

## **SANDY MAGNUS**



**MISSION SPECIALIST 1**

**HOMETOWN: BELLEVILLE, IL**

**EDUCATION: PH.D. FROM SCHOOL OF  
MATERIAL SCIENCE & ENGINEERING  
GEORGIA INSTITUTE OF TECHNOLOGY**

**SELECTED BY NASA IN 1996**

**ENJOYS SOCCER, READING, COOKING,  
TRAVEL AND WATER ACTIVITIES**

**135**

1  
00:00:59,590 --> 00:00:57,510  
for three decades the united states has

2  
00:01:02,069 --> 00:00:59,600  
processed launched and operated the

3  
00:01:05,590 --> 00:01:02,079  
world's first and only reusable

4  
00:01:10,070 --> 00:01:07,670  
the space shuttle is an engineering and

5  
00:01:13,590 --> 00:01:10,080  
operational marvel ferrying men and

6  
00:01:15,910 --> 00:01:13,600  
women from around the world into space

7  
00:01:17,590 --> 00:01:15,920  
in its 30 years of flight the shuttle

8  
00:01:22,310 --> 00:01:17,600  
has proven itself to be the most

9  
00:01:26,550 --> 00:01:24,390  
this remarkable spaceship has been the

10  
00:01:28,550 --> 00:01:26,560  
platform from which many of the world's

11  
00:01:30,550 --> 00:01:28,560  
great scientific instruments have been

12  
00:01:32,230 --> 00:01:30,560  
deployed

13  
00:01:34,789 --> 00:01:32,240

it has carried astronauts who have

14

00:01:40,950 --> 00:01:34,799

launched and repaired satellites that

15

00:01:45,590 --> 00:01:43,510

it has enabled technology demonstrations

16

00:01:48,230 --> 00:01:45,600

and allowed space-based research in

17

00:01:50,469 --> 00:01:48,240

physics and medicine and materials

18

00:01:52,149 --> 00:01:50,479

science

19

00:01:53,990 --> 00:01:52,159

and has allowed the creation of a

20

00:01:57,109 --> 00:01:54,000

partnership of nations from around the

21

00:01:59,590 --> 00:01:57,119

world to assemble a world-class national

22

00:02:28,229 --> 00:01:59,600

research laboratory in orbit around our

23

00:02:32,550 --> 00:02:29,830

with the final flight of shuttle

24

00:02:35,350 --> 00:02:32,560

atlantis and its crew of four astronauts

25

00:02:36,630 --> 00:02:35,360

the space shuttle era comes to a close

26

00:02:39,589 --> 00:02:36,640

and america

27

00:02:41,990 --> 00:02:39,599

and the world bids a final farewell to a

28

00:02:43,830 --> 00:02:42,000

sleek and one-of-a-kind ship that has

29

00:02:54,710 --> 00:02:43,840

helped history unfold

30

00:02:56,710 --> 00:02:55,750

six

31

00:03:06,869 --> 00:02:56,720

five

32

00:03:09,990 --> 00:03:09,110

it all started more than three decades

33

00:03:12,470 --> 00:03:10,000

ago

34

00:03:14,710 --> 00:03:12,480

two americans john young and robert

35

00:03:18,309 --> 00:03:14,720

crippen blast off on a winged space

36

00:03:21,030 --> 00:03:18,319

plane named columbia

37

00:03:24,070 --> 00:03:21,040

now more than 30 years later with the

38

00:03:26,229 --> 00:03:24,080

33rd and final flight of atlantis nasa

39

00:03:28,630 --> 00:03:26,239

adds a fitting coda to the space shuttle

40

00:03:33,750 --> 00:03:28,640

program

41

00:03:36,390 --> 00:03:33,760

sts-135 mission will help ensure

42

00:03:39,270 --> 00:03:36,400

humankind can continue to live and work

43

00:03:44,789 --> 00:03:41,270

atlantis carries the rafaello

44

00:03:46,869 --> 00:03:44,799

multi-purpose logistics module or mplm

45

00:03:48,710 --> 00:03:46,879

to deliver a year's worth of supplies

46

00:03:51,270 --> 00:03:48,720

and spare parts for the international

47

00:03:53,270 --> 00:03:51,280

space station

48

00:03:55,670 --> 00:03:53,280

the orbiter delivers a system designed

49

00:03:57,910 --> 00:03:55,680

to remotely test the robotic refueling

50

00:04:01,190 --> 00:03:57,920

of satellites and return a failed

51  
00:04:04,630 --> 00:04:01,200  
cooling pump to earth from a historical

52  
00:04:07,830 --> 00:04:04,640  
perspective the sts-135 astronauts are

53  
00:04:19,590 --> 00:04:07,840  
the first crew of four since sts-6 in

54  
00:04:24,310 --> 00:04:21,830  
retired navy captain chris ferguson

55  
00:04:26,390 --> 00:04:24,320  
commands atlantis crew as he makes his

56  
00:04:28,629 --> 00:04:26,400  
third trip to orbit

57  
00:04:31,909 --> 00:04:28,639  
he first flew on atlantis as the pilot

58  
00:04:33,909 --> 00:04:31,919  
of sts-115 in 2006

59  
00:04:38,950 --> 00:04:33,919  
then returned to orbit as commander of

60  
00:04:42,710 --> 00:04:40,950  
the pilot of atlantis is marine corps

61  
00:04:45,749 --> 00:04:42,720  
colonel doug hurley

62  
00:04:48,070 --> 00:04:45,759  
his first space flight sts-127

63  
00:04:51,830 --> 00:04:48,080

coincided with the 40th anniversary of

64

00:04:53,990 --> 00:04:51,840

apollo 11 in 2009

65

00:04:56,550 --> 00:04:54,000

he will be at the controls as atlantis

66

00:04:59,990 --> 00:04:56,560

undocks from the iss for the shuttle's

67

00:05:02,469 --> 00:05:00,000

historic departure from the station

68

00:05:05,270 --> 00:05:02,479

dr sandy magnus is mission specialist

69

00:05:07,510 --> 00:05:05,280

one a veteran of two space flights she

70

00:05:09,430 --> 00:05:07,520

served as iss science officer for

71

00:05:11,189 --> 00:05:09,440

expedition 18.

72

00:05:15,590 --> 00:05:11,199

she first flew on atlantis during

73

00:05:20,469 --> 00:05:17,749

mission specialist 2 is retired air

74

00:05:22,390 --> 00:05:20,479

force colonel rex walheim this is his

75

00:05:33,590 --> 00:05:22,400

third and final space flight aboard

76

00:05:38,469 --> 00:05:36,070

the flight of atlantis marks the 37th

77

00:05:40,390 --> 00:05:38,479

shuttle mission to the space station

78

00:05:42,469 --> 00:05:40,400

the flight was originally manifested

79

00:05:44,950 --> 00:05:42,479

only as the launch on need rescue

80

00:05:46,790 --> 00:05:44,960

mission for sts-134

81

00:05:49,909 --> 00:05:46,800

which at the time was scheduled as the

82

00:05:51,590 --> 00:05:49,919

shuttle's final flight

83

00:05:54,230 --> 00:05:51,600

with the launch of atlantis there will

84

00:05:56,150 --> 00:05:54,240

be no rescue shuttle standing by

85

00:05:58,790 --> 00:05:56,160

in case of an unexpected problem or

86

00:06:00,790 --> 00:05:58,800

emergency atlantis astronauts would

87

00:06:02,710 --> 00:06:00,800

remain aboard the space station

88

00:06:06,629 --> 00:06:02,720

ultimately returning to earth aboard a

89

00:06:08,469 --> 00:06:06,639

series of russian soyuz spacecraft

90

00:06:10,790 --> 00:06:08,479

america's leadership ultimately

91

00:06:13,749 --> 00:06:10,800

recognized the value of one additional

92

00:06:16,230 --> 00:06:13,759

shuttle mission and the sts-135 flight

93

00:06:18,629 --> 00:06:16,240

plan evolved into an historic 12-day

94

00:06:21,029 --> 00:06:18,639

mission delivering valuable equipment

95

00:06:23,430 --> 00:06:21,039

parts and supplies to the completed and

96

00:06:25,189 --> 00:06:23,440

fully operational station

97

00:06:27,350 --> 00:06:25,199

it's an effort to posture the space

98

00:06:29,189 --> 00:06:27,360

station for about a year

99

00:06:31,110 --> 00:06:29,199

put in a good position until we can get

100

00:06:33,270 --> 00:06:31,120

our commercial

101  
00:06:35,510 --> 00:06:33,280  
cargo resupply system up and running on

102  
00:06:37,430 --> 00:06:35,520  
flight day four the crew of atlantis

103  
00:06:40,790 --> 00:06:37,440  
will install the rafaella logistics

104  
00:06:42,790 --> 00:06:40,800  
module moving van to the iss

105  
00:06:46,070 --> 00:06:42,800  
the station crew and shuttle astronauts

106  
00:06:48,629 --> 00:06:46,080  
will unpack about 15 000 pounds of cargo

107  
00:06:51,350 --> 00:06:48,639  
for the current and future iss crews

108  
00:06:53,270 --> 00:06:51,360  
items such as food clothing spare parts

109  
00:06:55,350 --> 00:06:53,280  
for the station and scientific

110  
00:06:57,909 --> 00:06:55,360  
experiments

111  
00:06:59,909 --> 00:06:57,919  
at the same time the joint crews will be

112  
00:07:01,749 --> 00:06:59,919  
repacking rafaela with over twelve

113  
00:07:04,309 --> 00:07:01,759

thousand pounds of shuttle-related

114

00:07:06,390 --> 00:07:04,319

equipment stored on the iss

115

00:07:08,710 --> 00:07:06,400

other items marked for return to earth

116

00:07:10,469 --> 00:07:08,720

and trash off-loaded from the station

117

00:07:12,629 --> 00:07:10,479

we'll take stuff out of the node two

118

00:07:14,150 --> 00:07:12,639

nader spot translate down the lab and

119

00:07:16,150 --> 00:07:14,160

most of the stowage and transfer that

120

00:07:18,629 --> 00:07:16,160

we're doing will be in the permanent

121

00:07:20,950 --> 00:07:18,639

mplm that's on board magnus serves as

122

00:07:22,390 --> 00:07:20,960

rafaello's load master with assistance

123

00:07:24,629 --> 00:07:22,400

from walheim

124

00:07:26,710 --> 00:07:24,639

the very first most important rule is do

125

00:07:28,390 --> 00:07:26,720

what sandy says because sandy's lived up

126  
00:07:30,629 --> 00:07:28,400  
there and she's our load master so she

127  
00:07:32,950 --> 00:07:30,639  
knows where where things go and we'll

128  
00:07:35,830 --> 00:07:32,960  
figure out ways to to make that shell

129  
00:07:37,350 --> 00:07:35,840  
game happen i didn't realize this until

130  
00:07:39,510 --> 00:07:37,360  
until we got into the planning of the

131  
00:07:41,670 --> 00:07:39,520  
mission is the space station software

132  
00:07:44,550 --> 00:07:41,680  
was never designed to accommodate more

133  
00:07:46,629 --> 00:07:44,560  
than one logistics module we've had to

134  
00:07:48,390 --> 00:07:46,639  
perform a little i guess sleight of hand

135  
00:07:49,990 --> 00:07:48,400  
to get the space station to believe that

136  
00:07:52,309 --> 00:07:50,000  
there's actually two logistics modules

137  
00:07:54,710 --> 00:07:52,319  
on board atlantis will also deliver the

138  
00:07:56,950 --> 00:07:54,720

robotics refueling payload which will be

139

00:07:58,790 --> 00:07:56,960

tested using the space station's dexter

140

00:08:06,469 --> 00:07:58,800

robot

141

00:08:07,749 --> 00:08:06,479

hand capable of performing fine minute

142

00:08:09,830 --> 00:08:07,759

tasks

143

00:08:13,110 --> 00:08:09,840

the payload will be its first workout to

144

00:08:15,589 --> 00:08:13,120

see how well it can perform

145

00:08:18,070 --> 00:08:15,599

on flight day five the crew of atlantis

146

00:08:20,629 --> 00:08:18,080

will support one station-based spacewalk

147

00:08:24,150 --> 00:08:20,639

performed by expedition 28 astronauts

148

00:08:26,270 --> 00:08:24,160

mike fossum and ron garan

149

00:08:28,869 --> 00:08:26,280

the pair flew three years ago on the

150

00:08:31,029 --> 00:08:28,879

sts-124 mission performing three

151  
00:08:34,550 --> 00:08:31,039  
spacewalks together to help install the

152  
00:08:36,949 --> 00:08:34,560  
japanese kibo laboratory module

153  
00:08:39,110 --> 00:08:36,959  
during this eva magnus and hurley will

154  
00:08:42,230 --> 00:08:39,120  
provide robotic support for fossum and

155  
00:08:45,590 --> 00:08:42,240  
garan walheim will serve as the iv or

156  
00:08:48,389 --> 00:08:45,600  
intravehicular officer for the spacewalk

157  
00:08:50,550 --> 00:08:48,399  
a failed cooling pump temporarily stowed

158  
00:08:53,430 --> 00:08:50,560  
outside the station during a spacewalk

159  
00:08:56,949 --> 00:08:53,440  
during the sts-133 mission will be

160  
00:08:58,550 --> 00:08:56,959  
removed and brought home by the shuttle

161  
00:09:00,949 --> 00:08:58,560  
thanks to the shuttle's ability to

162  
00:09:02,870 --> 00:09:00,959  
return cargo engineers will have the

163  
00:09:04,790 --> 00:09:02,880

opportunity to study the cause of the

164

00:09:06,790 --> 00:09:04,800

pump's failure while we're in the

165

00:09:09,110 --> 00:09:06,800

payload bay attaching the pump module to

166

00:09:10,870 --> 00:09:09,120

the logistics carrier will retrieve this

167

00:09:13,190 --> 00:09:10,880

experiment for the special purpose of

168

00:09:15,350 --> 00:09:13,200

dextrous manipulator that will allow

169

00:09:18,230 --> 00:09:15,360

the robotics community to show the

170

00:09:19,990 --> 00:09:18,240

ability to do remote refueling and other

171

00:09:22,949 --> 00:09:20,000

dexterous attacks that might be involved

172

00:09:24,790 --> 00:09:22,959

in servicing satellites fossum and garan

173

00:09:27,030 --> 00:09:24,800

will install the robotics refueling

174

00:09:29,910 --> 00:09:27,040

payload on a temporary platform near the

175

00:09:32,150 --> 00:09:29,920

dexter robot and the destiny lab it

176

00:09:43,030 --> 00:09:32,160

really is the chance to show how well

177

00:09:47,430 --> 00:09:45,509

over the past three decades hundreds of

178

00:09:50,470 --> 00:09:47,440

thousands of people have dedicated their

179

00:09:53,350 --> 00:09:50,480

time energy and passion and in many

180

00:09:56,550 --> 00:09:53,360

instances their lives as the shuttle was

181

00:09:58,389 --> 00:09:56,560

designed developed built and flown

182

00:10:01,190 --> 00:09:58,399

they are the people who have made the

183

00:10:03,269 --> 00:10:01,200

nasa team and the space shuttle program

184

00:10:11,750 --> 00:10:03,279

such a remarkable success

185

00:10:16,630 --> 00:10:14,310

their legacy lives on as the shuttle

186

00:10:18,470 --> 00:10:16,640

leaves behind a fully assembled and

187

00:10:20,150 --> 00:10:18,480

operational space station

188

00:10:22,150 --> 00:10:20,160

to see a completed space station up

189

00:10:23,990 --> 00:10:22,160

there is really a testament to not only

190

00:10:25,190 --> 00:10:24,000

ingenuity of all the engineers and

191

00:10:26,710 --> 00:10:25,200

scientists and people on the ground who

192

00:10:27,829 --> 00:10:26,720

work in the space station but also the

193

00:10:29,430 --> 00:10:27,839

people who worked on the space shuttle

194

00:10:31,110 --> 00:10:29,440

that could make such an incredible

195

00:10:33,430 --> 00:10:31,120

reusable space vehicle to make that

196

00:10:35,750 --> 00:10:33,440

happen

197

00:10:38,230 --> 00:10:35,760

atlantis was the first one that i flew

198

00:10:40,470 --> 00:10:38,240

on for sts-112 and that'll be my last

199

00:10:42,870 --> 00:10:40,480

mission as well

200

00:10:44,630 --> 00:10:42,880

so i have it has a holds a special place

201  
00:10:46,389 --> 00:10:44,640  
in my heart for the people who who have

202  
00:10:48,069 --> 00:10:46,399  
worked on atlantis for so long i think

203  
00:10:50,870 --> 00:10:48,079  
it's special for them that it will be

204  
00:10:52,790 --> 00:10:50,880  
the last mission you want to represent

205  
00:10:55,110 --> 00:10:52,800  
the thousands and thousands of people

206  
00:10:56,790 --> 00:10:55,120  
that have worked probably their entire

207  
00:10:59,350 --> 00:10:56,800  
careers i i don't know how many people

208  
00:11:01,990 --> 00:10:59,360  
that we've talked to or met that have

209  
00:11:05,110 --> 00:11:02,000  
been in the space shuttle program since

210  
00:11:07,030 --> 00:11:05,120  
sts-1 we just wanted to to know

211  
00:11:09,990 --> 00:11:07,040  
that that what they've accomplished is

212  
00:11:11,590 --> 00:11:10,000  
is incredible and we'll do our best to

213  
00:11:13,829 --> 00:11:11,600

to finish this program the way it

214

00:11:15,910 --> 00:11:13,839

deserves to be finished nothing means

215

00:11:18,870 --> 00:11:15,920

more i think to all four of us than to

216

00:11:21,350 --> 00:11:18,880

to honor that legacy and and and go out

217

00:11:23,750 --> 00:11:21,360

with his best admission as we can fly

218

00:11:25,910 --> 00:11:23,760

it'll be an emotional moment i think for

219

00:11:28,389 --> 00:11:25,920

a lot of folks who have seen

220

00:11:30,550 --> 00:11:28,399

the shuttle essentially build the better

221

00:11:32,710 --> 00:11:30,560

part of the space station and to know

222

00:11:34,710 --> 00:11:32,720

that this will be the final time it

223

00:11:37,030 --> 00:11:34,720

leaves the one thing that strikes me is

224

00:11:40,550 --> 00:11:37,040

how remarkably dedicated they are that