



1
00:00:06,470 --> 00:00:03,990
the international space station's

2
00:00:09,110 --> 00:00:06,480
expedition 40 crew members share an

3
00:00:10,950 --> 00:00:09,120
affinity for exploration on this planet

4
00:00:12,950 --> 00:00:10,960
but they're also eager to take up the

5
00:00:16,550 --> 00:00:12,960
challenge of setting the stage for

6
00:00:18,790 --> 00:00:16,560
future exploration off the planet dr

7
00:00:20,870 --> 00:00:18,800
steve swanson was born in syracuse new

8
00:00:23,349 --> 00:00:20,880
york and moved with his family a number

9
00:00:26,390 --> 00:00:23,359
of times before ending up in steamboat

10
00:00:28,230 --> 00:00:26,400
springs colorado as he entered his teens

11
00:00:31,349 --> 00:00:28,240
it's a beautiful place i love the

12
00:00:33,110 --> 00:00:31,359
mountains i love the area and

13
00:00:34,870 --> 00:00:33,120

when i grew up there it was definitely

14

00:00:37,270 --> 00:00:34,880

like a half agricultural ranching

15

00:00:39,510 --> 00:00:37,280

community and half resort and it was a

16

00:00:41,670 --> 00:00:39,520

great combination he stayed at home for

17

00:00:43,830 --> 00:00:41,680

college got his bachelor's of science in

18

00:00:46,150 --> 00:00:43,840

engineering physics at the university of

19

00:00:48,549 --> 00:00:46,160

colorado but then went to florida

20

00:00:51,270 --> 00:00:48,559

atlantic university to get his masters

21

00:00:53,590 --> 00:00:51,280

of applied science in computer systems

22

00:00:55,830 --> 00:00:53,600

at that point he considered his options

23

00:00:57,430 --> 00:00:55,840

and the job of astronaut seemed to have

24

00:00:59,590 --> 00:00:57,440

what he was looking for

25

00:01:01,910 --> 00:00:59,600

after a year working as an engineer in

26
00:01:03,830 --> 00:01:01,920
phoenix he got a job as an engineer at

27
00:01:05,910 --> 00:01:03,840
the johnson space center's aircraft

28
00:01:08,149 --> 00:01:05,920
operations division working on the

29
00:01:10,149 --> 00:01:08,159
shuttle training aircraft while earning

30
00:01:12,469 --> 00:01:10,159
his doctorate in computer science from

31
00:01:15,350 --> 00:01:12,479
texas a m he was chosen for the

32
00:01:17,990 --> 00:01:15,360
astronaut program in 1998 and made his

33
00:01:19,429 --> 00:01:18,000
first flight in 2007 on a mission to

34
00:01:21,190 --> 00:01:19,439
deliver a truss segment to the

35
00:01:23,030 --> 00:01:21,200
international space station

36
00:01:26,070 --> 00:01:23,040
swanson made two spacewalks on that

37
00:01:27,990 --> 00:01:26,080
mission and two more on a 2009 shuttle

38
00:01:30,230 --> 00:01:28,000

flight that delivered another truss

39

00:01:31,350 --> 00:01:30,240

segment to outfit the station to perform

40

00:01:33,190 --> 00:01:31,360

its mission

41

00:01:34,630 --> 00:01:33,200

we're going off now we're trying to get

42

00:01:37,590 --> 00:01:34,640

science better we're also trying to find

43

00:01:39,109 --> 00:01:37,600

maybe a place that we could go to uh to

44

00:01:41,429 --> 00:01:39,119

maybe you know get resources off the

45

00:01:43,590 --> 00:01:41,439

moon we could go explore the mars all

46

00:01:45,270 --> 00:01:43,600

these kind of ideas are things i think

47

00:01:48,069 --> 00:01:45,280

as human nature we just have to do

48

00:01:50,550 --> 00:01:48,079

alexander skvortsov was born in shelkavo

49

00:01:52,469 --> 00:01:50,560

near moscow because his father's job as

50

00:01:55,350 --> 00:01:52,479

a cosmonaut brought the family to star

51
00:01:57,270 --> 00:01:55,360
city a town with no maternity ward

52
00:01:59,350 --> 00:01:57,280
but soon after his birth schwarzo's

53
00:02:02,870 --> 00:01:59,360
father left the cosmonaut corps and the

54
00:02:06,630 --> 00:02:02,880
military took the family to murchansk

55
00:02:09,749 --> 00:02:06,640
and i still love the town a very big

56
00:02:13,110 --> 00:02:09,759
quiet river a wonderful nature wonderful

57
00:02:15,350 --> 00:02:13,120
forest very good people i like that town

58
00:02:16,869 --> 00:02:15,360
and i have there are a lot of people who

59
00:02:18,630 --> 00:02:16,879
graduate from high school with me my

60
00:02:21,030 --> 00:02:18,640
classmates still live there

61
00:02:23,350 --> 00:02:21,040
after high school sportsof set out to

62
00:02:24,790 --> 00:02:23,360
fulfill his dream of being a cosmonaut

63
00:02:26,390 --> 00:02:24,800

like his father

64

00:02:28,630 --> 00:02:26,400
after he completed study at the

65

00:02:30,869 --> 00:02:28,640
stavropol air force pilot and navigator

66

00:02:32,949 --> 00:02:30,879
school he spent seven years in the

67

00:02:35,270 --> 00:02:32,959
national air defense force before

68

00:02:38,070 --> 00:02:35,280
studying at the military red banner air

69

00:02:41,110 --> 00:02:38,080
defense academy schwarzoff graduated the

70

00:02:43,110 --> 00:02:41,120
academy in 1997 the same year he was

71

00:02:44,949 --> 00:02:43,120
selected for the cosmonaut corps

72

00:02:48,070 --> 00:02:44,959
he spent six months on the international

73

00:02:51,350 --> 00:02:48,080
space station in 2010 including serving

74

00:02:53,270 --> 00:02:51,360
as station commander for expedition 24.

75

00:02:55,110 --> 00:02:53,280
after he returned to earth he finished

76

00:02:57,509 --> 00:02:55,120

his studies at the russian academy of

77

00:02:59,589 --> 00:02:57,519

civil service to become a lawyer and he

78

00:03:02,869 --> 00:02:59,599

retired from the air force as a colonel

79

00:03:08,470 --> 00:03:06,949

it is an enormous joy to look down to

80

00:03:10,630 --> 00:03:08,480

earth

81

00:03:11,910 --> 00:03:10,640

and we really want to

82

00:03:13,910 --> 00:03:11,920

um

83

00:03:17,030 --> 00:03:13,920

see earth always looking as beautiful as

84

00:03:18,710 --> 00:03:17,040

we see from space a blue planet with

85

00:03:21,190 --> 00:03:18,720

wonderful nature

86

00:03:23,270 --> 00:03:21,200

oleg artemyev was born in riga the

87

00:03:25,350 --> 00:03:23,280

capital of latvia where his military

88

00:03:27,589 --> 00:03:25,360

officer father was stationed but the

89

00:03:30,149 --> 00:03:27,599

family soon moved to kazakhstan to the

90

00:03:31,589 --> 00:03:30,159

town now known as baikonur when artemyev

91

00:03:33,190 --> 00:03:31,599

was a small boy

92

00:03:35,190 --> 00:03:33,200

although he lived in the place where

93

00:03:38,149 --> 00:03:35,200

people were launched into space he

94

00:03:40,550 --> 00:03:38,159

wanted to be a sailor cosmonauts we

95

00:03:42,149 --> 00:03:40,560

always thought of cosmonauts as the

96

00:03:43,350 --> 00:03:42,159

people that we always have to go meet

97

00:03:45,270 --> 00:03:43,360

and greet

98

00:03:47,030 --> 00:03:45,280

they would pull us out of

99

00:03:49,110 --> 00:03:47,040

the activities that we actually enjoyed

100

00:03:51,430 --> 00:03:49,120

and they would line us up along the road

101
00:03:52,390 --> 00:03:51,440
and make us wave little flags to greet

102
00:03:54,550 --> 00:03:52,400
them

103
00:03:56,869 --> 00:03:54,560
after high school artemyev went off to

104
00:03:58,630 --> 00:03:56,879
train as a sailor but when that didn't

105
00:04:01,030 --> 00:03:58,640
work out he went to the talon

106
00:04:03,509 --> 00:04:01,040
polytechnic institute and graduated into

107
00:04:05,910 --> 00:04:03,519
a job as an electrician but soon left

108
00:04:07,830 --> 00:04:05,920
that to join the soviet army

109
00:04:09,910 --> 00:04:07,840
after two years in the service he went

110
00:04:11,990 --> 00:04:09,920
to moscow and was admitted to the bauman

111
00:04:13,910 --> 00:04:12,000
technical university where he earned a

112
00:04:15,190 --> 00:04:13,920
degree in low temperature physics and

113
00:04:17,189 --> 00:04:15,200

technology

114

00:04:19,430 --> 00:04:17,199

that got him a job at the rocket space

115

00:04:21,830 --> 00:04:19,440

corporation inerkia where he worked

116

00:04:23,590 --> 00:04:21,840

building and testing space vehicles

117

00:04:26,550 --> 00:04:23,600

including preparing the international

118

00:04:28,230 --> 00:04:26,560

space station's zvezda module for launch

119

00:04:31,909 --> 00:04:28,240

he was selected to start training as a

120

00:04:34,710 --> 00:04:31,919

cosmonaut in 2003. in 2009 he

121

00:04:36,550 --> 00:04:34,720

participated in the mars 500 experiment

122

00:04:39,110 --> 00:04:36,560

along with future cosmonaut sergey

123

00:04:42,629 --> 00:04:39,120

ryazanskiy on his way to preparing for

124

00:04:44,550 --> 00:04:42,639

his first space flight assignment

125

00:04:48,150 --> 00:04:44,560

i hope that um

126

00:04:51,110 --> 00:04:48,160

my small contribution will help those

127

00:04:53,350 --> 00:04:51,120

stupid numbers will eventually

128

00:04:55,909 --> 00:04:53,360

make a first step on

129

00:04:57,830 --> 00:04:55,919

the surface of mars or touch an asteroid

130

00:04:59,270 --> 00:04:57,840

bring something good back

131

00:05:01,909 --> 00:04:59,280

maybe even

132

00:05:04,790 --> 00:05:01,919

see some extraterrestrial life there are

133

00:05:07,749 --> 00:05:04,800

a lot of good jobs on earth but

134

00:05:09,990 --> 00:05:07,759

yeah this is the ultimate

135

00:05:12,710 --> 00:05:10,000

max tsarive is the son of a soviet air

136

00:05:14,550 --> 00:05:12,720

force officer he was born in chelyabinsk

137

00:05:17,110 --> 00:05:14,560

in the southern ural region of russia

138

00:05:18,390 --> 00:05:17,120

north of kazakhstan but his family moved

139

00:05:19,590 --> 00:05:18,400

all over the country during his

140

00:05:21,430 --> 00:05:19,600

childhood

141

00:05:24,150 --> 00:05:21,440

all along he intended to become a

142

00:05:26,550 --> 00:05:24,160

military pilot the idea of becoming a

143

00:05:27,749 --> 00:05:26,560

cosmonaut was just an extension of that

144

00:05:30,950 --> 00:05:27,759

idea

145

00:05:33,270 --> 00:05:30,960

and i thought i'd give it a shot because

146

00:05:36,070 --> 00:05:33,280

the profession of a military pilot is

147

00:05:37,830 --> 00:05:36,080

very similar to that of a cosmonaut

148

00:05:40,710 --> 00:05:37,840

making quick decisions making right

149

00:05:42,870 --> 00:05:40,720

decisions so something risky something

150

00:05:45,590 --> 00:05:42,880

complicated something challenging

151
00:05:48,070 --> 00:05:45,600
something interesting which brings a lot

152
00:05:50,230 --> 00:05:48,080
of pleasure if you manage

153
00:05:52,710 --> 00:05:50,240
after high school in noginsk near star

154
00:05:54,710 --> 00:05:52,720
city sarayev graduated from the kasha

155
00:05:56,870 --> 00:05:54,720
air force pilot school in the crimea

156
00:05:58,469 --> 00:05:56,880
with a specialty in command tactical

157
00:06:00,390 --> 00:05:58,479
fighter aviation

158
00:06:02,550 --> 00:06:00,400
then he went to the zhukovsky air force

159
00:06:04,710 --> 00:06:02,560
academy to specialize in test and

160
00:06:06,870 --> 00:06:04,720
exploitation of aircraft and weapons

161
00:06:08,950 --> 00:06:06,880
systems he applied to the cosmonaut

162
00:06:11,110 --> 00:06:08,960
corps and was selected the year before

163
00:06:13,510 --> 00:06:11,120

he finished at the academy and while

164

00:06:15,590 --> 00:06:13,520

training in star city he also graduated

165

00:06:16,870 --> 00:06:15,600

from the civil service academy of russia

166

00:06:18,870 --> 00:06:16,880

as a lawyer

167

00:06:22,550 --> 00:06:18,880

sarim's first flight was a six-month

168

00:06:25,430 --> 00:06:22,560

tour on expeditions 21 and 22 in 2009

169

00:06:26,629 --> 00:06:25,440

and 2010 during which he completed one

170

00:06:28,390 --> 00:06:26,639

spacewalk

171

00:06:31,590 --> 00:06:28,400

although he retired from the russian air

172

00:06:33,590 --> 00:06:31,600

force as a colonel in 2012 he continues

173

00:06:36,070 --> 00:06:33,600

to work for the cause of human space

174

00:06:38,870 --> 00:06:36,080

exploration

175

00:06:41,029 --> 00:06:38,880

that's why we send humans in space

176
00:06:44,230 --> 00:06:41,039
so that we move forward we may discover

177
00:06:46,070 --> 00:06:44,240
something in the future maybe

178
00:06:48,390 --> 00:06:46,080
maybe not in

179
00:06:52,309 --> 00:06:48,400
so near future but discovering

180
00:06:55,670 --> 00:06:54,070
something that will help us develop and

181
00:06:58,309 --> 00:06:55,680
move forward

182
00:07:00,950 --> 00:06:58,319
us navy commander reed wiseman grew up

183
00:07:02,710 --> 00:07:00,960
in the suburbs of baltimore maryland far

184
00:07:05,430 --> 00:07:02,720
enough away from the city to be able to

185
00:07:06,950 --> 00:07:05,440
enjoy nature learn about the world and

186
00:07:09,430 --> 00:07:06,960
make the most of the freedom and

187
00:07:11,749 --> 00:07:09,440
encouragement he got from his parents

188
00:07:13,589 --> 00:07:11,759

and they always had boundaries but

189

00:07:14,950 --> 00:07:13,599

it was exploration from the time i was

190

00:07:15,909 --> 00:07:14,960

born you know going to the lake with my

191

00:07:17,749 --> 00:07:15,919

brother

192

00:07:20,070 --> 00:07:17,759

learning on my own and figuring things

193

00:07:22,390 --> 00:07:20,080

out and and they gave me that that

194

00:07:24,309 --> 00:07:22,400

freedom and it was wonderful

195

00:07:26,710 --> 00:07:24,319

wiseman earned a bachelor's of science

196

00:07:28,230 --> 00:07:26,720

in computer and systems engineering and

197

00:07:31,830 --> 00:07:28,240

a commission in the navy through the

198

00:07:33,670 --> 00:07:31,840

rotc at rensselaer polytechnic institute

199

00:07:35,830 --> 00:07:33,680

after flight training he was assigned to

200

00:07:37,589 --> 00:07:35,840

an f-14 squadron and made two

201
00:07:39,670 --> 00:07:37,599
deployments to the middle east during

202
00:07:42,070 --> 00:07:39,680
operations southern watch enduring

203
00:07:43,830 --> 00:07:42,080
freedom and iraqi freedom during the

204
00:07:46,309 --> 00:07:43,840
second deployment he was picked for the

205
00:07:48,150 --> 00:07:46,319
navy's test pilot school and later while

206
00:07:50,390 --> 00:07:48,160
working at the patuxent river naval air

207
00:07:52,070 --> 00:07:50,400
station he also earned a master's degree

208
00:07:54,230 --> 00:07:52,080
in systems engineering from johns

209
00:07:56,150 --> 00:07:54,240
hopkins wiseman made two more

210
00:07:59,110 --> 00:07:56,160
international deployments before he was

211
00:08:00,710 --> 00:07:59,120
picked for the astronaut program in 2009

212
00:08:03,670 --> 00:08:00,720
and got the chance to resume the

213
00:08:05,909 --> 00:08:03,680

exploration he loved as a child

214

00:08:08,390 --> 00:08:05,919

we are curious we are inquisitive we are

215

00:08:11,110 --> 00:08:08,400

explorers by our very nature and right

216

00:08:14,469 --> 00:08:11,120

now the biggest exploration that a human

217

00:08:16,550 --> 00:08:14,479

can go on is 250 miles up on the space

218

00:08:18,790 --> 00:08:16,560

station so to me there's not even a

219

00:08:21,430 --> 00:08:18,800

question of course it's worth the risk

220

00:08:22,309 --> 00:08:21,440

just to go out there and push humanity

221

00:08:24,309 --> 00:08:22,319

to

222

00:08:26,790 --> 00:08:24,319

further than we've been

223

00:08:29,990 --> 00:08:26,800

that's that's a no-brainer

224

00:08:32,070 --> 00:08:30,000

dr alexander gerst was born in kunzelsau

225

00:08:34,469 --> 00:08:32,080

a small town in rural south central

226

00:08:36,790 --> 00:08:34,479

germany he liked being close to nature

227

00:08:38,469 --> 00:08:36,800

and looking up at the night sky and his

228

00:08:40,310 --> 00:08:38,479

curiosity was piqued when his

229

00:08:43,269 --> 00:08:40,320

grandfather talked to people all over

230

00:08:46,630 --> 00:08:43,279

the world on his amateur radio one day

231

00:08:48,389 --> 00:08:46,640

he somehow managed to adjust his antenna

232

00:08:49,590 --> 00:08:48,399

such that it would actually broadcast to

233

00:08:50,630 --> 00:08:49,600

the moon

234

00:08:56,630 --> 00:08:50,640

and

235

00:08:58,150 --> 00:08:56,640

speak a few words into the radio they

236

00:08:59,590 --> 00:08:58,160

would bounce back from the surface of

237

00:09:02,389 --> 00:08:59,600

the moon and about two and a half

238

00:09:03,910 --> 00:09:02,399

seconds later i would hear my own words

239

00:09:06,230 --> 00:09:03,920

in the radio

240

00:09:09,269 --> 00:09:06,240

knowing as a six-year-old that they were

241

00:09:11,829 --> 00:09:09,279

just on the moon so it was impossible

242

00:09:14,230 --> 00:09:11,839

for me to grasp in the beginning

243

00:09:16,550 --> 00:09:14,240

gerst started his exploration focused on

244

00:09:18,310 --> 00:09:16,560

this planet and earned a diploma in

245

00:09:20,949 --> 00:09:18,320

geophysics from the university of

246

00:09:23,190 --> 00:09:20,959

karlsruhe in germany while also getting

247

00:09:25,670 --> 00:09:23,200

his master's in earth sciences from

248

00:09:27,829 --> 00:09:25,680

victoria university in new zealand while

249

00:09:30,230 --> 00:09:27,839

working there developing new volcano

250

00:09:32,310 --> 00:09:30,240

monitoring techniques he made four

251
00:09:34,389 --> 00:09:32,320
scientific missions to study volcanoes

252
00:09:36,790 --> 00:09:34,399
in antarctica while working on his

253
00:09:38,470 --> 00:09:36,800
doctorate in natural sciences at the

254
00:09:40,630 --> 00:09:38,480
institute of geophysics at the

255
00:09:42,710 --> 00:09:40,640
university of hamburg and during that

256
00:09:45,110 --> 00:09:42,720
time he made good on a promise to

257
00:09:47,910 --> 00:09:45,120
himself that he would make at least one

258
00:09:49,670 --> 00:09:47,920
sincere effort to become an astronaut he

259
00:09:52,870 --> 00:09:49,680
was selected for the astronaut corps by

260
00:09:55,350 --> 00:09:52,880
the european space agency in 2009

261
00:09:57,590 --> 00:09:55,360
finished his phd the following year and

262
00:09:59,750 --> 00:09:57,600
has been focused ever since on his

263
00:10:01,030 --> 00:09:59,760

chance to be part of what he calls the

264

00:10:01,829 --> 00:10:01,040

first wave

265

00:10:04,630 --> 00:10:01,839

being

266

00:10:07,350 --> 00:10:04,640

the first well wave of explorers on the

267

00:10:11,030 --> 00:10:07,360

way out exploring the universe

268

00:10:12,069 --> 00:10:11,040

to moon asteroids mars and beyond

269

00:10:15,110 --> 00:10:12,079

that is

270

00:10:16,069 --> 00:10:15,120

for me such an important thing to do for