Expedition 31/Soyuz 29 (TMA-03M) Landing Crew

André Kuipers

Expedition 31
Flight Engineer

Oleg Kononenko

Exp. 31 Flt. Engineer
Soyuz Commander

Don Pettit

Expedition 31
Flight Engineer

1
00:00:01,766 --> 00:00:04,446
Good morning and welcome
to this Friday's edition

2
00:00:04,446 --> 00:00:06,726
of the International
Space Station update hour.

3
00:00:07,326 --> 00:00:09,556
You're joining us here inside
of the flight control room

4
00:00:09,556 --> 00:00:12,426
in Houston, Texas, where the
Orbit Two team is wrapping

5
00:00:12,426 --> 00:00:14,716
up another successful week
onboard the International

6
00:00:14,716 --> 00:00:15,486
Space Station.

7
00:00:15,976 --> 00:00:17,116
They're being led today

8
00:00:17,116 --> 00:00:19,876
by Flight Director
Michael Lammers joining him

9
00:00:19,876 --> 00:00:23,186
at the CAPCOM console there
serving as the voice connection

10
00:00:23,186 --> 00:00:25,706
between controllers here
on the ground and the crew

11
00:00:25,706 --> 00:00:27,846

up in space is Christie Bertels.

12
00:00:28,096 --> 00:00:34,556
And that crew right now is
the Expedition 31 crew members

13
00:00:34,556 --> 00:00:35,576
from around the globe.

14
00:00:36,626 --> 00:00:39,406
They are comprised of
three Russian cosmonauts,

15
00:00:39,406 --> 00:00:42,466
two NASA astronauts and one
European Space Agency astronaut.

16
00:00:42,926 --> 00:00:46,176
Starting on the left there we
have NASA astronaut Joe Acaba

17
00:00:46,636 --> 00:00:49,326
followed by Russian
cosmonaut Gennady Padalka

18
00:00:49,766 --> 00:00:51,876
and then Russian
cosmonaut Sergei Revin.

19
00:00:52,636 --> 00:00:55,526
And then on the right side
we have our three astronauts

20
00:00:55,526 --> 00:00:58,476
who will be returning back
down to Earth just over a week

21
00:00:58,476 --> 00:01:01,496
from now with ESA
astronaut Andre Kuipers,

22
00:01:02,016 --> 00:01:04,576
current Expedition 31
Commander Oleg Kononenko

23
00:01:04,836 --> 00:01:06,426
and NASA astronaut Don Pettit.

24
00:01:06,926 --> 00:01:12,896
So the crew quite busy week with
an array of different experiment

25
00:01:12,896 --> 00:01:15,356
and maintenance activities
throughout the International

26
00:01:15,356 --> 00:01:16,006
Space Station.

27
00:01:16,866 --> 00:01:18,366
We'll start off with
the activities

28
00:01:18,366 --> 00:01:19,766
that were taking place on Monday

29
00:01:20,376 --> 00:01:22,766
with Commander Kononenko
replacing a few

30
00:01:22,766 --> 00:01:25,686
of the components in the Russian
toilet system doing some routine

31
00:01:25,686 --> 00:01:29,026
maintenance and also working
on the Russian Bar experiment

32
00:01:29,326 --> 00:01:31,606

which looks to develop ways

33
00:01:31,606 --> 00:01:34,716
for detecting any potential
depressurization throughout

34
00:01:34,786 --> 00:01:36,696
International Space
Station modules.

35
00:01:37,296 --> 00:01:41,356
Moving on, another Russian
cosmonaut Gennady Padalka was

36
00:01:41,466 --> 00:01:43,996
working with the Plasma
Crystal experiment

37
00:01:43,996 --> 00:01:47,916
which he spent quite a few days
throughout this week working on.

38
00:01:48,256 --> 00:01:51,726
It's a study of the growth of
different plasma dust structures

39
00:01:51,726 --> 00:01:53,686
in the zero gravity
environment of space.

40
00:01:54,206 --> 00:01:57,096
He was also working on the
Russian Constanta experiment

41
00:01:57,096 --> 00:02:01,136
which looks to study spaceflight
factors like that zero gravity,

42
00:02:01,136 --> 00:02:03,106
but also the radiation

environment

43
00:02:03,106 --> 00:02:05,016
that they are exposed
to and the effects

44
00:02:05,016 --> 00:02:06,746
that it has on different
enzymes.

45
00:02:07,436 --> 00:02:11,116
Our third Russian cosmonaut
Sergei Revin was also involved

46
00:02:11,116 --> 00:02:13,366
in that Bar experiment
but also worked

47
00:02:13,366 --> 00:02:16,366
on the Matryoshka
experiment named after the set

48
00:02:16,366 --> 00:02:18,216
of nested Russian dolls.

49
00:02:18,706 --> 00:02:21,426
It's a mannequin sized
device that has a number

50
00:02:21,426 --> 00:02:24,856
of sensors placed throughout
it that is used to track

51
00:02:24,856 --> 00:02:28,916
and gather data on the
radiation conditions

52
00:02:29,246 --> 00:02:30,486
that astronauts are exposed

53
00:02:30,486 --> 00:02:32,336
to during their expedition
spaceflights.

54
00:02:33,826 --> 00:02:36,816
Meanwhile, NASA astronaut
Joe Acaba was busy setting

55
00:02:36,816 --> 00:02:40,426
up the Fluid System Servicers
Fluid Control Pump Assembly

56
00:02:40,766 --> 00:02:42,956
inside of the Japanese
experiment module

57
00:02:43,126 --> 00:02:45,036
in preparation for
a coolant refill.

58
00:02:45,546 --> 00:02:48,326
He was also spending a good
portion of his day working

59
00:02:48,326 --> 00:02:50,776
with principal investigators
in Cleveland

60
00:02:50,776 --> 00:02:53,236
for the BASS experiment,
which stands for the Burning

61
00:02:53,236 --> 00:02:56,246
and Suppression of Solids,
an investigation that looks

62
00:02:56,246 --> 00:02:58,976
to examine the burning and
extinction characteristics

63
00:02:59,216 --> 00:03:01,986
of a wide variety of fuel
samples in microgravity.

64
00:03:02,826 --> 00:03:06,546
Meanwhile, European astronaut
Andre Kuipers was involved

65
00:03:06,546 --> 00:03:08,226
in doing a few ultrasound scans

66
00:03:08,226 --> 00:03:10,496
for the Integrated
Cardiovascular which looks

67
00:03:10,496 --> 00:03:13,396
to study the atrophy of
the heart muscle as well

68
00:03:13,396 --> 00:03:15,416
as the Vessel Imaging
Research Project

69
00:03:15,766 --> 00:03:19,726
which studies the changes in the
properties of the vessel walls

70
00:03:19,726 --> 00:03:21,306
of blood vessels inside

71
00:03:21,306 --> 00:03:23,936
of the astronauts' bodies during
long-duration spaceflights.

72
00:03:24,346 --> 00:03:26,086
He also took some
time out of his day

73
00:03:26,086 --> 00:03:29,526

to do a Public Affairs
event speaking with ESA

74
00:03:29,526 --> 00:03:31,706
and Euronews in Europe.

75
00:03:32,466 --> 00:03:34,826
And then our final
crew member on Monday,

76
00:03:34,826 --> 00:03:36,066
Don Pettit was working

77
00:03:36,066 --> 00:03:38,166
on the station's
Environmental Health System,

78
00:03:38,696 --> 00:03:42,066
specifically doing a removal
and replacement of the oxidizer

79
00:03:42,066 --> 00:03:45,156
in the Total Organic
Carbon Analyzer which looks

80
00:03:45,156 --> 00:03:47,986
to study the carbon content in
the astronauts' drinking water.

81
00:03:48,516 --> 00:03:52,246
He was also packing up a few
items for his return to Earth

82
00:03:52,676 --> 00:03:55,186
in their Soyuz TMA-03M vehicle.

83
00:03:56,316 --> 00:04:00,366
Moving on to Tuesday, Commander
Kononenko was, he took some time

84
00:04:00,366 --> 00:04:03,496
out once he woke up to inspect
the service module's caution

85
00:04:03,496 --> 00:04:08,426
and warning panel, as well
as taking some photographs

86
00:04:08,426 --> 00:04:09,816
and inspecting two

87
00:04:09,816 --> 00:04:12,426
of the windows inside the
Russian segment looking

88
00:04:12,426 --> 00:04:16,526
for any new cavities, scratches
or new or expanded old stains

89
00:04:16,526 --> 00:04:18,586
or discolorations
that could affect the

90
00:04:18,586 --> 00:04:19,996
transparency properties.

91
00:04:20,766 --> 00:04:24,436
Meanwhile, Padalka was busy
with his twice daily checking

92
00:04:24,436 --> 00:04:26,986
of the vacuum pressure
conditions inside

93
00:04:26,986 --> 00:04:30,006
of the Plasma chamber of that
Plasma Crystal experiment

94
00:04:30,006 --> 00:04:31,746

which he worked on
throughout the week.

95
00:04:32,216 --> 00:04:35,136
And our third Russian cosmonaut
Sergei Revin completed his

96
00:04:35,136 --> 00:04:38,846
second session of the Russian
behavioral assessment Typologia

97
00:04:39,216 --> 00:04:42,726
which looks to study the
features of operator activities

98
00:04:42,726 --> 00:04:46,056
of these ISS crews during
long-term spaceflight phases.

99
00:04:47,196 --> 00:04:49,726
NASA astronaut Joe
Acaba was back

100
00:04:49,726 --> 00:04:51,636
in the Japanese experiment
module working

101
00:04:51,636 --> 00:04:53,086
on the Fluid Servicer System,

102
00:04:53,436 --> 00:04:55,486
specifically doing
some maintenance work

103
00:04:55,486 --> 00:04:57,056
on the Fluid Control
Pump Assembly,

104
00:04:57,416 --> 00:05:00,146
and also gathering some

hardware for his upcoming work

105
00:05:00,146 --> 00:05:02,216
on the Antimicrobial Applicator

106
00:05:02,716 --> 00:05:04,696
and the Internal
Thermal Control System.

107
00:05:06,046 --> 00:05:07,006
While he was doing that,

108
00:05:07,006 --> 00:05:11,186
Andre Kuipers was reviewing
some procedures preparing

109
00:05:11,186 --> 00:05:12,436
for his upcoming work

110
00:05:12,436 --> 00:05:15,526
on the Fluid Physics Experiment
Facility which he worked

111
00:05:15,526 --> 00:05:17,216
on over the next two days inside

112
00:05:17,216 --> 00:05:18,836
of the Japanese experiment
module

113
00:05:19,316 --> 00:05:21,116
and also collecting
a few more samples

114
00:05:21,116 --> 00:05:24,546
from the Environmental Health
System onboard the station.

115
00:05:25,736 --> 00:05:29,336

While all that was going on, Don
Pettit was doing some removal

116
00:05:29,336 --> 00:05:33,536
and replacement work inside the
Water Recovery System taking

117
00:05:33,536 --> 00:05:37,016
out the Recycle Filter Tank
Assembly in rack two of the WRS

118
00:05:37,016 --> 00:05:40,086
and replacing it with new
components and also working

119
00:05:40,086 --> 00:05:43,666
on the station's CDRA, or the
Carbon Dioxide Removal Assembly,

120
00:05:44,026 --> 00:05:47,356
taking out the jumper and
doing a slight modification it.

121
00:05:48,696 --> 00:05:49,906
Moving on to Wednesday,

122
00:05:49,906 --> 00:05:52,486
Commander Kononenko
was conducting a series

123
00:05:52,956 --> 00:05:55,066
of Sokol launch and
entry suit checks.

124
00:05:55,506 --> 00:05:58,486
These are the flight
suits that he, Kuipers

125
00:05:58,486 --> 00:06:01,146
and Pettit will be

wearing during their return

126
00:06:01,146 --> 00:06:02,876
to Earth on July 1.

127
00:06:02,876 --> 00:06:07,376
Coming next weekend the three
astronauts will return to Earth

128
00:06:07,376 --> 00:06:12,296
after 193 days in space and
191 days onboard the station.

129
00:06:12,966 --> 00:06:16,186
So Kononenko was doing some
leak checks on their entry suits

130
00:06:16,186 --> 00:06:20,166
and also a few departure
checks and some checkout work

131
00:06:20,486 --> 00:06:23,516
on their departing
Soyuz TMA-03M vehicle.

132
00:06:24,696 --> 00:06:27,726
Meanwhile, Gennady Padalka
was continuing his biological

133
00:06:27,726 --> 00:06:31,376
research experiments onboard
the station doing a Russian

134
00:06:31,376 --> 00:06:34,236
experiment study on veins
inside of the human body

135
00:06:34,626 --> 00:06:37,426
and also doing some maintenance
work on the station's TVIS,

136
00:06:37,426 --> 00:06:40,376
or the treadmill with vibration
isolation stabilization,

137
00:06:40,836 --> 00:06:44,126
doing a replacement on one
of the wire ropes inside

138
00:06:44,126 --> 00:06:46,266
of the gyroscope that
helps stabilize it.

139
00:06:47,006 --> 00:06:48,776
He was joined in
that replacement work

140
00:06:48,816 --> 00:06:52,186
by fellow Russian cosmonaut
Sergei Revin, who in addition

141
00:06:52,186 --> 00:06:54,256
to that was doing some cleaning

142
00:06:54,256 --> 00:06:56,766
of the ventilation systems
throughout the Russian segment.

143
00:06:58,446 --> 00:07:01,436
NASA astronaut Joe Acaba
was also working on some

144
00:07:02,046 --> 00:07:05,346
of the air quality monitoring
systems inside the station

145
00:07:05,346 --> 00:07:07,516
cleaning out a few of
the bacteria filters

146
00:07:07,806 --> 00:07:11,276
and also working with the
Antimicrobial Applicator inside

147
00:07:11,276 --> 00:07:14,686
of the Japanese experiment
module's Thermal Control System.

148
00:07:15,006 --> 00:07:17,166
And then also on Wednesday,

149
00:07:17,166 --> 00:07:19,836
Andre Kuipers kicked
off his work

150
00:07:19,836 --> 00:07:21,896
in the Fluid Physics
Experiment Facility

151
00:07:22,046 --> 00:07:26,026
which is a Japanese Aerospace
Exploration Agency rack

152
00:07:26,056 --> 00:07:28,166
that looks to investigate
different fluid physics

153
00:07:28,166 --> 00:07:29,756
phenomena in microgravity.

154
00:07:30,516 --> 00:07:33,486
While all that was going
on Don Pettit was working

155
00:07:33,486 --> 00:07:36,846
with the Amine Swingbed hardware
assembly installing that in one

156
00:07:36,846 --> 00:07:38,816

of the EXPRESS racks
onboard the station.

157
00:07:39,836 --> 00:07:43,256
Amine Swingbed is a technology
demonstration that's hoping

158
00:07:43,256 --> 00:07:45,246
to determine if a smaller,

159
00:07:45,246 --> 00:07:47,546
more efficient vacuum
regenerated system,

160
00:07:47,866 --> 00:07:50,866
which is typically only used
on short duration spaceflights

161
00:07:50,866 --> 00:07:54,556
like the space shuttle was
before, would be feasible

162
00:07:54,556 --> 00:07:55,516
in something as large

163
00:07:55,516 --> 00:08:00,046
as the International Space
Station environment where things

164
00:08:00,046 --> 00:08:03,256
like recycling water vapor which
an Amine Swingbed actually takes

165
00:08:03,256 --> 00:08:05,736
out of the air are
much more important.

166
00:08:06,956 --> 00:08:10,476
Moving on to Thursday, Commander
Kononenko was spending much

167
00:08:10,476 --> 00:08:13,526
of his day doing some electrical
power tests throughout the

168
00:08:13,526 --> 00:08:16,716
Russian segment service
module, also known as Zvezda.

169
00:08:17,726 --> 00:08:20,626
And while he was doing that
Gennady Padalka was back

170
00:08:20,626 --> 00:08:23,946
at a few experiments working
with the Sonocard system

171
00:08:24,346 --> 00:08:27,256
which looks to acquire
physiological data during the

172
00:08:27,256 --> 00:08:31,106
astronauts' sleep periods
using a contactless system.

173
00:08:31,846 --> 00:08:37,086
He was also at work on the
Typologia Russian experiment

174
00:08:37,136 --> 00:08:40,236
that Sergei Revin worked on
earlier in the week which looks

175
00:08:40,236 --> 00:08:43,356
to study how these astronauts
adapt in their transition

176
00:08:43,356 --> 00:08:45,846
to weightlessness and
any effects that it has

177
00:08:45,846 --> 00:08:47,226
on their control skills.

178
00:08:48,086 --> 00:08:51,376
And speaking of Sergei Revin
on Thursday, he was working

179
00:08:51,376 --> 00:08:54,126
with the Russian Relaxation
experiment which looks

180
00:08:54,126 --> 00:08:57,276
to determine the effects of
propulsion system exhaust

181
00:08:57,276 --> 00:08:59,766
on the Earth's upper
atmosphere and also

182
00:08:59,766 --> 00:09:01,986
on the station's environment

183
00:09:01,986 --> 00:09:05,396
and their optically sensitive
surfaces such as windows,

184
00:09:05,396 --> 00:09:07,876
equipment lenses and
the solar array panels.

185
00:09:07,876 --> 00:09:11,536
He was also working with the
Kaskad investigation which looks

186
00:09:11,536 --> 00:09:15,146
to do some cell cultivation
of different microorganisms

187

00:09:15,386 --> 00:09:18,056
and also cells from
animals and humans all

188
00:09:18,056 --> 00:09:19,616
in that microgravity
environment.

189
00:09:20,356 --> 00:09:23,256
Meanwhile, Joe Acaba was
removing a few insulation

190
00:09:23,256 --> 00:09:26,046
blankets from that
Antimicrobial applicator

191
00:09:26,376 --> 00:09:27,266
that he had been working

192
00:09:27,266 --> 00:09:29,406
on inside the Japanese
experiment module

193
00:09:29,406 --> 00:09:31,456
to allow the temperatures
to equalize

194
00:09:31,456 --> 00:09:32,656
with the station environment

195
00:09:33,056 --> 00:09:35,366
and also doing some
work inside the JEM,

196
00:09:35,366 --> 00:09:37,026
or the Japanese experiment
module,

197
00:09:37,026 --> 00:09:38,266
on the Thermal Control System.

198
00:09:38,266 --> 00:09:40,856
He was taking a look at
the Fluid Servicer System.

199
00:09:41,816 --> 00:09:44,236
Meanwhile, Andre Kuipers
was continuing his work

200
00:09:44,236 --> 00:09:47,136
on the Fluid Physics
Experiment setup working

201
00:09:47,136 --> 00:09:49,726
on the Marangoni Inside payload
that they are installing.

202
00:09:50,266 --> 00:09:53,526
That payload looks to study the
thermal capillary convection

203
00:09:53,526 --> 00:09:55,746
also known as Marangoni
Convection

204
00:09:56,126 --> 00:09:58,406
in the microgravity
environment of space.

205
00:09:59,946 --> 00:10:04,056
Our final astronaut on Thursday
was Don Pettit, who was also

206
00:10:04,056 --> 00:10:05,136
in the JEM working on some

207
00:10:05,136 --> 00:10:08,206
of the portable computer systems
doing some battery changes.

208
00:10:08,766 --> 00:10:12,296
He was spending some time
taking a few ultrasounds again

209
00:10:12,296 --> 00:10:15,156
for the Integrated
Cardiovascular test and also

210
00:10:15,156 --> 00:10:16,956
for the Vessel Imaging Research.

211
00:10:17,806 --> 00:10:21,036
All that brings us to today
Friday the end of the week,

212
00:10:21,516 --> 00:10:25,376
Commander Kononenko and his two
Russian cosmonauts participated

213
00:10:25,376 --> 00:10:27,316
in a Public Affairs
event earlier today.

214
00:10:27,716 --> 00:10:30,316
And he will be doing some
Soyuz descent training

215
00:10:30,316 --> 00:10:31,336
and departure preps.

216
00:10:31,336 --> 00:10:35,316
Again he was scheduled to
depart alongside Andre Kuipers

217
00:10:35,316 --> 00:10:37,556
and Don Pettit coming
up on July 1.

218
00:10:38,226 --> 00:10:40,506

Gennady Padalka will
be continuing his work

219
00:10:40,506 --> 00:10:41,956
with the Plasma Crystal
that he's,

220
00:10:42,306 --> 00:10:44,786
experiment that he's been
giving some attention

221
00:10:44,786 --> 00:10:47,396
to throughout the week
then correcting a few items

222
00:10:47,396 --> 00:10:50,066
that they found when they
were replacing that wire

223
00:10:50,066 --> 00:10:51,946
in the gyroscope
onboard the treadmill.

224
00:10:53,146 --> 00:10:55,106
He'll be replacing
a loose stabilizer

225
00:10:55,106 --> 00:10:57,096
and a few bolts and
misaligned ropes.

226
00:10:58,666 --> 00:11:01,336
Meanwhile, the third Russian
cosmonaut Sergei Revin is back

227
00:11:01,396 --> 00:11:04,776
with the Kaskad experiment
again looking at investigation

228
00:11:04,776 --> 00:11:07,456

of cell cultivation of
microorganisms, animals

229
00:11:07,456 --> 00:11:11,786
and humans in microgravity and
then assisting Gennady Padalka

230
00:11:11,786 --> 00:11:13,416
in reinstalling the treadmill.

231
00:11:14,376 --> 00:11:16,756
NASA astronaut Joe
Acaba is going

232
00:11:16,756 --> 00:11:18,726
to be getting some
proficiency training

233
00:11:18,726 --> 00:11:20,536
for the Crew Medical
Officer position

234
00:11:20,936 --> 00:11:25,636
and also inspecting the Destiny
laboratory's Utility Output

235
00:11:25,636 --> 00:11:28,716
Panel, looking at a few
cables and inspecting the unit

236
00:11:28,716 --> 00:11:32,326
for any damage as the astronauts
onboard and controllers here

237
00:11:32,326 --> 00:11:35,606
on the ground look to
determine the source of a,

238
00:11:35,706 --> 00:11:37,766
the cause of a power

circuit trip

239
00:11:37,826 --> 00:11:41,196
that occurred a little
bit earlier today.

240
00:11:41,376 --> 00:11:44,306
European astronaut Andre
Kuipers will be closing

241
00:11:44,306 --> 00:11:46,836
out his week replacing some
of the items in the Waste

242
00:11:46,836 --> 00:11:47,896
and Hygiene Compartment,

243
00:11:48,266 --> 00:11:50,736
changing out the urine
receptacle and the insert filter

244
00:11:51,146 --> 00:11:54,856
and also joining Kononenko
in some of the training

245
00:11:54,856 --> 00:11:57,256
for that Soyuz descent
operations coming up

246
00:11:57,596 --> 00:12:00,666
and prepacking a few items
into their vehicle for return.

247
00:12:01,176 --> 00:12:03,556
Then our final astronaut
onboard the station,

248
00:12:03,556 --> 00:12:06,536
Don Pettit will be doing
some maintenance on the Waste

249
00:12:06,536 --> 00:12:09,226
and Hygiene Compartment
as well, manually filling

250
00:12:09,226 --> 00:12:10,626
up the flush water tank.

251
00:12:10,966 --> 00:12:13,466
And then he'll be spending a
good portion of his day working

252
00:12:13,466 --> 00:12:16,106
with the SPHERES
experiment, SPHERES standing

253
00:12:16,106 --> 00:12:18,816
for the Synchronized
Position Hold Engage

254
00:12:18,816 --> 00:12:20,886
and Reorient Experimental
Satellites.

255
00:12:21,186 --> 00:12:24,386
You can see him here
inside of the JEM working

256
00:12:24,386 --> 00:12:25,356
with those satellites.

257
00:12:25,356 --> 00:12:30,016
They go through a series of
commands, docking operations

258
00:12:30,016 --> 00:12:32,296
and different maneuvering
operations and look

259

00:12:32,336 --> 00:12:36,896
to prove different algorithms
and different programs written

260
00:12:36,896 --> 00:12:38,006
down here on the ground