

A woman with long blonde hair, wearing a black polo shirt with a NASA patch, is speaking. The background is a blue-tinted image of a person working in a technical environment. A blue banner at the bottom contains her name and title.

Karen Nyberg

Expedition 36 Flight Engineer

1
00:00:07,030 --> 00:00:04,870
the members of the international space

2
00:00:09,030 --> 00:00:07,040
station crew all believe that their

3
00:00:11,030 --> 00:00:09,040
six-month mission is an important part

4
00:00:13,669 --> 00:00:11,040
of the work that's needed to help human

5
00:00:15,589 --> 00:00:13,679
beings continue to explore well beyond

6
00:00:17,750 --> 00:00:15,599
their home planet

7
00:00:20,630 --> 00:00:17,760
pavel vinogradov was born in the far

8
00:00:23,349 --> 00:00:20,640
eastern russian town of magadam and grew

9
00:00:26,630 --> 00:00:23,359
up in the even farther eastern town of

10
00:00:30,550 --> 00:00:26,640
anodier just 500 miles across the bering

11
00:00:33,190 --> 00:00:30,560
sea from gnome alaska

12
00:00:36,870 --> 00:00:33,200
if you have been to alaska

13
00:00:42,830 --> 00:00:37,670

the

14

00:00:46,790 --> 00:00:42,840

climate is very harsh eight months of

15

00:00:48,310 --> 00:00:46,800

winter lots of snow and ice but i love

16

00:00:50,310 --> 00:00:48,320

it i enjoy it

17

00:00:52,869 --> 00:00:50,320

after a childhood spent dreaming of

18

00:00:54,869 --> 00:00:52,879

becoming a pilot vinogradov left the new

19

00:00:57,430 --> 00:00:54,879

deer after high school for the moscow

20

00:00:59,750 --> 00:00:57,440

aviation institute he earned a degree in

21

00:01:01,590 --> 00:00:59,760

rocket booster design then taught and

22

00:01:03,510 --> 00:01:01,600

did research at the institute while

23

00:01:06,390 --> 00:01:03,520

earning a second degree in computer

24

00:01:08,070 --> 00:01:06,400

systems and systems analysis vinogradov

25

00:01:11,429 --> 00:01:08,080

joined the design bureau of the rocket

26

00:01:13,270 --> 00:01:11,439

space corporation in nergia in 1983 and

27

00:01:16,230 --> 00:01:13,280

worked on the mir space station the

28

00:01:17,910 --> 00:01:16,240

baron shuttle and other inergia vehicles

29

00:01:20,630 --> 00:01:17,920

before being selected to inerkia's

30

00:01:23,510 --> 00:01:20,640

cosmonaut corps in 1992

31

00:01:26,390 --> 00:01:23,520

he logged 198 days in space as the board

32

00:01:28,870 --> 00:01:26,400

engineer on mir 24 and made five

33

00:01:30,870 --> 00:01:28,880

spacewalks to repair mir after a

34

00:01:33,749 --> 00:01:30,880

progress freighter punched a hole in it

35

00:01:36,630 --> 00:01:33,759

in the summer of 1997. he made one more

36

00:01:38,550 --> 00:01:36,640

spacewalk in 2006 as commander of the

37

00:01:42,069 --> 00:01:38,560

international space station's expedition

38

00:01:44,469 --> 00:01:42,079

13. a 183-day mission that restored the

39

00:01:46,469 --> 00:01:44,479

station's crew complement to three

40

00:01:48,469 --> 00:01:46,479

he believes today's space exploration

41

00:01:50,789 --> 00:01:48,479

efforts bear comparison to the sea

42

00:01:54,389 --> 00:01:50,799

voyages of the great explorers in the

43

00:01:57,270 --> 00:01:55,990

who were exploring

44

00:01:59,510 --> 00:01:57,280

the earth

45

00:02:01,109 --> 00:01:59,520

did not know what that they will

46

00:02:02,310 --> 00:02:01,119

discover america in four months for

47

00:02:04,310 --> 00:02:02,320

example

48

00:02:05,990 --> 00:02:04,320

the risks were great

49

00:02:09,990 --> 00:02:06,000

um

50

00:02:12,710 --> 00:02:10,000

but i have no doubt that likewise

51
00:02:13,910 --> 00:02:12,720
we as those explorers we need to explore

52
00:02:15,670 --> 00:02:13,920
space

53
00:02:18,070 --> 00:02:15,680
retired russian air force lieutenant

54
00:02:21,030 --> 00:02:18,080
colonel alexander misurkin is a product

55
00:02:23,110 --> 00:02:21,040
of western russia born in yershi-chi in

56
00:02:25,670 --> 00:02:23,120
the smalensk region and raised a couple

57
00:02:28,070 --> 00:02:25,680
of hundred miles away in oriole he calls

58
00:02:30,390 --> 00:02:28,080
his childhood a typical one and says

59
00:02:32,949 --> 00:02:30,400
even as a young boy he wanted to go

60
00:02:33,670 --> 00:02:32,959
places no one had been to before

61
00:03:33,990 --> 00:02:33,680
i

62
00:03:35,350 --> 00:03:34,000
he was

63
00:03:37,270 --> 00:03:35,360

positive that

64

00:03:39,270 --> 00:03:37,280

we are

65

00:03:42,309 --> 00:03:39,280

go into the space

66

00:03:43,910 --> 00:03:42,319

and we will live

67

00:03:48,070 --> 00:03:43,920

in

68

00:03:49,190 --> 00:03:48,080

place

69

00:03:50,070 --> 00:03:49,200

and

70

00:03:52,550 --> 00:03:50,080

it

71

00:03:55,589 --> 00:03:52,560

the time will come in for this i'm sure

72

00:03:56,630 --> 00:03:55,599

that is why i think we should do this

73

00:03:59,190 --> 00:03:56,640

job

74

00:04:01,589 --> 00:03:59,200

u.s navy commander chris cassidy is a

75

00:04:04,470 --> 00:04:01,599

native of salem massachusetts who grew

76

00:04:06,390 --> 00:04:04,480

up in york maine on the atlantic coast

77

00:04:08,550 --> 00:04:06,400

he was aware of the space program as a

78

00:04:10,390 --> 00:04:08,560

young boy but admits he wasn't

79

00:04:13,270 --> 00:04:10,400

particularly interested

80

00:04:15,589 --> 00:04:13,280

i was just like every other boy i mo

81

00:04:18,069 --> 00:04:15,599

mowed lawns had a couple odd jobs in

82

00:04:21,110 --> 00:04:18,079

restaurants and things in the summertime

83

00:04:24,070 --> 00:04:21,120

but that was all to really pay my gas to

84

00:04:26,710 --> 00:04:24,080

drive to the basketball court cassidy

85

00:04:28,950 --> 00:04:26,720

left york after high school first for a

86

00:04:31,030 --> 00:04:28,960

year at the naval academy prep school

87

00:04:33,030 --> 00:04:31,040

and then on to annapolis where he earned

88

00:04:34,950 --> 00:04:33,040

a bachelor's in mathematics

89

00:04:37,350 --> 00:04:34,960

next stop was san diego to begin

90

00:04:39,670 --> 00:04:37,360

training in special operations as a navy

91

00:04:41,990 --> 00:04:39,680

seal after four years stationed in

92

00:04:43,749 --> 00:04:42,000

virginia he earned a masters in ocean

93

00:04:45,990 --> 00:04:43,759

engineering at mit

94

00:04:48,390 --> 00:04:46,000

and about that time he became aware of a

95

00:04:49,990 --> 00:04:48,400

fellow navy seal who had had a similar

96

00:04:52,390 --> 00:04:50,000

career arc to his

97

00:04:54,469 --> 00:04:52,400

astronaut bill shepard so one day i

98

00:04:56,629 --> 00:04:54,479

actually met him or called him and we

99

00:04:58,550 --> 00:04:56,639

had he gave me some great information

100

00:04:59,670 --> 00:04:58,560

and i thought you know what that sounds

101
00:05:04,270 --> 00:04:59,680
really

102
00:05:09,430 --> 00:05:07,590
26 or 27 when the first and the idea

103
00:05:11,749 --> 00:05:09,440
first popped into my head

104
00:05:12,950 --> 00:05:11,759
cassidy applied but didn't get the call

105
00:05:15,590 --> 00:05:12,960
from nasa

106
00:05:18,469 --> 00:05:15,600
the next year just weeks after september

107
00:05:20,469 --> 00:05:18,479
11th the sealed platoon he commanded did

108
00:05:22,830 --> 00:05:20,479
get the call and he was deployed to the

109
00:05:25,270 --> 00:05:22,840
afghanistan region before the 1st of

110
00:05:27,510 --> 00:05:25,280
october he returned home to another

111
00:05:30,550 --> 00:05:27,520
posting in virginia and he was selected

112
00:05:32,629 --> 00:05:30,560
for the astronaut program in 2004 just

113
00:05:34,710 --> 00:05:32,639

days after coming home from a second

114

00:05:36,870 --> 00:05:34,720

deployment to afghanistan

115

00:05:38,550 --> 00:05:36,880

cassidy made three spacewalks on his

116

00:05:41,110 --> 00:05:38,560

first trip to the international space

117

00:05:43,110 --> 00:05:41,120

station on the 2009 space shuttle

118

00:05:45,029 --> 00:05:43,120

mission that delivered the components to

119

00:05:47,670 --> 00:05:45,039

complete construction of the kibo

120

00:05:49,909 --> 00:05:47,680

laboratory complex he's enthusiastic

121

00:05:52,390 --> 00:05:49,919

about his part in laying the groundwork

122

00:05:54,710 --> 00:05:52,400

for some future generation of earthlings

123

00:05:57,029 --> 00:05:54,720

to fulfill their destiny to find a new

124

00:05:58,710 --> 00:05:57,039

home in space but there'll be a time

125

00:06:01,350 --> 00:05:58,720

when there'll be people living on other

126

00:06:03,909 --> 00:06:01,360

planets and it's the work the hard work

127

00:06:06,070 --> 00:06:03,919

that we're doing right now all of us

128

00:06:07,909 --> 00:06:06,080

across the globe they're going to set

129

00:06:09,909 --> 00:06:07,919

the stage for for that type of remark

130

00:06:11,749 --> 00:06:09,919

just like christopher columbus set sail

131

00:06:14,550 --> 00:06:11,759

one day across the ocean

132

00:06:17,430 --> 00:06:14,560

and thanks to those great explorers we

133

00:06:19,670 --> 00:06:17,440

live the life that we do today

134

00:06:21,990 --> 00:06:19,680

fiora yurchikhin was born and raised in

135

00:06:24,710 --> 00:06:22,000

the black sea port city of batumi in

136

00:06:26,550 --> 00:06:24,720

soviet georgia growing up in a time and

137

00:06:28,950 --> 00:06:26,560

place where all the children wanted to

138

00:06:31,350 --> 00:06:28,960

be cosmonauts where the winners of kids

139

00:06:33,189 --> 00:06:31,360

games were called gagarins

140

00:06:35,590 --> 00:06:33,199

your chicken wanted to be a part of that

141

00:06:36,950 --> 00:06:35,600

life even if he couldn't be a dashing

142

00:06:39,670 --> 00:06:36,960

test pilot

143

00:06:42,230 --> 00:06:39,680

what reason i understood maybe

144

00:06:44,950 --> 00:06:42,240

in this day in this time then

145

00:06:47,510 --> 00:06:44,960

it's maybe in my health it's not enough

146

00:06:50,870 --> 00:06:47,520

to be a course model but what is more

147

00:06:54,150 --> 00:06:50,880

important for me be a pilot or be an

148

00:06:57,029 --> 00:06:54,160

engineer in space program of course

149

00:06:58,790 --> 00:06:57,039

the space program it was

150

00:07:00,870 --> 00:06:58,800

too important for me

151
00:07:03,270 --> 00:07:00,880
so after high school your chicken went

152
00:07:04,870 --> 00:07:03,280
to the moscow aviation institute earned

153
00:07:07,029 --> 00:07:04,880
a bachelor's degree in mechanical

154
00:07:09,350 --> 00:07:07,039
engineering specializing in aerospace

155
00:07:11,589 --> 00:07:09,360
vehicles and went straight to work for

156
00:07:13,510 --> 00:07:11,599
the rocket space corporation inergia as

157
00:07:15,510 --> 00:07:13,520
an engineer he worked as a flight

158
00:07:17,830 --> 00:07:15,520
controller and when he became lead

159
00:07:19,670 --> 00:07:17,840
engineer for the mere shuttle program he

160
00:07:21,589 --> 00:07:19,680
spent time at nasa's johnson space

161
00:07:23,430 --> 00:07:21,599
center supporting that effort

162
00:07:26,870 --> 00:07:23,440
your chicken was selected as an inergia

163
00:07:28,870 --> 00:07:26,880

cosmonaut in 1997 and earned a phd in

164

00:07:31,270 --> 00:07:28,880

economics at moscow service state

165

00:07:33,550 --> 00:07:31,280

university while preparing for his first

166

00:07:36,230 --> 00:07:33,560

space flight he was a member of the

167

00:07:38,469 --> 00:07:36,240

sts-112 crew that delivered a piece of

168

00:07:41,189 --> 00:07:38,479

the station's starboard truss during

169

00:07:43,430 --> 00:07:41,199

expedition 5 in 2002.

170

00:07:46,629 --> 00:07:43,440

he returned five years later on a soyuz

171

00:07:49,110 --> 00:07:46,639

spacecraft as commander of expedition 15

172

00:07:51,510 --> 00:07:49,120

and made three spacewalks and followed

173

00:07:54,950 --> 00:07:51,520

that with two more evas as a station

174

00:07:56,550 --> 00:07:54,960

flight engineer on expeditions 24 and 25

175

00:07:58,390 --> 00:07:56,560

in 2010

176

00:08:00,390 --> 00:07:58,400

he believes the station program is

177

00:08:02,469 --> 00:08:00,400

paying off in the things we're learning

178

00:08:04,710 --> 00:08:02,479

while making the effort from improving

179

00:08:06,309 --> 00:08:04,720

the spacecraft themselves to the tools

180

00:08:09,830 --> 00:08:06,319

we develop

181

00:08:12,469 --> 00:08:09,840

but the first big exactly great sensor

182

00:08:14,710 --> 00:08:12,479

for digital cameras it was factory for

183

00:08:16,790 --> 00:08:14,720

this program and now it's usual for

184

00:08:19,670 --> 00:08:16,800

everybody it's usual for my daughters

185

00:08:22,710 --> 00:08:19,680

it's usual for young boys and girls i

186

00:08:27,749 --> 00:08:22,720

know my profession it's very important

187

00:08:30,309 --> 00:08:27,759

for human why i am on this road

188

00:08:32,550 --> 00:08:30,319

italian air force major luca parmitano

189

00:08:34,790 --> 00:08:32,560

is from sicily born in paterno and

190

00:08:37,269 --> 00:08:34,800

raised in catania in the shadow of mount

191

00:08:39,029 --> 00:08:37,279

aetna although he was very young when he

192

00:08:41,909 --> 00:08:39,039

saw the first space shuttles fly on

193

00:08:44,149 --> 00:08:41,919

television he was captivated by the idea

194

00:08:46,230 --> 00:08:44,159

of what those images represented

195

00:08:48,150 --> 00:08:46,240

so i remember seeing that the first

196

00:08:49,829 --> 00:08:48,160

astronauts floating around

197

00:08:50,790 --> 00:08:49,839

around the space shuttle doing doing

198

00:08:52,630 --> 00:08:50,800

their job

199

00:08:55,509 --> 00:08:52,640

and i think that even in a kid as smart

200

00:08:56,470 --> 00:08:55,519

as i was i just thought that must be the

201
00:08:58,550 --> 00:08:56,480
greatest

202
00:08:59,829 --> 00:08:58,560
job in the world to be able to do those

203
00:09:01,990 --> 00:08:59,839
things and

204
00:09:04,710 --> 00:09:02,000
and and call it a living

205
00:09:06,870 --> 00:09:04,720
so since then i i had this dream of

206
00:09:08,550 --> 00:09:06,880
becoming an astronaut parmitano won a

207
00:09:11,030 --> 00:09:08,560
scholarship to spend a year of high

208
00:09:13,430 --> 00:09:11,040
school in southern california in that

209
00:09:15,829 --> 00:09:13,440
year in america he not only intensified

210
00:09:17,750 --> 00:09:15,839
his desire to be a pilot by living with

211
00:09:19,350 --> 00:09:17,760
a host family in which the father was a

212
00:09:21,350 --> 00:09:19,360
marine navigator

213
00:09:23,190 --> 00:09:21,360

but he met the girl who years later

214

00:09:24,870 --> 00:09:23,200

would become his wife

215

00:09:27,190 --> 00:09:24,880

back in italy parmitano earned a

216

00:09:28,949 --> 00:09:27,200

bachelor's degree in political sciences

217

00:09:31,670 --> 00:09:28,959

at the university of naples and

218

00:09:34,230 --> 00:09:31,680

graduated from italy's air force academy

219

00:09:36,630 --> 00:09:34,240

then completed his basic training at the

220

00:09:38,870 --> 00:09:36,640

euro nato joint jet pilot training

221

00:09:39,990 --> 00:09:38,880

program at shepherd air force base in

222

00:09:41,990 --> 00:09:40,000

texas

223

00:09:44,150 --> 00:09:42,000

after six years with a fighter squadron

224

00:09:46,470 --> 00:09:44,160

in italy he was sent to france to train

225

00:09:48,870 --> 00:09:46,480

as a test pilot and earned a masters in

226

00:09:50,870 --> 00:09:48,880

experimental flight test engineering at

227

00:09:53,990 --> 00:09:50,880

the superior institute of aeronautics

228

00:09:55,670 --> 00:09:54,000

and space in toulouse in 2009 the same

229

00:09:58,470 --> 00:09:55,680

year he was selected for astronaut

230

00:10:00,630 --> 00:09:58,480

training by the european space agency

231

00:10:03,430 --> 00:10:00,640

now he's making his childhood dream a

232

00:10:05,670 --> 00:10:03,440

reality and fulfilling a desire to push

233

00:10:07,509 --> 00:10:05,680

the boundaries of human knowledge

234

00:10:08,710 --> 00:10:07,519

that's who we are that's what makes us

235

00:10:11,110 --> 00:10:08,720

humans

236

00:10:13,990 --> 00:10:11,120

uh that is what makes us

237

00:10:16,389 --> 00:10:14,000

different from all from the rest of the

238

00:10:19,030 --> 00:10:16,399

of the animal kingdom and if we don't

239

00:10:21,910 --> 00:10:19,040

follow our of our nature of being

240

00:10:23,829 --> 00:10:21,920

explorators of being thinkers then we

241

00:10:25,829 --> 00:10:23,839

are denying a part of ourselves that is

242

00:10:28,790 --> 00:10:25,839

incredibly important

243

00:10:31,030 --> 00:10:28,800

dr karen nyberg was part of a big family

244

00:10:33,190 --> 00:10:31,040

growing up in the tiny town of vining

245

00:10:35,269 --> 00:10:33,200

minnesota and from the time she was a

246

00:10:37,269 --> 00:10:35,279

very young girl she knew she wanted to

247

00:10:38,470 --> 00:10:37,279

be an astronaut although she doesn't

248

00:10:40,470 --> 00:10:38,480

know why

249

00:10:41,670 --> 00:10:40,480

she learned some solitary pursuits as a

250

00:10:43,990 --> 00:10:41,680

little girl

251
00:10:46,069 --> 00:10:44,000
i've been sewing my mom taught me to sew

252
00:10:46,949 --> 00:10:46,079
when i was probably five or six years

253
00:10:49,670 --> 00:10:46,959
old

254
00:10:51,910 --> 00:10:49,680
i've been drawing since i was also that

255
00:10:53,590 --> 00:10:51,920
age i used to i would never sit in front

256
00:10:55,430 --> 00:10:53,600
of the television just sitting there

257
00:10:56,949 --> 00:10:55,440
watching tv i always had

258
00:10:59,670 --> 00:10:56,959
a piece of paper and a pencil and was

259
00:11:01,509 --> 00:10:59,680
drawing or doodling or doing something

260
00:11:03,910 --> 00:11:01,519
but she took advantage of being in a

261
00:11:06,150 --> 00:11:03,920
small town to join more school

262
00:11:07,509 --> 00:11:06,160
activities than most kids in big city

263
00:11:09,030 --> 00:11:07,519

schools join

264

00:11:11,350 --> 00:11:09,040

i was on the basketball team the

265

00:11:13,190 --> 00:11:11,360

volleyball team the track team i took

266

00:11:15,509 --> 00:11:13,200

stats for the baseball team i was in the

267

00:11:18,310 --> 00:11:15,519

choir i was in the band i was in the

268

00:11:19,670 --> 00:11:18,320

drama club i was able to participate in

269

00:11:21,670 --> 00:11:19,680

all of them

270

00:11:23,269 --> 00:11:21,680

learn to be a team member

271

00:11:25,750 --> 00:11:23,279

she went to the university of north

272

00:11:28,069 --> 00:11:25,760

dakota to study engineering and learned

273

00:11:29,990 --> 00:11:28,079

about a program that lets students work

274

00:11:31,030 --> 00:11:30,000

at nasa's johnson space center in

275

00:11:34,710 --> 00:11:31,040

houston

276

00:11:37,190 --> 00:11:34,720

while finishing her bachelor's in

277

00:11:39,430 --> 00:11:37,200

mechanical engineering in grand forks

278

00:11:41,750 --> 00:11:39,440

and while starting her graduate work at

279

00:11:43,509 --> 00:11:41,760

the university of texas at austin

280

00:11:45,350 --> 00:11:43,519

after she finished a masters and a

281

00:11:48,310 --> 00:11:45,360

doctorate in mechanical engineering in

282

00:11:50,150 --> 00:11:48,320

austin she returned to jsc working

283

00:11:52,470 --> 00:11:50,160

full-time in the crew and thermal

284

00:11:54,310 --> 00:11:52,480

systems division for two years before

285

00:11:57,269 --> 00:11:54,320

she was picked for the astronaut program

286

00:12:00,150 --> 00:11:57,279

in 2000 where she met her future husband

287

00:12:02,870 --> 00:12:00,160

fellow astronaut candidate doug hurley

288

00:12:04,790 --> 00:12:02,880

nyberg was part of the sts-124 space

289

00:12:07,190 --> 00:12:04,800

shuttle crew that delivered the kibo

290

00:12:09,110 --> 00:12:07,200

laboratory module and japanese robotic

291

00:12:10,470 --> 00:12:09,120

arm to the international space station

292

00:12:12,629 --> 00:12:10,480

in 2008

293

00:12:15,269 --> 00:12:12,639

and was the first person to ever operate

294

00:12:17,829 --> 00:12:15,279

the shuttle robotic arm the main station

295

00:12:19,990 --> 00:12:17,839

arm and the japanese arm

296

00:12:22,949 --> 00:12:20,000

she's confident this mission will appeal

297

00:12:25,670 --> 00:12:22,959

to the adventure seeker in today's kids

298

00:12:28,470 --> 00:12:25,680

i think a lot of it is based just on

299

00:12:29,430 --> 00:12:28,480

human nature that we are all very

300

00:12:31,670 --> 00:12:29,440

curious

301

00:12:33,590 --> 00:12:31,680

people