --> 00:50:26,690  
IT WAS A DECISION FROM NASA A

1228  
00:50:26,757 --> 00:50:27,858  
LONG TIME AGO.

1229  
00:50:27,924 --> 00:50:29,292  
AS SOON AS THEY'RE ON THE

1230  
00:50:29,359 --> 00:50:30,427  
GROUND, EVERYBODY GETS TO SEE

1231  
00:50:30,494 --> 00:50:32,596  
THEM, AND DO WHAT YOU WILL.

1232  
00:50:32,662 --> 00:50:34,598  
WE'VE GOT GREAT GRAPHICS FOLKS,

1233  
00:50:34,664 --> 00:50:35,999  
THEY'RE BETTER THAN OURS

1234  
00:50:36,066 --> 00:50:36,400  
SOMETIMES.

1235  
00:50:36,466 --> 00:50:37,868  
>> I HAVE TO BE CAREFUL ABOUT

1236  
00:50:37,934 --> 00:50:38,168  
THAT.

1237  
00:50:38,235 --> 00:50:52,949  
>> THEY'RE FASTER THAN OURS.

1238  
00:50:53,016 --> 00:50:55,118

>> PRESS BRIEFING INCLUDING THE

1239

00:50:55,185 --> 00:50:56,386

LAST WONDERFUL IMAGES THAT LINDA

1240

00:50:56,453 --> 00:50:59,589

SHOWED EARLIER. WE'RE GOING TO

1241

00:50:59,656 --> 00:51:01,892

ADD ADDITIONAL SATURN IMAGERY ON

1242

00:51:01,958 --> 00:51:04,895

TO THE FEED. THANK YOU EVERYONE

1243

00:51:04,961 --> 00:51:06,029

FOR HELPING US SAY GOOD-BYE TO