1
00:00:40,079 --> 00:02:19,670
so

2
00:02:23,990 --> 00:02:22,229
good morning columbia and especially to

3
00:02:41,350 --> 00:02:24,000
lean it today with a little music to

4
00:02:41,360 --> 00:03:01,509
our pleasure leonid

5
00:03:05,509 --> 00:03:03,509
a happy thanksgiving to you this day is

6
00:03:09,990 --> 00:03:05,519
a big family event throughout the united

7
00:03:14,229 --> 00:03:11,910
well thank you uh happy thanksgiving to

8
00:03:16,070 --> 00:03:14,239
you we're gonna celebrate it here and

9
00:03:19,589 --> 00:03:16,080
right after this interview with a meal

10
00:03:22,309 --> 00:03:19,599
of turkey and cranberry sauce and some

11
00:03:24,710 --> 00:03:22,319
pumpkin cookies and pecan pies about as

12
00:03:27,830 --> 00:03:24,720
traditional as you can get being 150

13
00:03:31,830 --> 00:03:29,990

as i was saying it's a family day and

14
00:03:33,030 --> 00:03:31,840
all of you guys are family men i

15
00:03:34,550 --> 00:03:33,040
understand

16
00:03:39,670 --> 00:03:34,560
have you been able to speak to the folks

17
00:03:43,190 --> 00:03:41,110
as a matter of fact we were able to

18
00:03:45,350 --> 00:03:43,200
speak to the folks back home we had some

19
00:03:47,030 --> 00:03:45,360
of us had family conferences yesterday

20
00:03:48,949 --> 00:03:47,040
and some of us had family conferences

21
00:03:51,350 --> 00:03:48,959
this morning and i tell you being away

22
00:03:53,750 --> 00:03:51,360
from home uh it's always nice to be able

23
00:03:55,830 --> 00:03:53,760
to uh to talk to the family and know

24
00:03:59,110 --> 00:03:55,840
that they're doing well and to maintain

25
00:04:01,429 --> 00:03:59,120
those ties with the folks back home

26
00:04:04,390 --> 00:04:01,439
i'd like to stay with you uh winston

27
00:04:05,910 --> 00:04:04,400
scott and uh also to taco toy this

28
00:04:08,630 --> 00:04:05,920
shuttle flight has been a little more

29
00:04:10,869 --> 00:04:08,640
exciting probably expected you had to do

30
00:04:12,229 --> 00:04:10,879
a space walk to retrieve the spartan

31
00:04:16,150 --> 00:04:12,239
observatory

32
00:04:25,510 --> 00:04:16,160
you were doing that what were your

33
00:04:29,510 --> 00:04:27,430
yeah

34
00:04:31,830 --> 00:04:29,520
well we um trying to uh capture the

35
00:04:35,189 --> 00:04:31,840
spartans so i was just thinking how to

36
00:04:37,110 --> 00:04:35,199
capture this southern satellite and uh

37
00:04:39,430 --> 00:04:37,120
we are worried about uh

38
00:04:42,469 --> 00:04:39,440

at the spot and of light

39
00:04:45,909 --> 00:04:42,479
that attitude because we didn't know

40
00:04:48,070 --> 00:04:45,919
whether that it has it had an easier

41
00:04:50,550 --> 00:04:48,080
attitude for us to capture or it might

42
00:04:53,030 --> 00:04:50,560
be very difficult so that was the only

43
00:04:56,469 --> 00:04:53,040
concern but at that time we were just

44
00:04:57,670 --> 00:04:56,479
determined to capture this upright

45
00:05:00,310 --> 00:04:57,680
right

46
00:05:02,710 --> 00:05:00,320
going to you commander kriegel you uh it

47
00:05:05,110 --> 00:05:02,720
was your job to steer the shuttle for

48
00:05:10,310 --> 00:05:05,120
that operation um what were you

49
00:05:14,230 --> 00:05:12,710
well of course my primary concern is the

50
00:05:15,990 --> 00:05:14,240
safety of my crew

51
00:05:18,790 --> 00:05:16,000
which is always is

52
00:05:20,550 --> 00:05:18,800
but the flying qualities of the shuttle

53
00:05:23,430 --> 00:05:20,560
are really

54
00:05:25,830 --> 00:05:23,440
very nice so believe it or not

55
00:05:29,029 --> 00:05:25,840
being able to fly the satellite within

56
00:05:31,670 --> 00:05:29,039
just a foot of both west and takao was

57
00:05:37,590 --> 00:05:31,680
really quite an easy task

58
00:05:37,600 --> 00:05:43,430
have a shuttle only a foot away

59
00:05:46,870 --> 00:05:45,110
i'm sorry you're waking up can you uh

60
00:05:49,830 --> 00:05:46,880
say that question again please

61
00:05:51,270 --> 00:05:49,840
i was asking mr scott and mr doy if they

62
00:05:58,629 --> 00:05:51,280
were at all frightened having the

63
00:06:02,390 --> 00:06:00,710

as a matter of fact i mean

64
00:06:04,309 --> 00:06:02,400
that was some excellent flying that

65
00:06:06,390 --> 00:06:04,319
kevin did and while we were standing out

66
00:06:07,430 --> 00:06:06,400
there with the satellite just a few feet

67
00:06:08,469 --> 00:06:07,440
above

68
00:06:10,710 --> 00:06:08,479
our heads

69
00:06:13,110 --> 00:06:10,720
i at least wasn't uh

70
00:06:15,029 --> 00:06:13,120
afraid at all it was very very

71
00:06:17,189 --> 00:06:15,039
comfortable i was more concerned about

72
00:06:19,510 --> 00:06:17,199
handling that large mass you know

73
00:06:22,390 --> 00:06:19,520
spartan is about 4 000 pounds which is

74
00:06:23,830 --> 00:06:22,400
more than most automobiles way and to be

75
00:06:26,950 --> 00:06:23,840
able to capture something like that

76
00:06:29,590 --> 00:06:26,960
manually oriented and birth it was was

77
00:06:31,189 --> 00:06:29,600
more of a concern of mine than uh

78
00:06:33,830 --> 00:06:31,199
than the flying it was really some

79
00:06:35,590 --> 00:06:33,840
outstanding uh flying on kevin's park

80
00:06:37,670 --> 00:06:35,600
congratulations to you on that

81
00:06:40,950 --> 00:06:37,680
successful space walk but i understand

82
00:06:43,270 --> 00:06:40,960
that you're conserving fuel right now

83
00:06:45,350 --> 00:06:43,280
for a possible re-launch of the spartan

84
00:06:48,070 --> 00:06:45,360
observatory is that affecting your

85
00:06:54,150 --> 00:06:48,080
day-to-day operations the microgravity

86
00:06:58,950 --> 00:06:56,230
well the folks on the ground are doing

87
00:07:00,790 --> 00:06:58,960
most of the hard work carrying out ways

88
00:07:03,909 --> 00:07:00,800

that we can get all the science that we

89
00:07:05,990 --> 00:07:03,919
plan to do and also conserve fuel

90
00:07:07,270 --> 00:07:06,000
they're just doing uh using their bag of

91
00:07:10,070 --> 00:07:07,280
tricks

92
00:07:11,670 --> 00:07:10,080
um and hopefully we'll have enough fuel

93
00:07:14,550 --> 00:07:11,680
to maybe perhaps

94
00:07:16,629 --> 00:07:14,560
do another spacewalk or hopefully deploy

95
00:07:18,390 --> 00:07:16,639
the spartan satellite and get one of the

96
00:07:20,150 --> 00:07:18,400
primary objectives of this mission out

97
00:07:23,189 --> 00:07:20,160
of the way

98
00:07:25,510 --> 00:07:23,199
another primary objective was to

99
00:07:27,589 --> 00:07:25,520
test out a prototype

100
00:07:29,029 --> 00:07:27,599
free floating television camera i

101
00:07:30,390 --> 00:07:29,039
understand it's about the size of a

102
00:07:32,230 --> 00:07:30,400
basketball

103
00:07:33,749 --> 00:07:32,240
is that still going to happen or has

104
00:07:38,469 --> 00:07:33,759
that been put off because of the

105
00:07:43,110 --> 00:07:41,350
well that's the air cam sprint it's a

106
00:07:45,510 --> 00:07:43,120
little bit bigger than a basketball or a

107
00:07:48,469 --> 00:07:45,520
beach ball and it's a free flyer that

108
00:07:51,189 --> 00:07:48,479
pilot steve lindsay is planning to fly

109
00:07:52,550 --> 00:07:51,199
but it needs to be deployed uh during

110
00:07:54,869 --> 00:07:52,560
the spacewalk

111
00:07:56,869 --> 00:07:54,879
so this particular spacewalk the time

112
00:07:59,029 --> 00:07:56,879
that we spent capturing the spartan ate

113
00:08:01,510 --> 00:07:59,039

up by that time unfortunately

114
00:08:03,430 --> 00:08:01,520
so unless uh we get to go to do another

115
00:08:06,790 --> 00:08:03,440
space walk we'll have to save that

116
00:08:09,350 --> 00:08:06,800
particular experiment for another flight

117
00:08:11,189 --> 00:08:09,360
why is the spartan observatory so

118
00:08:16,790 --> 00:08:11,199
important to this mission what does it

119
00:08:21,589 --> 00:08:19,430
well the spartan satellite is going to

120
00:08:22,629 --> 00:08:21,599
be looking at the sun which of course

121
00:08:25,189 --> 00:08:22,639
the sun

122
00:08:27,270 --> 00:08:25,199
affects life here on earth and

123
00:08:28,869 --> 00:08:27,280
particularly it's looking at the solar

124
00:08:31,189 --> 00:08:28,879
wind and temperatures and try to

125
00:08:34,149 --> 00:08:31,199
understand those characteristics

126
00:08:36,469 --> 00:08:34,159
and particularly solar flares we know

127
00:08:38,949 --> 00:08:36,479
solar flares affects life on earth it

128
00:08:41,589 --> 00:08:38,959
affects our satellites that we tend to

129
00:08:43,750 --> 00:08:41,599
depend on day-to-day but really it's

130
00:08:45,829 --> 00:08:43,760
trying to understand that a celestial

131
00:08:48,389 --> 00:08:45,839
body that affects us

132
00:08:49,750 --> 00:08:48,399
everywhere here on the earth

133
00:08:51,990 --> 00:08:49,760
well people down here on earth are

134
00:08:54,949 --> 00:08:52,000
always very interested in life up there

135
00:08:57,670 --> 00:08:54,959
in space and this particular mission on

136
00:08:59,269 --> 00:08:57,680
this uh shuttle columbia is particularly

137
00:09:01,670 --> 00:08:59,279
remarkable because it's very

138
00:09:03,750 --> 00:09:01,680

international um i'd like to ask how

139
00:09:12,870 --> 00:09:03,760
that's working out does that affect the

140
00:09:17,670 --> 00:09:15,350
yeah i'm very lucky that i am a member

141
00:09:18,710 --> 00:09:17,680
of this international uh

142
00:09:22,949 --> 00:09:18,720
the crew

143
00:09:24,470 --> 00:09:22,959
and we are having fun exchanging uh our

144
00:09:28,470 --> 00:09:24,480
original

145
00:09:31,430 --> 00:09:28,480
native foods or uh discussing uh

146
00:09:33,750 --> 00:09:31,440
in uh native languages sometimes

147
00:09:35,590 --> 00:09:33,760
and uh it's it's just fascinating to

148
00:09:38,150 --> 00:09:35,600
watch with

149
00:09:40,550 --> 00:09:38,160
other people with different cultures and

150
00:09:42,230 --> 00:09:40,560
it's a way that space dinner should be

151
00:09:44,389 --> 00:09:42,240
in the future

152
00:09:46,550 --> 00:09:44,399
all right i should mention that apart

153
00:09:48,470 --> 00:09:46,560
from commander kriegel and winston scott

154
00:09:49,990 --> 00:09:48,480
and taco toy that we're seeing we're

155
00:09:52,870 --> 00:09:50,000
talking to you right now there's also

156
00:09:55,030 --> 00:09:52,880
kalpana chawla who's originally indian i

157
00:09:57,110 --> 00:09:55,040
believe and leonid

158
00:09:59,750 --> 00:09:57,120
who's a ukrainian

159
00:10:04,470 --> 00:10:01,990
have they been uh have they been

160
00:10:06,150 --> 00:10:04,480
contributing also with their uh with

161
00:10:11,509 --> 00:10:06,160
insights from what they've learned in

162
00:10:14,949 --> 00:10:13,110
well they certainly have as a matter of

163
00:10:17,750 --> 00:10:14,959

fact that during our evening meal last

164
00:10:20,710 --> 00:10:19,750
we call it kc for short

165
00:10:23,590 --> 00:10:20,720
uh

166
00:10:26,230 --> 00:10:23,600
played some indian music for us and also

167
00:10:28,550 --> 00:10:26,240
some hungarian folk songs and we all had

168
00:10:30,870 --> 00:10:28,560
to all have a ball and leonard is doing

169
00:10:34,630 --> 00:10:30,880
the same thing he's teaching us

170
00:10:36,550 --> 00:10:34,640
some greetings in uh his native language

171
00:10:38,069 --> 00:10:36,560
from the ukraine so we all are learning

172
00:10:39,590 --> 00:10:38,079
a lot from each other and just having a

173
00:10:42,470 --> 00:10:39,600
ball doing it

174
00:10:44,630 --> 00:10:42,480
great i'd like to go back to taka takao

175
00:10:47,190 --> 00:10:44,640
doi i understand this is your first

176
00:10:52,790 --> 00:10:47,200
flight how do you feel for this first

177
00:10:57,670 --> 00:10:55,750
yeah since i was a child i

178
00:11:00,550 --> 00:10:57,680
wanted to uh to

179
00:11:01,430 --> 00:11:00,560
go to space and explore ebay so it's

180
00:11:08,470 --> 00:11:01,440
just

181
00:11:10,550 --> 00:11:08,480
by watching the earth and doing eva

182
00:11:14,150 --> 00:11:10,560
especially during the eba

183
00:11:16,389 --> 00:11:14,160
we had a panoramic view of the earth and

184
00:11:19,750 --> 00:11:16,399
the universe itself and

185
00:11:21,829 --> 00:11:19,760
i really enjoyed being out there

186
00:11:26,230 --> 00:11:21,839
i should explain to our viewers that an

187
00:11:28,790 --> 00:11:26,240
eva is a space walker extra vehicular

188
00:11:30,949 --> 00:11:28,800

activity i believe that it's short for

189
00:11:32,710 --> 00:11:30,959
um back to commander kriegel i'd like to

190
00:11:34,550 --> 00:11:32,720
ask you sarah

191
00:11:36,389 --> 00:11:34,560
how do you look at this mission do you

192
00:11:43,030 --> 00:11:36,399
think it's been a success despite the

193
00:11:48,230 --> 00:11:45,829
well each mission holds little surprises

194
00:11:51,269 --> 00:11:48,240
i think one of the great things about

195
00:11:53,990 --> 00:11:51,279
human space flight is the ability

196
00:11:56,310 --> 00:11:54,000
of people to adapt we had a little

197
00:11:58,550 --> 00:11:56,320
difficulties to overcome we overcame

198
00:12:00,710 --> 00:11:58,560
them through teamwork here on the

199
00:12:02,870 --> 00:12:00,720
orbiter and also several hundred people

200
00:12:04,949 --> 00:12:02,880
on the ground who very quickly came

201
00:12:06,949 --> 00:12:04,959
together with a plan

202
00:12:08,870 --> 00:12:06,959
communicated that plan to us

203
00:12:10,550 --> 00:12:08,880
so that we could recapture

204
00:12:11,670 --> 00:12:10,560
satellites so i really think it's

205
00:12:13,910 --> 00:12:11,680
success

206
00:12:16,230 --> 00:12:13,920
and that the versatility of humans

207
00:12:18,790 --> 00:12:16,240
working in space

208
00:12:20,629 --> 00:12:18,800
congratulations to you on that and we've

209
00:12:22,389 --> 00:12:20,639
spoken a little bit about the solar

210
00:12:24,069 --> 00:12:22,399
research that

211
00:12:25,990 --> 00:12:24,079
this mission

212
00:12:28,150 --> 00:12:26,000
has been trying to

213
00:12:30,310 --> 00:12:28,160

accomplish let's look at the other

214
00:12:31,829 --> 00:12:30,320
primary objective the microgravity

215
00:12:41,829 --> 00:12:31,839
experiments

216
00:12:46,870 --> 00:12:44,069
yes uh we have been running uh the

217
00:12:49,750 --> 00:12:46,880
material science experiments in this uh

218
00:12:52,230 --> 00:12:49,760
midday it's called the mic uh

219
00:12:54,230 --> 00:12:52,240
intake roblox experiment actually they

220
00:12:55,430 --> 00:12:54,240
are free experiments

221
00:12:58,949 --> 00:12:55,440
from

222
00:13:01,350 --> 00:12:58,959
a combustion science to uh

223
00:13:05,269 --> 00:13:01,360
investigating the wetting characteristic

224
00:13:09,269 --> 00:13:07,590
the interface phenomenon so we are

225
00:13:11,430 --> 00:13:09,279
carrying a

226
00:13:12,389 --> 00:13:11,440
material science experiment in this

227
00:13:14,470 --> 00:13:12,399
midtech

228
00:13:16,870 --> 00:13:14,480
also we have other material science

229
00:13:19,350 --> 00:13:16,880
experiments going on in the pair of the

230
00:13:30,470 --> 00:13:21,670
how will your discoveries in those

231
00:13:35,350 --> 00:13:32,069
well a lot of the work that we're doing

232
00:13:37,030 --> 00:13:35,360
here is pure research

233
00:13:39,030 --> 00:13:37,040
and they're looking at things like we're

234
00:13:41,350 --> 00:13:39,040
looking at how to make semiconductors

235
00:13:43,269 --> 00:13:41,360
make them smaller more reliable

236
00:13:46,069 --> 00:13:43,279
of course you can see the applications

237
00:13:48,470 --> 00:13:46,079
that in electronics along the same lines

238
00:13:51,350 --> 00:13:48,480

we're doing a helium experiment that

239
00:13:54,550 --> 00:13:51,360
measures temperatures to a very very

240
00:13:56,949 --> 00:13:54,560
small degree and we're using this again

241
00:13:59,430 --> 00:13:56,959
to be able to make things smaller we're

242
00:14:01,990 --> 00:13:59,440
doing a lot of material science that's

243
00:14:04,710 --> 00:14:02,000
looking at the structure of metals kind

244
00:14:07,350 --> 00:14:04,720
of understand how they join together

245
00:14:09,829 --> 00:14:07,360
perhaps make a stronger metals i like to

246
00:14:13,509 --> 00:14:09,839
mention one of the experiments for fisto

247
00:14:15,509 --> 00:14:13,519
is a combined u.s french experiment

248
00:14:17,030 --> 00:14:15,519
again showing the international flavor

249
00:14:18,870 --> 00:14:17,040
of both this mission

250
00:14:20,710 --> 00:14:18,880
and the space shuttle and the