



1
00:00:08,400 --> 00:00:23,269
today's date is 28th

2
00:00:23,279 --> 00:00:43,110
the dominion

3
00:00:55,910 --> 00:00:45,830
be with you and bless you

4
00:00:55,920 --> 00:01:19,590
thank you god bless you

5
00:01:19,600 --> 00:01:28,390
uh

6
00:01:43,830 --> 00:01:30,710
good luck goodbye

7
00:01:48,310 --> 00:01:45,590
could you please wait a little bit

8
00:01:49,990 --> 00:01:48,320
before you go into the bus

9
00:01:51,190 --> 00:01:50,000
it's my marine corps look you're looking

10
00:01:53,350 --> 00:01:51,200
good

11
00:02:43,589 --> 00:01:53,360
hey rob all right talk to you on the

12
00:02:43,599 --> 00:02:49,990
foreign

13
00:02:50,000 --> 00:03:13,750

yes

14

00:03:13,760 --> 00:03:37,030

foreign

15

00:03:37,040 --> 00:03:56,949

um

16

00:03:56,959 --> 00:04:26,830

okay

17

00:04:26,840 --> 00:04:48,070

god you

18

00:05:01,270 --> 00:04:49,350

is it comfortable does it feel

19

00:05:01,280 --> 00:05:24,070

okay

20

00:05:24,080 --> 00:05:28,550

let's check the comm

21

00:05:28,560 --> 00:05:42,310

is everything ready

22

00:06:04,870 --> 00:05:43,909

that's it

23

00:06:36,710 --> 00:06:07,749

you will have time to talk to the family

24

00:06:36,720 --> 00:07:09,990

oh

25

00:07:10,000 --> 00:07:20,390

uh

26

00:07:20,400 --> 00:07:32,790

um

27

00:07:32,800 --> 00:08:09,029

families

28

00:08:09,039 --> 00:08:26,629

oh

29

00:09:00,870 --> 00:08:51,430

is

30

00:09:04,310 --> 00:09:02,870

don't worry everything will be fine you

31

00:09:18,070 --> 00:09:04,320

should not worry

32

00:09:18,080 --> 00:09:48,070

me

33

00:09:51,190 --> 00:09:50,230

my sleep has improved it's good that you

34

00:09:53,190 --> 00:09:51,200

slept

35

00:10:26,870 --> 00:09:53,200

well

36

00:10:43,829 --> 00:10:28,150

you are very different people but right

37

00:10:43,839 --> 00:11:25,670

foreign

38

00:11:25,680 --> 00:11:58,949

is

39

00:11:58,959 --> 00:12:16,230
good luck good luck to you guys

40

00:12:16,240 --> 00:12:42,069
what

41

00:12:42,079 --> 00:12:52,310
oh

42

00:12:52,320 --> 00:13:44,310
go get some

43

00:13:44,320 --> 00:13:55,110
foreign

44

00:14:04,470 --> 00:13:58,389
the prime crew of this is vehicle is

45

00:14:07,590 --> 00:14:06,310
so i will be there

46

00:14:09,750 --> 00:14:07,600
uh will have

47

00:14:41,750 --> 00:14:09,760
come with you

48

00:14:41,760 --> 00:14:57,509
the crew is going on board

49

00:14:57,519 --> 00:15:28,870
huh

50

00:16:06,310 --> 00:15:43,670
um

51
00:16:09,829 --> 00:16:08,069
vehicle to internal power separation of

52
00:16:11,749 --> 00:16:09,839
the first tower

53
00:16:15,509 --> 00:16:11,759
the first umbilical now separating from

54
00:16:19,829 --> 00:16:18,629
umbilical tower separation in process

55
00:16:23,269 --> 00:16:19,839
copy that

56
00:16:23,279 --> 00:16:31,030
t-minus 20 seconds and counting

57
00:16:44,150 --> 00:16:32,790
independent power

58
00:16:49,590 --> 00:16:46,470
we have ignition of the soyuz

59
00:16:52,310 --> 00:16:49,600
threat and liftoff liftoff as chris

60
00:16:54,550 --> 00:16:52,320
cassidy pavel vinogradov and alexander

61
00:17:01,110 --> 00:16:54,560
misurkin are on a fast track to the

62
00:17:01,120 --> 00:17:13,350
vibration

63
00:17:16,789 --> 00:17:15,270

30 seconds into the flight the rocket is

64

00:17:18,630 --> 00:17:16,799

nominal the crew is doing well we have

65

00:17:21,429 --> 00:17:18,640

good first stage performance the soyuz

66

00:17:23,669 --> 00:17:21,439

delivering 102 tons of thrust from its

67

00:17:25,750 --> 00:17:23,679

four boosters in single engine the first

68

00:17:28,069 --> 00:17:25,760

stage of the soyuz measures 68 feet in

69

00:17:29,430 --> 00:17:28,079

length and 24 feet in diameter it is

70

00:17:40,310 --> 00:17:29,440

burning liquid fuel for the first two

71

00:17:45,190 --> 00:17:43,350

combustion chamber pressure

72

00:17:47,110 --> 00:17:45,200

one minute into the flight

73

00:17:48,789 --> 00:17:47,120

spacecraft is nominal we're one minute

74

00:17:51,669 --> 00:17:48,799

into the flight

75

00:17:55,990 --> 00:17:53,510

nominal

76
00:17:58,789 --> 00:17:56,000
velocity is now approaching 1100 miles

77
00:18:12,789 --> 00:18:01,029
70 seconds into the flight

78
00:18:21,350 --> 00:18:14,310
one minute 30 seconds into the flight

79
00:18:21,360 --> 00:18:36,470
stage one operating nominally

80
00:18:36,480 --> 00:18:49,510
110 seconds

81
00:18:52,710 --> 00:18:51,029
two minutes five seconds into the flight

82
00:18:54,070 --> 00:18:52,720
the four strap-on boosters have now been

83
00:18:55,669 --> 00:18:54,080
jettisoned these have completed their

84
00:18:57,909 --> 00:18:55,679
job and have dropped away at an altitude

85
00:19:00,549 --> 00:18:57,919
of 28 statute miles the soyuz is

86
00:19:02,470 --> 00:19:00,559
traveling at about 3 350 miles an hour

87
00:19:13,029 --> 00:19:02,480
now

88
00:19:16,870 --> 00:19:15,190

there's a look at chris cassidy

89

00:19:17,990 --> 00:19:16,880

sitting in the left seat pavel venegrano

90

00:19:19,270 --> 00:19:18,000

the commander of the soyuz there in the

91

00:19:20,230 --> 00:19:19,280

middle just off to the right of the

92

00:19:21,830 --> 00:19:20,240

screen

93

00:19:26,950 --> 00:19:21,840

alexander misurkin they're off to the

94

00:19:30,549 --> 00:19:29,110

the shroud that protects the soyuz has

95

00:19:31,909 --> 00:19:30,559

been jettisoned the crew can now see

96

00:19:33,270 --> 00:19:31,919

outside

97

00:19:34,390 --> 00:19:33,280

hit fearing

98

00:19:36,150 --> 00:19:34,400

separation

99

00:19:39,990 --> 00:19:36,160

jettison is confirmed yeah we confirmed

100

00:19:44,070 --> 00:19:42,710

rocket structure parameters are nominal

101
00:19:45,350 --> 00:19:44,080
five and a half minutes into the flight

102
00:19:46,950 --> 00:19:45,360
the flight controllers continue to

103
00:19:48,710 --> 00:19:46,960
confirm that the rocket is behaving as

104
00:19:50,310 --> 00:19:48,720
expected everything looking good feel

105
00:20:01,590 --> 00:19:50,320
great there you see pavel vinogradov in

106
00:20:01,600 --> 00:20:08,710
um

107
00:20:08,720 --> 00:20:13,590
did the camera transition take place yes

108
00:20:18,390 --> 00:20:15,430
we're getting a really clear crisp

109
00:20:39,590 --> 00:20:18,400
picture excellent we feel great copy

110
00:20:39,600 --> 00:20:46,149
third stage engines are operating stable

111
00:20:50,310 --> 00:20:48,310
six minutes 35 seconds into the flight

112
00:20:52,390 --> 00:20:50,320
the third stage is

113
00:20:55,430 --> 00:20:52,400

behaving and performing as expected

114

00:20:58,630 --> 00:20:55,440

everything being reported is nominal

115

00:21:00,230 --> 00:20:58,640

400 seconds 400.

116

00:21:11,430 --> 00:21:00,240

everything's nominal

117

00:21:24,630 --> 00:21:13,190

seven minutes into the flight less than

118

00:21:24,640 --> 00:21:38,630

4300

119

00:21:38,640 --> 00:21:42,070

copy that

120

00:21:46,310 --> 00:21:43,510

seven and a half minutes into the flight

121

00:21:47,350 --> 00:21:46,320

the velocity now almost 13 500 miles an

122

00:21:49,110 --> 00:21:47,360

hour

123

00:21:50,710 --> 00:21:49,120

once the third stage delivers the soyuz

124

00:21:52,310 --> 00:21:50,720

to orbit and the module is separated a

125

00:21:54,549 --> 00:21:52,320

series of pre-programmed commands will

126

00:21:57,110 --> 00:21:54,559

be executed to prepare the soyuz for

127

00:21:59,430 --> 00:21:57,120

orbital operations these stored commands

128

00:22:00,950 --> 00:21:59,440

called time tagged commands allow many

129

00:22:02,549 --> 00:22:00,960

of the soyuz's systems to be

130

00:22:05,029 --> 00:22:02,559

automatically activated by onboard

131

00:22:09,270 --> 00:22:05,039

computers at precise times stored in

132

00:22:13,750 --> 00:22:12,230

engine nominal structure nominal eight

133

00:22:14,789 --> 00:22:13,760

minutes into the flight everything going

134

00:22:18,870 --> 00:22:14,799

well

135

00:22:34,390 --> 00:22:19,669

point

136

00:22:37,830 --> 00:22:36,070

bill gerstenmaier nasa associate

137

00:22:40,149 --> 00:22:37,840

administrator for human exploration and

138

00:22:41,750 --> 00:22:40,159

operations bill

139

00:22:43,830 --> 00:22:41,760

quite a light show to light up the

140

00:22:45,590 --> 00:22:43,840

predawn skies here in baikonur another

141

00:22:47,110 --> 00:22:45,600

expedition crew heading to the

142

00:22:48,789 --> 00:22:47,120

international space station this time in

143

00:22:50,950 --> 00:22:48,799

the express lane your thoughts on the

144

00:22:53,590 --> 00:22:50,960

launch this morning it was absolutely

145

00:22:57,270 --> 00:22:53,600

amazing to get to see the launch to see

146

00:22:59,110 --> 00:22:57,280

the rocket start start up and to see the

147

00:23:00,630 --> 00:22:59,120

actual rocket rise and then to feel the

148

00:23:02,710 --> 00:23:00,640

sound and feel the vibration on your

149

00:23:04,710 --> 00:23:02,720

body is just amazing and to think that

150

00:23:06,870 --> 00:23:04,720

our crew member is on board that rocket

151
00:23:08,710 --> 00:23:06,880
along with two of his russian comrades

152
00:23:11,350 --> 00:23:08,720
heading to the space station is just

153
00:23:13,350 --> 00:23:11,360
phenomenal when you see that it's uh

154
00:23:15,029 --> 00:23:13,360
it never gets old it's a unique

155
00:23:16,630 --> 00:23:15,039
experience each time and then i think

156
00:23:18,310 --> 00:23:16,640
about all the work that the engineering

157
00:23:19,750 --> 00:23:18,320
teams have put together the ballistics

158
00:23:21,669 --> 00:23:19,760
folks have put together to make sure

159
00:23:23,350 --> 00:23:21,679
that this is exactly the right thing and

160
00:23:25,669 --> 00:23:23,360
the right time to go do this and to see

161
00:23:27,990 --> 00:23:25,679
all that come together in this

162
00:23:29,909 --> 00:23:28,000
millisecond of launch activity and see

163
00:23:32,070 --> 00:23:29,919

that rocket rise off the pad is just

164

00:23:33,510 --> 00:23:32,080

exhilarating and then there's sit there

165

00:23:35,110 --> 00:23:33,520

and listen to the entire count through

166

00:23:37,590 --> 00:23:35,120

all the way through launch listen to all

167

00:23:39,110 --> 00:23:37,600

the engine calls listened and get to see

168

00:23:41,750 --> 00:23:39,120

staging we got to see it all the way

169

00:23:45,029 --> 00:23:41,760

through third stage ignition just

170

00:23:46,789 --> 00:23:45,039

absolutely phenomenal experience

171

00:23:48,950 --> 00:23:46,799

it's hard to believe that just a few

172

00:23:50,630 --> 00:23:48,960

hours ago the crew was walking out of

173

00:23:52,950 --> 00:23:50,640

their crew quarters in the cosmonaut

174

00:23:55,990 --> 00:23:52,960

hotel and soon the station will double

175

00:23:57,909 --> 00:23:56,000

in size just like that

176

00:24:00,070 --> 00:23:57,919

what kind of a thought do you have about

177

00:24:01,909 --> 00:24:00,080

the testimony that this has to the

178

00:24:03,590 --> 00:24:01,919

sophistication of the human spaceflight

179

00:24:05,830 --> 00:24:03,600

capability

180

00:24:07,750 --> 00:24:05,840

again i think it's really amazing to see

181

00:24:09,430 --> 00:24:07,760

all this come together and and has been

182

00:24:11,590 --> 00:24:09,440

said before you know orbital mechanics

183

00:24:13,269 --> 00:24:11,600

just lined up exactly right today you

184

00:24:14,710 --> 00:24:13,279

know another day we might not be able to

185

00:24:16,390 --> 00:24:14,720

do it in the four orbits but this

186

00:24:19,029 --> 00:24:16,400

particular launch time worked out for

187

00:24:21,190 --> 00:24:19,039

the four orbit activity and to have that

188

00:24:23,029 --> 00:24:21,200

all work together is just phenomenal to

189

00:24:25,750 --> 00:24:23,039

think you know in this short amount of

190

00:24:28,070 --> 00:24:25,760

time in the you know in the four orbits

191

00:24:30,149 --> 00:24:28,080

the crew will be at space station so you

192

00:24:32,710 --> 00:24:30,159

know as kirk said earlier for the crew

193

00:24:35,110 --> 00:24:32,720

to watch and see this soyuz coming at

194

00:24:38,230 --> 00:24:35,120

them and know in a matter of you know

195

00:24:39,510 --> 00:24:38,240

four orbits five five and sub hours

196

00:24:41,510 --> 00:24:39,520

the crew's gonna be there they're gonna

197

00:24:43,669 --> 00:24:41,520

be opening a hatch and coming on board

198

00:24:45,669 --> 00:24:43,679

that's truly unique and that's neat and

199

00:24:47,669 --> 00:24:45,679

that what the neat side of that for me

200

00:24:50,070 --> 00:24:47,679

is that it allows us to get samples to

201
00:24:51,990 --> 00:24:50,080
orbit faster so we can take biological

202
00:24:53,430 --> 00:24:52,000
things that may have a finite shelf life

203
00:24:55,430 --> 00:24:53,440
they can get loaded in the rocket and

204
00:24:57,269 --> 00:24:55,440
they can get delivered to station within

205
00:24:59,430 --> 00:24:57,279
a matter of hours which is a new

206
00:25:01,350 --> 00:24:59,440
capability for the researchers so not

207
00:25:03,909 --> 00:25:01,360
only is this intriguing from kind of an

208
00:25:06,230 --> 00:25:03,919
orbital mechanics standpoint etc it's

209
00:25:08,390 --> 00:25:06,240
also very advantageous potentially to

210
00:25:09,990 --> 00:25:08,400
the scientific community so just a a

211
00:25:12,310 --> 00:25:10,000
neat thing to see all this come together

212
00:25:13,990 --> 00:25:12,320
today and it'll be great to see the the

213
00:25:25,669 --> 00:25:14,000

hatch opening and see the crew actually

214

00:25:30,390 --> 00:25:28,149

cook shireman deputy iss program manager

215

00:25:33,269 --> 00:25:30,400

kirk the laws of orbital mechanics all

216

00:25:34,870 --> 00:25:33,279

fell together for this predawn launch to

217

00:25:36,710 --> 00:25:34,880

send a new crew to the international

218

00:25:38,149 --> 00:25:36,720

space station your thoughts as the soyuz

219

00:25:39,669 --> 00:25:38,159

rocketed away

220

00:25:42,230 --> 00:25:39,679

i was a beautiful night a very

221

00:25:43,590 --> 00:25:42,240

comfortable night here in baikonur

222

00:25:46,149 --> 00:25:43,600

just a few minutes before the launch the

223

00:25:47,430 --> 00:25:46,159

iss was to fly over uh overhead

224

00:25:49,110 --> 00:25:47,440

unfortunately it was an eclipse so we

225

00:25:50,789 --> 00:25:49,120

couldn't see it from the ground but but

226

00:25:53,430 --> 00:25:50,799

knew they were there so that was

227

00:25:55,669 --> 00:25:53,440

exciting and a magnificent launch night

228

00:25:57,350 --> 00:25:55,679

launches are always magnificent so the

229

00:25:59,110 --> 00:25:57,360

crew is definitely ready to go have they

230

00:26:00,470 --> 00:25:59,120

have a lot of work ahead of them and

231

00:26:03,269 --> 00:26:00,480

we're looking forward to having them on

232

00:26:05,830 --> 00:26:03,279

orbit um i just got word from from on

233

00:26:08,470 --> 00:26:05,840

orbit that the crew on on on iss was

234

00:26:11,669 --> 00:26:08,480

able to uh to see the launch as well so

235

00:26:13,830 --> 00:26:11,679

really a unique opportunity uh it really

236

00:26:16,149 --> 00:26:13,840

takes a nighttime launch and in order

237

00:26:17,750 --> 00:26:16,159

for all those things to line up so very

238

00:26:19,350 --> 00:26:17,760

special occasion tonight and we'll look

239

00:26:20,630 --> 00:26:19,360

forward to the docking here in just a

240

00:26:22,789 --> 00:26:20,640

few hours

241

00:26:24,549 --> 00:26:22,799

the the work ahead in a busy five and a

242

00:26:26,710 --> 00:26:24,559

half months uh it's been discussed

243

00:26:28,390 --> 00:26:26,720

before but uh it just looks like a

244

00:26:30,230 --> 00:26:28,400

daunting five and a half months but a

245

00:26:31,590 --> 00:26:30,240

crew that's up to the task

246

00:26:33,750 --> 00:26:31,600

no doubt you know

247

00:26:35,510 --> 00:26:33,760

every crew that goes up these days is

248

00:26:37,269 --> 00:26:35,520

very very busy we expect these guys to

249

00:26:39,430 --> 00:26:37,279

uh to do a tremendous amount of research

250

00:26:41,510 --> 00:26:39,440

they have a very comprehensive research

251

00:26:43,110 --> 00:26:41,520

program and in addition to make things

252

00:26:46,310 --> 00:26:43,120

more exciting we're going to have a

253

00:26:47,990 --> 00:26:46,320

a european atv a japanese htv

254

00:26:50,070 --> 00:26:48,000

and and hopefully an orbital flight

255

00:26:52,390 --> 00:26:50,080

before they before they come home so

256

00:26:55,029 --> 00:26:52,400

lots of visiting vehicles and lots of

257

00:26:56,230 --> 00:26:55,039

research to do and and so we're looking