



1
00:00:07,749 --> 00:00:05,749
the last flight of the u.s space shuttle

2
00:00:09,669 --> 00:00:07,759
is a return visit to the international

3
00:00:12,190 --> 00:00:09,679
space station for each of the four

4
00:00:15,110 --> 00:00:12,200
astronauts on board atlantis

5
00:00:18,390 --> 00:00:15,120
sts-135 is the third station mission for

6
00:00:20,870 --> 00:00:18,400
retired u.s navy captain chris ferguson

7
00:00:22,230 --> 00:00:20,880
i was born raised and got to spend you

8
00:00:24,390 --> 00:00:22,240
know all of my grade school and high

9
00:00:26,150 --> 00:00:24,400
school years in one place which is which

10
00:00:27,509 --> 00:00:26,160
was really nice we had close knit

11
00:00:29,429 --> 00:00:27,519
community

12
00:00:31,189 --> 00:00:29,439
in northeast philadelphia

13
00:00:33,990 --> 00:00:31,199

ferguson admits being interested in

14

00:00:35,510 --> 00:00:34,000

rockets as a kid but not necessarily in

15

00:00:37,190 --> 00:00:35,520

being an astronaut

16

00:00:40,310 --> 00:00:37,200

it make made me want to understand

17

00:00:42,150 --> 00:00:40,320

things that are larger than life

18

00:00:44,310 --> 00:00:42,160

and i think that's why i wanted to go

19

00:00:45,990 --> 00:00:44,320

fly for the navy and land a plane on an

20

00:00:48,229 --> 00:00:46,000

aircraft carrier

21

00:00:50,549 --> 00:00:48,239

after high school ferguson went downtown

22

00:00:52,549 --> 00:00:50,559

to drexel university for his bachelor of

23

00:00:54,229 --> 00:00:52,559

science in mechanical engineering while

24

00:00:56,830 --> 00:00:54,239

earning his commission through the navy

25

00:00:59,830 --> 00:00:56,840

rotc program at the university of

26
00:01:02,470 --> 00:00:59,840
pennsylvania he flew the f-14 tomcat on

27
00:01:04,310 --> 00:01:02,480
deployment aboard the uss forestall and

28
00:01:05,590 --> 00:01:04,320
attended the navy's top gun fighter

29
00:01:07,350 --> 00:01:05,600
weapons school

30
00:01:09,350 --> 00:01:07,360
earned a masters in aeronautical

31
00:01:10,310 --> 00:01:09,360
engineering at the naval post graduate

32
00:01:12,630 --> 00:01:10,320
school

33
00:01:14,950 --> 00:01:12,640
served as an f-14 weapons separation

34
00:01:16,870 --> 00:01:14,960
project officer and completed a

35
00:01:19,270 --> 00:01:16,880
deployment to the western pacific and

36
00:01:21,190 --> 00:01:19,280
persian gulf aboard the nimitz before

37
00:01:24,310 --> 00:01:21,200
being selected for the astronaut program

38
00:01:26,469 --> 00:01:24,320

in 1998 and getting his chance to follow

39

00:01:27,990 --> 00:01:26,479

in the footsteps of the great explorers

40

00:01:29,350 --> 00:01:28,000

of the past

41

00:01:30,469 --> 00:01:29,360

we have a home up there and we're

42

00:01:32,310 --> 00:01:30,479

destined to be up there and we're

43

00:01:33,990 --> 00:01:32,320

destined to go beyond low earth orbit

44

00:01:35,670 --> 00:01:34,000

perhaps set up a colony on the moon and

45

00:01:38,069 --> 00:01:35,680

go on to mars

46

00:01:40,710 --> 00:01:38,079

ferguson was the pilot on the 2006

47

00:01:43,109 --> 00:01:40,720

shuttle mission that delivered the p3 p4

48

00:01:46,069 --> 00:01:43,119

truss to the international space station

49

00:01:47,670 --> 00:01:46,079

and commander of a 2008 supply flight

50

00:01:50,870 --> 00:01:47,680

that delivered one of his current

51
00:01:53,030 --> 00:01:50,880
crewmates for her long duration mission

52
00:01:55,510 --> 00:01:53,040
this is the third trip to orbit for dr

53
00:01:57,429 --> 00:01:55,520
sandy magnus who was born and raised in

54
00:01:59,630 --> 00:01:57,439
belleville illinois

55
00:02:02,230 --> 00:01:59,640
medium-sized town

56
00:02:04,310 --> 00:02:02,240
a lot of family living in the area it

57
00:02:07,429 --> 00:02:04,320
was really quite a nice place to grow up

58
00:02:09,350 --> 00:02:07,439
very solid well-grounded community lots

59
00:02:10,309 --> 00:02:09,360
of very nice people

60
00:02:11,830 --> 00:02:10,319
and

61
00:02:13,510 --> 00:02:11,840
i enjoyed it you know we had st louis

62
00:02:15,190 --> 00:02:13,520
nearby if you want to do big city stuff

63
00:02:17,670 --> 00:02:15,200

but we were yet a smaller town so we

64

00:02:20,630 --> 00:02:17,680

didn't have a lot of the big city issues

65

00:02:22,229 --> 00:02:20,640

and it was a good place to grow up

66

00:02:24,470 --> 00:02:22,239

as for her interest in becoming an

67

00:02:26,550 --> 00:02:24,480

astronaut she doesn't really know where

68

00:02:27,830 --> 00:02:26,560

it came from it's something that caught

69

00:02:29,190 --> 00:02:27,840

a hold of me

70

00:02:30,550 --> 00:02:29,200

when i was in middle school believe it

71

00:02:32,070 --> 00:02:30,560

or not and

72

00:02:34,229 --> 00:02:32,080

i i've always liked science and

73

00:02:36,470 --> 00:02:34,239

technology and math it's always been fun

74

00:02:38,390 --> 00:02:36,480

to learn how the world works and to see

75

00:02:40,309 --> 00:02:38,400

new things and learn new things and

76
00:02:41,190 --> 00:02:40,319
there's something about flying in space

77
00:02:42,710 --> 00:02:41,200
that

78
00:02:44,229 --> 00:02:42,720
just grabbed a hold of me and didn't let

79
00:02:48,150 --> 00:02:44,239
go

80
00:02:49,750 --> 00:02:48,160
university of missouri rolla but

81
00:02:50,630 --> 00:02:49,760
discovered engineering while she was

82
00:02:52,390 --> 00:02:50,640
there

83
00:02:54,229 --> 00:02:52,400
she finished a masters in electrical

84
00:02:56,470 --> 00:02:54,239
engineering at rolla while she worked

85
00:02:58,869 --> 00:02:56,480
for mcdonald douglas on airplane design

86
00:03:01,110 --> 00:02:58,879
and materials until she left for georgia

87
00:03:03,670 --> 00:03:01,120
tech to get a phd from the school of

88
00:03:05,350 --> 00:03:03,680

material science and engineering she was

89

00:03:08,630 --> 00:03:05,360

selected for the astronaut program in

90

00:03:10,790 --> 00:03:08,640

1996 ready for another new chapter in

91

00:03:12,790 --> 00:03:10,800

her quest to learn new things we're

92

00:03:14,390 --> 00:03:12,800

finding interesting things about the

93

00:03:16,470 --> 00:03:14,400

virulency of

94

00:03:17,910 --> 00:03:16,480

some diseases we're finding interesting

95

00:03:19,990 --> 00:03:17,920

things about how materials operate we

96

00:03:22,070 --> 00:03:20,000

find interesting things about just fluid

97

00:03:23,910 --> 00:03:22,080

fluid dynamics and all these little

98

00:03:26,949 --> 00:03:23,920

pieces of information

99

00:03:28,229 --> 00:03:26,959

can be used here on the ground to create

100

00:03:30,229 --> 00:03:28,239

things that can help people or

101
00:03:31,670 --> 00:03:30,239
technology that can they can do new

102
00:03:33,589 --> 00:03:31,680
things

103
00:03:36,070 --> 00:03:33,599
magnus operated the space station's

104
00:03:38,229 --> 00:03:36,080
robot arm during the 2002 shuttle

105
00:03:40,470 --> 00:03:38,239
mission that delivered the s-1 trust to

106
00:03:42,949 --> 00:03:40,480
the space station and returned in late

107
00:03:45,110 --> 00:03:42,959
2008 to start a four and a half month

108
00:03:48,030 --> 00:03:45,120
tour of duty as a flight engineer on

109
00:03:51,110 --> 00:03:48,040
expedition 18.

110
00:03:52,949 --> 00:03:51,120
sts-135 is also the third space flight

111
00:03:55,670 --> 00:03:52,959
for retired air force colonel rex

112
00:03:58,470 --> 00:03:55,680
walheim of northern california born in

113
00:04:00,869 --> 00:03:58,480

redwood city and raised in san carlos

114

00:04:02,789 --> 00:04:00,879

it's a town of about 30 000 people south

115

00:04:05,350 --> 00:04:02,799

of san francisco it's a great place to

116

00:04:06,710 --> 00:04:05,360

grow up uh pretty normal middle america

117

00:04:11,270 --> 00:04:06,720

you know

118

00:04:13,030 --> 00:04:11,280

football and

119

00:04:15,110 --> 00:04:13,040

i had a great support structure a

120

00:04:15,990 --> 00:04:15,120

wonderful mother and father that

121

00:04:18,789 --> 00:04:16,000

really

122

00:04:19,909 --> 00:04:18,799

sure i was

123

00:04:21,830 --> 00:04:19,919

i was

124

00:04:22,710 --> 00:04:21,840

going down the right path for school and

125

00:04:24,790 --> 00:04:22,720

everything

126

00:04:27,350 --> 00:04:24,800

his interest in the space program grew

127

00:04:28,870 --> 00:04:27,360

out of a love of flying and he got that

128

00:04:30,710 --> 00:04:28,880

from his dad

129

00:04:32,950 --> 00:04:30,720

my father was a

130

00:04:35,430 --> 00:04:32,960

b-17 pilot during the world war ii era

131

00:04:36,790 --> 00:04:35,440

so he was a pilot and he loved flying

132

00:04:38,710 --> 00:04:36,800

and so he used to take us to air shows

133

00:04:40,150 --> 00:04:38,720

and i think there's something about a

134

00:04:41,510 --> 00:04:40,160

flying that sometimes runs in the blood

135

00:04:43,510 --> 00:04:41,520

and so that's something that's passed on

136

00:04:45,110 --> 00:04:43,520

from my dad to me

137

00:04:47,909 --> 00:04:45,120

with a bachelor's in mechanical

138

00:04:49,590 --> 00:04:47,919

engineering from uc berkeley the rotc

139

00:04:52,070 --> 00:04:49,600

student headed straight for air force

140

00:04:54,550 --> 00:04:52,080

pilot training but a diagnosis of a

141

00:04:56,550 --> 00:04:54,560

heart murmur ended that ambition and he

142

00:04:57,749 --> 00:04:56,560

set his sights on becoming a flight test

143

00:04:59,670 --> 00:04:57,759

engineer

144

00:05:02,070 --> 00:04:59,680

after an assignment as a missile warning

145

00:05:03,830 --> 00:05:02,080

operations crew commander walheim was

146

00:05:05,830 --> 00:05:03,840

transferred to the johnson space center

147

00:05:08,230 --> 00:05:05,840

in houston for a tour as a mechanical

148

00:05:10,150 --> 00:05:08,240

systems flight controller he also earned

149

00:05:12,950 --> 00:05:10,160

a master's in industrial engineering at

150

00:05:14,950 --> 00:05:12,960

the university of houston and then on to

151
00:05:16,710 --> 00:05:14,960
a management job at air force space

152
00:05:18,390 --> 00:05:16,720
command headquarters

153
00:05:20,790 --> 00:05:18,400
when he was accepted for the flight test

154
00:05:22,870 --> 00:05:20,800
engineer course at test pilot school

155
00:05:24,870 --> 00:05:22,880
doctors told him he did not have a heart

156
00:05:27,029 --> 00:05:24,880
murmur so his goal of becoming an

157
00:05:29,270 --> 00:05:27,039
astronaut re-emerged

158
00:05:31,670 --> 00:05:29,280
walheim served as a flight test engineer

159
00:05:33,749 --> 00:05:31,680
and in management jobs with the f-16

160
00:05:36,310 --> 00:05:33,759
combined task force at edwards air force

161
00:05:38,870 --> 00:05:36,320
base and then as an air force test pilot

162
00:05:41,670 --> 00:05:38,880
school instructor before being picked as

163
00:05:43,830 --> 00:05:41,680

an astronaut in 1996 and getting the

164

00:05:45,670 --> 00:05:43,840

chance to make a lifelong dream come

165

00:05:47,270 --> 00:05:45,680

true

166

00:05:48,870 --> 00:05:47,280

it's important to to keep pushing our

167

00:05:50,310 --> 00:05:48,880

boundaries just like the pioneers in the

168

00:05:52,310 --> 00:05:50,320

old days pushed the boundaries and went

169

00:05:53,350 --> 00:05:52,320

farther west and we're learning about

170

00:05:55,990 --> 00:05:53,360

our earth we're learning about how the

171

00:05:57,590 --> 00:05:56,000

human body adapts to space and and we're

172

00:05:59,189 --> 00:05:57,600

learning all sorts of ways

173

00:06:00,950 --> 00:05:59,199

physical activities and biological

174

00:06:02,150 --> 00:06:00,960

processes behave in space that are

175

00:06:04,870 --> 00:06:02,160

different

176
00:06:06,469 --> 00:06:04,880
wallheim did two spacewalks on the 2002

177
00:06:07,909 --> 00:06:06,479
shuttle mission that installed the

178
00:06:10,070 --> 00:06:07,919
center section of the station's

179
00:06:12,790 --> 00:06:10,080
integrated truss structure and three

180
00:06:16,150 --> 00:06:12,800
more evas on the 2008 flight that

181
00:06:18,309 --> 00:06:16,160
delivered the columbus laboratory module

182
00:06:21,430 --> 00:06:18,319
marine colonel doug hurley is making his

183
00:06:23,270 --> 00:06:21,440
second space flight on sts-135

184
00:06:25,670 --> 00:06:23,280
he was born in the small upstate new

185
00:06:28,550 --> 00:06:25,680
york town of endicott and grew up next

186
00:06:30,150 --> 00:06:28,560
door in appalachian it was just a

187
00:06:32,469 --> 00:06:30,160
wonderful place to grow up it was a very

188
00:06:34,150 --> 00:06:32,479

small town it was fairly rural

189

00:06:36,150 --> 00:06:34,160

i had a lot of close friends played

190

00:06:37,670 --> 00:06:36,160

sports uh

191

00:06:39,430 --> 00:06:37,680

downhill skied

192

00:06:40,790 --> 00:06:39,440

did all the things that i think you know

193

00:06:43,270 --> 00:06:40,800

most folks from that part of the country

194

00:06:45,110 --> 00:06:43,280

do and and really enjoyed it he

195

00:06:47,590 --> 00:06:45,120

remembers being interested in space

196

00:06:49,749 --> 00:06:47,600

flight but never set himself a goal of

197

00:06:51,510 --> 00:06:49,759

becoming an astronaut i think it was

198

00:06:53,270 --> 00:06:51,520

just a natural progression of things

199

00:06:54,469 --> 00:06:53,280

being interested in engineering being

200

00:06:56,629 --> 00:06:54,479

interested in

201
00:06:58,550 --> 00:06:56,639
in aviation in space and it just kind of

202
00:07:00,309 --> 00:06:58,560
led me down a path

203
00:07:02,230 --> 00:07:00,319
into college in the military and then

204
00:07:02,950 --> 00:07:02,240
the marine corps flying fighters and

205
00:07:07,510 --> 00:07:02,960
then

206
00:07:10,230 --> 00:07:07,520
be lucky enough to get to come here

207
00:07:12,550 --> 00:07:10,240
hurley went to tulane on a navy rotc

208
00:07:14,629 --> 00:07:12,560
scholarship graduating with a bachelor's

209
00:07:16,629 --> 00:07:14,639
in civil engineering he took his

210
00:07:18,790 --> 00:07:16,639
commission in the marine corps completed

211
00:07:20,550 --> 00:07:18,800
the basic school and flight school and

212
00:07:23,029 --> 00:07:20,560
made three deployments to the western

213
00:07:24,870 --> 00:07:23,039

pacific in an f-18 squadron

214

00:07:27,749 --> 00:07:24,880

when his commanding officers encouraged

215

00:07:30,469 --> 00:07:27,759

him to do so hurley applied to and was

216

00:07:32,790 --> 00:07:30,479

accepted at the navy test pilot school

217

00:07:34,950 --> 00:07:32,800

he served in an f-18 test squadron for

218

00:07:37,749 --> 00:07:34,960

more than two years and became the first

219

00:07:39,189 --> 00:07:37,759

marine to fly the f-18 super hornet

220

00:07:41,189 --> 00:07:39,199

before being picked to become an

221

00:07:43,670 --> 00:07:41,199

astronaut in 2000

222

00:07:45,510 --> 00:07:43,680

hurley was the pilot on a 2009 shuttle

223

00:07:47,270 --> 00:07:45,520

flight that delivered components of the

224

00:07:49,510 --> 00:07:47,280

japanese section of the international

225

00:07:51,510 --> 00:07:49,520

space station and he's eager for the

226

00:07:54,150 --> 00:07:51,520

start of the next era of human space

227

00:07:56,550 --> 00:07:54,160

flight that begins after the final wheel

228

00:07:58,230 --> 00:07:56,560

stop of the space shuttle program let's

229

00:08:00,309 --> 00:07:58,240

explore the moon let's explore an

230

00:08:01,830 --> 00:08:00,319

asteroid let's explore mars

231

00:08:06,390 --> 00:08:01,840

um

232

00:08:08,390 --> 00:08:06,400

space flight that that really is

233

00:08:10,309 --> 00:08:08,400

exciting and just to see what's over

234

00:08:12,790 --> 00:08:10,319

that next bend and around that next