
MISSION CONTROL CENTER
PAO

1
00:00:01,067 --> 00:00:02,034
>> Dan Huot: I'm joined now

2
00:00:02,034 --> 00:00:03,469
by Bruce Manners
who's the NASA COTS

3
00:00:03,469 --> 00:00:06,639
to the Commercial Orbital
Transportation Services Project

4
00:00:06,639 --> 00:00:08,507
executive for Orbital Sciences.

5
00:00:08,507 --> 00:00:09,875
That was a mouthful.

6
00:00:09,875 --> 00:00:10,776
>> Bruce Manners: It is.

7
00:00:10,776 --> 00:00:12,545
>> Dan Huot: First off, thanks.

8
00:00:12,545 --> 00:00:15,081
Yeah, thanks for being
here today, Bruce.

9
00:00:15,081 --> 00:00:16,115
A real pleasure.

10
00:00:16,115 --> 00:00:18,050
And we just watched
kind of an intro

11
00:00:18,050 --> 00:00:20,219
to Orbital's flight coming up.

12
00:00:20,219 --> 00:00:22,455

Now, I want to back
up real quick.

13
00:00:22,455 --> 00:00:24,523
This -- Orbital is
one of two companies

14
00:00:24,523 --> 00:00:27,393
in our commercial Orbital
Transportation Services Program.

15
00:00:27,393 --> 00:00:29,528
And this is bringing an end
to the program; isn't it?

16
00:00:29,528 --> 00:00:30,529
>> Bruce Manners: Yes, it is.

17
00:00:30,529 --> 00:00:32,698
This is really the
grand culmination

18
00:00:32,698 --> 00:00:34,333
of the entire program.

19
00:00:34,333 --> 00:00:37,970
When we started off, we were
hoping to end up exactly

20
00:00:37,970 --> 00:00:39,271
where we are right now.

21
00:00:39,271 --> 00:00:41,574
But when we started out it
was a bit of an experiment.

22
00:00:41,574 --> 00:00:45,044
And didn't really know how
successful this was going to be.

23
00:00:45,044 --> 00:00:46,812
But at this stage of
the game we're looking

24
00:00:46,812 --> 00:00:49,014
at that we will have --

25
00:00:49,014 --> 00:00:51,851
we've already completed the
SpaceX portion of the program

26
00:00:51,851 --> 00:00:53,619
and demonstrated
their capability.

27
00:00:53,619 --> 00:00:55,287
And they're now servicing
the Space Station

28
00:00:55,287 --> 00:00:57,590
with resupply missions.

29
00:00:57,590 --> 00:01:00,259
Through that we developed
not only the launch vehicle

30
00:01:00,259 --> 00:01:01,760
but also the transfer
vehicle that goes

31
00:01:01,760 --> 00:01:04,663
over the Falcon vehicle it
goes over to the station.

32
00:01:04,663 --> 00:01:06,398
And under Orbital
we've done, you know,

33
00:01:06,398 --> 00:01:07,733

pretty much the exact
same thing.

34
00:01:07,733 --> 00:01:10,302
Started a little later because
of some early start issues

35
00:01:10,302 --> 00:01:11,537
with the program at general.

36
00:01:11,537 --> 00:01:12,838
>> Dan Huot: And when
did this all start?

37
00:01:12,838 --> 00:01:14,940
I mean, this program has
been going for years now.

38
00:01:14,940 --> 00:01:17,176
This isn't just kind of
a last year or two thing.

39
00:01:17,176 --> 00:01:18,511
>> Bruce Manners: No.

40
00:01:18,511 --> 00:01:19,879
We've been -- I think -- I
don't remember the exact date

41
00:01:19,879 --> 00:01:21,747
of the program start,
but we've been at it

42
00:01:21,747 --> 00:01:23,115
for about six years now.

43
00:01:23,115 --> 00:01:25,117
>> Dan Huot: Okay.

44

00:01:25,117 --> 00:01:26,352
>> Bruce Manners: When
we initially started,

45
00:01:26,352 --> 00:01:28,954
we started off with
Rocketplane Kistler and SpaceX.

46
00:01:28,954 --> 00:01:31,323
Rocketplane Kistler wasn't
able to quite succeed

47
00:01:31,323 --> 00:01:35,027
in what they were trying to do
so we closed out that agreement.

48
00:01:35,027 --> 00:01:37,096
And started up with
Orbital Sciences.

49
00:01:37,096 --> 00:01:38,697
So they got about a two year --

50
00:01:38,697 --> 00:01:42,168
started off two years
behind SpaceX.

51
00:01:42,168 --> 00:01:45,604
But if you look at the actual
program length and duration

52
00:01:45,604 --> 00:01:48,574
for both the SpaceX and Orbital,
it's pretty similar really.

53
00:01:48,574 --> 00:01:49,575
In fact, SpaceX really --

54
00:01:49,575 --> 00:01:51,310
or Orbital Sciences

made up a couple

55
00:01:51,310 --> 00:01:53,245
of months of ground on SpaceX.

56
00:01:53,245 --> 00:01:56,515
So we're pretty excited
that not only did they make

57
00:01:56,515 --> 00:02:00,152
up some ground -- but as to
where we are with the program.

58
00:02:00,152 --> 00:02:02,288
Back in April, we
demonstrated the launch vehicle,

59
00:02:02,288 --> 00:02:03,389
the Antares launch vehicle.

60
00:02:03,389 --> 00:02:05,591
It launched successful
from Wallops Island.

61
00:02:05,591 --> 00:02:08,794
That was a big first for
everybody involved really.

62
00:02:08,794 --> 00:02:13,165
For Orbital Sciences it was
their first liquid rocket

63
00:02:13,165 --> 00:02:14,733
that they've developed.

64
00:02:14,733 --> 00:02:16,435
And a much larger class vehicle

65
00:02:16,435 --> 00:02:17,937

than they've been
involved with in the past.

66
00:02:17,937 --> 00:02:20,573
And for Wallops Island
it was again a similar --

67
00:02:20,573 --> 00:02:22,408
that was really the biggest
rocket that's ever launched

68
00:02:22,408 --> 00:02:23,609
from Wallops Island.

69
00:02:23,609 --> 00:02:25,811
And, you know, they did
a great job launching it.

70
00:02:25,811 --> 00:02:27,379
Orbital did a great
job operating it,

71
00:02:27,379 --> 00:02:28,747
designing it, and building it.

72
00:02:28,747 --> 00:02:32,384
And so we're now ready that
in a couple weeks we're hoping

73
00:02:32,384 --> 00:02:35,054
to launch the Antares again.

74
00:02:35,054 --> 00:02:37,389
This time with a fully
functional Cygnus spacecraft

75
00:02:37,389 --> 00:02:39,625
that'll go over and visit the
International Space Station

76
00:02:39,625 --> 00:02:41,660
and deliver some
demonstration cargo.

77
00:02:41,660 --> 00:02:42,494
>> Dan Huot: Okay.

78
00:02:42,494 --> 00:02:43,662
Well, with the successful launch

79
00:02:43,662 --> 00:02:45,931
of LADEE you know
Wallops it's wide open.

80
00:02:45,931 --> 00:02:47,900
So with this upcoming launch,

81
00:02:47,900 --> 00:02:49,501
what are you guys really
looking forward to?

82
00:02:49,501 --> 00:02:53,105
Now, I realize, you know, it
is -- it's the end of COTS.

83
00:02:53,105 --> 00:02:54,139
COTS complete, right?

84
00:02:54,139 --> 00:02:55,007
It's a success.

85
00:02:55,007 --> 00:02:56,208
>> Bruce Manners: It is.

86
00:02:56,208 --> 00:02:57,710
Well, the first thing,
you know, we needed to get

87

00:02:57,710 --> 00:02:58,911
through this mission itself.

88
00:02:58,911 --> 00:03:00,346
So the first thing I'm
really looking forward

89
00:03:00,346 --> 00:03:01,480
to is the launch itself.

90
00:03:01,480 --> 00:03:02,915
It's a beautiful launch.

91
00:03:02,915 --> 00:03:05,384
The vehicle comes off the pad a
little slower than tradition --

92
00:03:05,384 --> 00:03:08,487
what Wallops is traditionally
used to with their solids

93
00:03:08,487 --> 00:03:09,788
and their smaller rockets.

94
00:03:09,788 --> 00:03:12,925
It really is a very graceful
assent coming off the pad

95
00:03:12,925 --> 00:03:15,894
and getting away from Wallops.

96
00:03:15,894 --> 00:03:17,296
Once we're finished with that --

97
00:03:17,296 --> 00:03:21,100
that launch duration is about
10 minutes or so of excitement.

98
00:03:21,100 --> 00:03:25,070

And then we move into activating
the Cygnus spacecraft.

99
00:03:25,070 --> 00:03:28,974
It's a spacecraft based
on traditional launch

100
00:03:28,974 --> 00:03:31,210
or traditional spacecraft
vehicle designs

101
00:03:31,210 --> 00:03:33,679
that Orbital has followed
and practices they've used

102
00:03:33,679 --> 00:03:36,315
for their commercial
space industry.

103
00:03:36,315 --> 00:03:39,752
Married that with a
pressurized cargo module built

104
00:03:39,752 --> 00:03:41,954
by [inaudible] Space in Italy.

105
00:03:41,954 --> 00:03:45,291
And so we're going to activate
that, turn that all on.

106
00:03:45,291 --> 00:03:47,559
Then they go through
some demonstration phases

107
00:03:47,559 --> 00:03:50,496
where they're going to
demonstrate their operability.

108
00:03:50,496 --> 00:03:53,265
And demonstrate to our Mission

Control Center and everyone

109
00:03:53,265 --> 00:03:54,667
that they have control
of the vehicle.

110
00:03:54,667 --> 00:03:58,637
That it will follow the
preprescribed flight paths

111
00:03:58,637 --> 00:03:59,872
that we've set up for it.

112
00:03:59,872 --> 00:04:02,908
And then once that's all
checked out and demonstrated

113
00:04:02,908 --> 00:04:06,111
and they've demonstrated
to everyone's satisfaction

114
00:04:06,111 --> 00:04:08,647
that we've got a good safe
vehicle it'll be coming on.

115
00:04:08,647 --> 00:04:11,317
And birthing with the
International Space Station.

116
00:04:11,317 --> 00:04:12,551
If they launch on the 17th,

117
00:04:12,551 --> 00:04:14,753
we're expecting birthing
to be on the 22nd.

118
00:04:14,753 --> 00:04:17,423
And we're really excited
to get that birth.

119
00:04:17,423 --> 00:04:18,557
And the next day or two

120
00:04:18,557 --> 00:04:22,494
after that the crew then
will open up the hatch.

121
00:04:22,494 --> 00:04:23,962
The crew will pull out cargo.

122
00:04:23,962 --> 00:04:27,533
And we will have demonstrated
a second service rider

123
00:04:27,533 --> 00:04:29,968
for the International Space
Station for cargo services.

124
00:04:29,968 --> 00:04:32,237
And that's just a
really big achievement.

125
00:04:32,237 --> 00:04:34,206
That it will be done
both commercially.

126
00:04:34,206 --> 00:04:36,942
And at that, point NASA
will be back in a footing

127
00:04:36,942 --> 00:04:38,777
where we can really meet our
international commitments

128
00:04:38,777 --> 00:04:40,079
for the International
Space Station.

129
00:04:40,079 --> 00:04:41,180

With the retirement
of the space shuttle,

130
00:04:41,180 --> 00:04:43,816
we didn't have a way
of delivering cargo.

131
00:04:43,816 --> 00:04:47,052
That was a big piece of what
the United States had committed

132
00:04:47,052 --> 00:04:50,322
to that post assembly of the
International Space Station.

133
00:04:50,322 --> 00:04:52,891
And with Orbital Science
coming on we will fully be able

134
00:04:52,891 --> 00:04:55,060
to meet our commitments to that.

135
00:04:55,060 --> 00:04:56,862
And that's a great
thing all around.

136
00:04:56,862 --> 00:04:58,630
>> Dan Huot: So like you said,
really important to get both

137
00:04:58,630 --> 00:05:00,532
of these cargo providers online.

138
00:05:00,532 --> 00:05:01,867
Now, SpaceX has already
done this.

139
00:05:01,867 --> 00:05:03,602
SpaceX has already been
flying demo flights.

140
00:05:03,602 --> 00:05:05,804
Is there anything you
learned from SpaceX going

141
00:05:05,804 --> 00:05:08,507
through the same milestones
that you're applying to this?

142
00:05:08,507 --> 00:05:11,276
Or anything really
different with the Orbital one

143
00:05:11,276 --> 00:05:13,445
that you guys are
keeping an eye on?

144
00:05:13,445 --> 00:05:14,913
>> Bruce Manners:
There's differences

145
00:05:14,913 --> 00:05:16,382
and there's similarities.

146
00:05:16,382 --> 00:05:18,584
On the similarity
side, you know,

147
00:05:18,584 --> 00:05:20,919
we learned that industry
talks a little

148
00:05:20,919 --> 00:05:23,288
and they act a little
different in how they go

149
00:05:23,288 --> 00:05:27,326
about developing vehicles and
their ops concepts and things.

150
00:05:27,326 --> 00:05:28,394
So that was just in general.

151
00:05:28,394 --> 00:05:29,928
We learned that with SpaceX.

152
00:05:29,928 --> 00:05:31,096
And we saw that pretty early

153
00:05:31,096 --> 00:05:33,031
on in conversations we're
having with Orbital.

154
00:05:33,031 --> 00:05:34,299
On the flip side, however,

155
00:05:34,299 --> 00:05:37,436
Orbital because of their
heritage nature, they've been

156
00:05:37,436 --> 00:05:39,304
around a lot longer than SpaceX.

157
00:05:39,304 --> 00:05:43,142
That in fact the
similarities were much smaller.

158
00:05:43,142 --> 00:05:44,510
We certainly -- were going

159
00:05:44,510 --> 00:05:45,844
through the safety
review process.

160
00:05:45,844 --> 00:05:49,214
And how we work in a very solid
system engineering process

161

00:05:49,214 --> 00:05:50,349
and roll that out.

162
00:05:50,349 --> 00:05:52,951
That was a little bit
of some changes to them

163
00:05:52,951 --> 00:05:54,987
but not huge drastic changes.

164
00:05:54,987 --> 00:05:57,489
From an ops perspective,
you know, their operators

165
00:05:57,489 --> 00:05:58,857
and our operators pretty much

166
00:05:58,857 --> 00:06:01,326
from day one we discovered they
all spoke the same language.

167
00:06:01,326 --> 00:06:02,428
And that was a great thing.

168
00:06:02,428 --> 00:06:03,996
It really made things
a lot easier

169
00:06:03,996 --> 00:06:05,831
for the Orbital Science
integration

170
00:06:05,831 --> 00:06:09,334
from the Mission Control
Center and the ops perspective.

171
00:06:09,334 --> 00:06:10,068
>> Dan Huot: Okay.

172

00:06:10,068 --> 00:06:11,703
One real quick question.

173
00:06:11,703 --> 00:06:13,071
I don't know if you'll
know this.

174
00:06:13,071 --> 00:06:16,208
But a lot of stuff was in
the news about being able

175
00:06:16,208 --> 00:06:18,310
to watch the LADEE launch
if you're on the East Coast.

176
00:06:18,310 --> 00:06:19,778
Is the Orbital going
to be the same thing?

177
00:06:19,778 --> 00:06:21,280
A lot of people will be
able to get a look at it?

178
00:06:21,280 --> 00:06:22,414
>> Bruce Manners: It's
going to be very similar.

179
00:06:22,414 --> 00:06:23,649
And I'm sure Orbital Sciences --

180
00:06:23,649 --> 00:06:26,385
I know they did for the test
mission back in April --

181
00:06:26,385 --> 00:06:29,655
they published a lot of places
where you can go and watch this.

182
00:06:29,655 --> 00:06:31,924
This is going to be a great show

again for the whole East Coast.

183
00:06:31,924 --> 00:06:34,893
I remember sending notes out to
friends in New York City and all

184
00:06:34,893 --> 00:06:37,029
over Washington D. C. and
Virginia that they're going

185
00:06:37,029 --> 00:06:38,630
to be able to see this launch.

186
00:06:38,630 --> 00:06:40,098
It's going to be very similar.

187
00:06:40,098 --> 00:06:41,333
It's a different
kind of trajectory.

188
00:06:41,333 --> 00:06:43,268
But it's a great big rocket
leaving from Virginia,

189
00:06:43,268 --> 00:06:44,770
which is something unusual.

190
00:06:44,770 --> 00:06:47,139
And they'll get a
good show all around.

191
00:06:47,139 --> 00:06:47,706
>> Dan Huot: Okay.

192
00:06:47,706 --> 00:06:48,841
Well, awesome.

193
00:06:48,841 --> 00:06:50,342
You know we're really

looking forward to it.

194
00:06:50,342 --> 00:06:53,745
Again, September 17th is
flight of the Orbital Cygnus

195
00:06:53,745 --> 00:06:55,147
to the International
Space Station.

196
00:06:55,147 --> 00:06:58,684
If you're on the East Coast,
go to NASA.gov/station.

197
00:06:58,684 --> 00:07:01,186
You can look up all the
latest details on the launch.

198
00:07:01,186 --> 00:07:05,390
And probably find all the up
to date times where you can,

199
00:07:05,390 --> 00:07:08,594
you know, step outside and
hopefully see a historic flight

200
00:07:08,594 --> 00:07:10,195
to the International
Space Station.

201
00:07:10,195 --> 00:07:11,563
Well, Bruce, thanks
for joining me.

202
00:07:11,563 --> 00:07:14,366
Giving us the latest news on
Cygnus and it's upcoming launch.

203
00:07:14,366 --> 00:07:15,534
We really appreciate it.

204
00:07:15,534 --> 00:07:16,201
>> Bruce Manners: Thank you.