

## Apollo 11 Highlights Day 2

CAPCOM 11, Houston, the definition is pretty good on our monitor here. The color's not too (garbled) at least on this set. Could you describe what you're looking at, over?

SC You're seeing Earth as we see it out our left-hand window, just a little more than a half Earth. We're looking at the eastern Pacific Ocean and the north half of the, top half of the screen, we can see North America, Alaska, United States, Canada, Mexico and Central America. South America becomes invisible just off beyond the terminator or inside the shadow. We can see the oceans with a definite blue cast, see white bands of major cloud formations across the Earth and can see coastlines. I got the Western U.S., San Joaquin Valley, the Sierra Mountain Range and peninsula of Baja, California, and can see some cloud formations over southeastern U.S. There's one definite mild storm southwest of Alaska, looks like about 500 to a thousand miles and another very minor storm showing the south end of the screen near the, a long ways south of the equator, probably 45 degrees or more south latitude. We can pick out the browns, the browns in the land forms pretty well. Greens do not show up very well. Some green showing along the northeastern, northwestern coast of the United States and the northwestern coast of Canada. Roger.

SC Stay here, world. Hold on to your hat. I'm going to you upside down.

CAPCOM 11, that's a pretty good roll there.

SC Yah, that was pretty sloppy. Let me try that one again.

CAPCOM You'll never beat out the Thunderbird.

SC I'm making myself seasick, Charlie. I'll just put you back right-side-up where you belong.

CAPCOM Roger.

CAPCOM 11, Houston. If you could, we'd like to see some smiling faces if you could give us some interior views, I'm sure everybody'd like to see you. Over.

SC Okay, we'll reconfigure the PB for that.

CAPCOM Roger.

CAPCOM Now we're coming in. Can't quite make out who that...

SC That's big Mike Collins there.

SC Right, you got a little bit of, yah, hello there sports fans. You got a little bit of me on the center couch and Buzz is doing the camera work this time.

CAPCOM Roger.

SC I'd have put on a coat and tie if I had known about this ahead of time.

CAPCOM Is Buzz holding your cue cards for you, over?

SC Cue card have, a no. We have, we have no intention of competing with the professionals, believe me. We are very comfortable up here. We do have a happy home. There's plenty of room for the three of us and I think we're all learning to find our favorite little corner to, to sit in. And, you know, g is very comfortable but after a while you get to the point where you sort of get tired of rattling around and banging off the ceiling and the floor and the sides so you intend to find a little corner somewhere and put your knees up or something like that to wedge yourself in and that seems more at home.

CAPCOM Houston, roger. Slowly sinking into the sack there.

SC It's really comfortable. Forgot to give Buzz his flashlight back.

CAPCOM Apollo 11, Houston. Could you give the folks a view of your patch on your CWG? Over.

SC Stand by. We're going to try to get it closer.

CAPCOM All right, 11, Houston. We have the patch to get temped up through the focus slightly, over.

CAPCOM 11, Houston. The scan on the camera makes the, that's a little bit better now. The flashlight seems to flicker due to the scan on the TV. We can't see the Eagle. Now that's a little bit better, over. If you open the F-stop a little bit more, over.

SC Over. It's open all the way. We're going to have to move Buzz around a little bit.

CAPCOM Roger.

CAPCOM Okay, Apollo 11, Houston. The colors are better now. It's coming in. If we could attempt a little bit better focus on it. There we go. Our focus is a lot better now. We see the Eagle coming right in on the lunar surface. Over

CAPCOM That's very good now.

CAPCOM Apollo 11, Houston. That's very good now. We can see the Earth in the background, Apollo 11, and the Eagle coming in.

SC It's probably pretty hard to see the olive branches, isn't it?

CAPCOM Roger, it is.

SC Well, that's what he has in his talons, an olive branch.

CAPCOM Copy.

CAPCOM Apollo 11, Houston. We're really impressed with the clarity and the detail that we have in the picture. The colors are, it's really an excellent picture now that I'm looking on our monitor which is about 12 seconds before the networks can get it out due to the conversion that we have here on our TV converter. We're looking at the controls in the flight, the main display console and we can see the DSKY up on the panel. Over.

SC That would be nice if you could take a look at all the circuit breakers, make sure the right ones are in and the right ones are out.

CAPCOM All right, Big Bubba's watching.

SC And we're glad of it.

SC You guys sure been doing a good job of watching us. We appreciate it.

CAPCOM The spacecraft's been beautiful, 11, the way, really no complaints at all. Looks, things are really great.

SC Can you see this DSKY on the embassy?

CAPCOM That's affirmative. It appears that, can't quite tell what program when the cut went through. We see you punching in a verb 35, I think it is. Over.

SC Might as well tell the econs or tell the G&C's they better hold on to their hat and I'll push the inner button.

CAPCOM Roger. We see a real display now.

CAPCOM That's a good demonstration of how the crew has the interface with the computer talking to the programs and all that we have in the computer.

SC That's right, Charlie. Sometimes it tells us things and sometimes we tell it things and mostly it talks to us.

CAPCOM 11, Houston. We just lost our pickup. I see we're going back outside now. Over.

CAPCOM 11, Houston. You copy? Over.

SC Roger, we copy and as we pan back out to the distance at which we see the Earth we'll have Apollo 11 signing off.

CAPCOM Roger, Apollo 11. Thank you much for the show. It's a real good half hour. Appreciate it. Thank you very much. Out.

PAO This is Apollo Control. That TV transmission lasted about 35 minutes.

CAPCOM Apollo 11, Houston. Would you T arrow reset on the DSKY please? Over.

SC Okay, we should be straightened out now, Charlie. Back in POO.

CAPCOM Houston, Apollo 11, how do we stand on the O<sub>2</sub> fuel cell purge? Do you want to go ahead and do that as scheduled in the Flight Plan?

SC Stand by, 11, over.

CAPCOM Okay.

SC This is 11, Houston. You can commence the O<sub>2</sub> fuel cell purge now if you'd like? Over.

CAPCOM Okay, fine.

SC While Buzz is doing that, I'll change the aluminum hydroxide.

CAPCOM Roger.

CAPCOM Hello, Apollo 11, Houston, over.

SC Go ahead, Houston, Apollo 11.

CAPCOM Roger, Buzz. The attitude that we're in right now is a convenient one to start PTC in. We'd be satisfied with this attitude so we'd like you to disable quads Charlie and Delta and we'll wait about five to ten minutes and then we'll establish the PTC, over.

SC Roger, disable Charlie and Delta and we'll wait before starting PTC.

CAPCOM Roger.

PAO This is Apollo Control at 34 hours 46 minutes. Apollo 11 is presently 131,000 nautical miles from Earth, traveling at a speed of about 4300 feet per second. During the TV transmission, the crew advised that they may possibly be able to take the color television into the lunar module with them tomorrow at about 56 hours 30 minutes ground elapsed time. They reported that the cables had been checked and appear to be long enough to take them into the lunar module. During the next hour or so, the activity here in Mission Control will be revolving about getting the crew set up for their rest period and eat period as we have a very long rest period tonight scheduled ten hours and that will begin, according to the flight plan, at about 37 hours ground elapsed time. However, we would anticipate if activities move along as they appear to be at this point, we are somewhat ahead of the flight plan, then perhaps again we would be able to get the crew into their rest period and sleep period a little bit early. At 34 hours 48 minutes, this is Apollo Control Houston.

PAO This is Apollo Control at 35 hours 13 minutes. Apollo 11 is presently about 93,265 nautical miles from the moon and with respect to the moon it's traveling at a speed of about 4019 feet per second. At this time we are receiving the tape playback which Goldstone, the tracking site at Goldstone, California, received from the spacecraft in that earlier unscheduled TV transmission. This was a test of the system using the spacecraft on the antennas, the small OMNI directional antennas. Normally transmissions from this distance would be, would require the high gain antenna. This television transmission is being processed and converted to color and we anticipate that we'll have it available for playback at about 9:00 p.m. We are in conversation with the spacecraft at this time and we'll pick up the tape recorder conversation that we have and then standby to follow any live conversation.

SC Houston, would you say again what your requested?

CAPCOM Roger, 11, we'd like you to go back to attitude HOLD, over.

SC Roger

CAPCOM 11, Houston, looks like we're going to have to reinitialate, reinitialize this PTC.

SC All right.

SC Okay, do you have any roll angle that you'd like to stop it in, Charlie? I haven't stopped it yet.

CAPCOM 11, Houston, it's your preference, right now if you want to right now. Over.

SC Okay.

CAPCOM Apollo 11, Houston, over.

SC Houston, Apollo 11.

CAPCOM Roger, 11. The problem on that initial, starting up the PTC was we failed to do the VERB 49 which, and load the desired initial attitude, so they are trying to take it back to the old attitude that we had started up in a number of hours ago. That's why we picked up the rates in the other axis. We're going to wait in this attitude for about twenty minutes to damp out the rates again and then we'll proceed with the VERB 49 in LOAD 1 attitude that we have at this time. Over.

SC Okay, sounds good, Charlie. When you get to the VERB 49, I'd like for you to give me the 3 gimbal angle that you want loaded.

CAPCOM Roger, we'll do, over.

SC Thank you.

CAPCOM And, Apollo 11, Houston, we have your fly-by pad if you're ready to copy. Over.

SC Standby 1.

SC Houston, Apollo1, is that P-30 pass?

CAPCOM That's affirmative. Over.

SC Okay, ready to copy.

CAPCOM All right, Buzz. It's fly-by, it's a purpose. SPS G&N. 62815 plus 097 minus 020 070 54 5944 minus 00028 plus 00023 plus 00069 029 149 312. Apogee is NA plus 00221 00078 001 00034. Sextant star 01 2185 227. Boresight star is NA NA NA. Latitude is minus 0265 minus 16500 11899 36228 14 45 647. In the comments your set stars are Deneb and Vega 007 144 068. No ullage. It's a docked burn using the PTC REFSMMAT. Standby for your read back. Over.

SC Okay, would you give me the GEC of the burn again, please.

CAPCOM Roger, 144 56 47. Over.

SC Roger. Flyby SPS G&N 62815 plus 097 minus 020 070 54 5944 minus 00028 plus 00023 plus 00069 269 149 312. NA plus 00221 00078 001 00034. 01 2185 227. NA . Minus 0265 minus 16500 11899 36228 14 45 647. Deneb and Vega 007 144 068. No ullage. Docked PTC REFSMMAT. Over.

CAPCOM Roger, say again your roll angle, Buzz, I copy, I read 029, over.

SC Roger, 029.

CAPCOM Roger, good readback.

SC Houston, Apollo 11. On the 7/10<sup>th</sup> rate, the rate loaded into the dap is 1 or 2/10<sup>th</sup>.

CAPCOM 11. Roger.

CAPCOM Hello Apollo 11, Houston, over.

SC Houston, Apollo 11, over

CAPCOM Roger. Mike, would you please copy down your VERB 16 NOUN 20. I see the angles now. Then execute a VERB 49 and load that, those angles, the NOUN 20 that you see on the DSKY into the VERB, into the NOUN 22 slot and prone and that will start our 20 minute wait through it. Over.

SC Okay, Charlie, I'll do that right now in a matter of inches. Those numbers are plus 04511 plus 09021 and plus 35984. Over.

CAPCOM Roger.

SC It's Apollo 11. I've done that and, of course, I got an immediate 50 18 so I guess we're set up to proceed from here and they'll start the 20 minute timer.

CAPCOM That's affirmative.

SC Houston, I still question that 7/10<sup>th</sup> rate with 2/10<sup>th</sup> loaded into the damper up here, though. Could you explain? Over.

CAPCOM Roger, we're working on it. Standby 1.

SC Okay.

CAPCOM Apollo 11, Houston, over.

SC Yes, Apollo 11.

CAPCOM Roger, we got a little laser experiment we like to – for you to do for us – If you got the Earth through any of your windows or through the telescope, would you so advise? Over.

SC Standby, Charlie. At this low attitude what should our high gain angles be? Maybe that would help us locate you. We don't see you on the lens.

CAPCOM Standby.

CAPCOM Hello, Apollo 11, Houston. Those high gain angles are PITCH minus 70, YAW 90. We think the Earth is apparently it's pretty close to plus C axis, over.

SC Okay.

SC Okay, Charlie. I got you in the telescope.

CAPCOM Roger, Apollo 11. We got a laser that we're going to, it's a blue/green laser that we're going to flash on and off in a frequency of on for a second, off for a second. It's coming out of MacDonald Observatory near El Paso which is, should be right on the terminator, right inside the terminator. We're going to activate that momentarily. Would you please take a look through the telescope and see if you can see it? Over

SC Telescope or sextant?

CAPCOM Either one, over.

SC Okay, I'll start with the telescope and if I don't see it there then I'll try the sextant.

CAPCOM Roger. We'll give you the word when they've got it turned on, over.

SC Okay.

CAPCOM 11, Houston. They don't have it turned on yet. We'll give you the word when they got it turned on, over.

SC Okay.

CAPCOM Hello, Apollo 11, Houston. We noticed the cryo pressure dropped moment ago. Did you stir up the cryos? Over.

SC Roger, we've finished cycling operations.

CAPCOM Rog, copy, out.

CAPCOM Hello, Apollo 11, Houston. MacDonald's got the laser turned on Would you take a look? Over.

SC Okay, Charlie.

CAPCOM It's bluish/green.



CAPCOM 11, Houston. We got some shaft and trunnion that might tweak it up a little bit. Shaft of 141.5. Trunnion of 39.5, over.

SC Okay, standby.

CAPCOM Apollo 11, Houston. If you see it, it should be coming up, appear to be coming up through the clouds. MacDonald reports that there's a break in the clouds that they're beaming this thing through. Over.

SC Roger.

CAPCOM Hello Apollo 11, Houston. You can terminate the exercise on the laser. Rates are steady enough now for it to come into the PTC, over.

SC Okay, Houston. Neither Neil nor Mike can see it. Incidentally those shafts and trunnions just missed pointing at the world.

CAPCOM Roger, thank you.

SC Just as we are looking at it through the scanning telescope, it would be about a, oh, maybe a third of an Earth radii high and to the left.

CAPCOM Roger.

SC But we did, we did identify the El Paso and it appeared to us to be a break in the clouds there and we looked in that break and saw nothing.

CAPCOM Roger, thank you much, out.

SC Houston, Apollo 11, over.

CAPCOM Roger, go ahead, over.

SC Were you following that on the DSKY?

CAPCOM Roger, standby.

CAPCOM Eleven, Houston. What's your exact question, over.

SC I've followed the procedure through step 7 down to the point where I've got 27 303 enter and then we go to an operator light.

CAPCOM Roger, stand by.

CAPCOM Apollo 11, Houston, stand by a moment. We'll have an answer for you momentarily, over.

SC Okay appreciate it, Charlie. Now the light's gone out without any further DSKY action.

CAPCOM Roger.

SC Correction, stand by that's not right.

CAPCOM Roger.

CAPCOM Apollo 11, Houston.

SC Houston, Apollo 11.

CAPCOM Roger we've finally gotten concurrence on the problem here with 50 guys looking at it. When we were sitting in the 58 team we attempted to load the erasable before you terminated the verb 49. So Mike what we're going to have to do is call off the present CDU's, copy those down and do a verb 49. Load the present, do a proceed then an enter and then we can then set up attitude hold with step 6, over.

SC Okay, I think that's what we did last time.

CAPCOM It appeared to us that we attempted to load the erasable prior to entering on the verb 49 which verb 49 was still running and it clobbered the CDU's, over.

SC Okay.

SC Houston, Apollo 11, and we're moving at the proper rate.

CAPCOM Alleluia!

CAPCOM Eleven, Houston. It looks great to us now. Over.

SC It looks fine here Charlie. The (garbled) part is the only part I don't find explained yet.

CAPCOM Roger, Mike. We're working on that one right now. We're coming up with the story soon, over.

SC Thank you.

CAPCOM Eleven, Houston, we're having corn from Goldstone to Honeysuckle, over.

SC Okay.

SC Hello Houston, through Honeysuckle or- -

CAPCOM Apollo 11, Houston go ahead over.

SC You sound good to us through Honeysuckle. How do we sound?

CAPCOM Roger, 5 by Mike. We'd like to OMNI configuration as follows. OMNI ALPHA place in BRAVO, OMNI to OMNI - -

SC - and the configuration as follows: OMNI ALPHA placed in BRAVO, OMNI to OMNI, high gain track to MANUAL, high gain yaw 270, pitch -

PAO This is Apollo Control. At the present time we are handing over from the tracking site at Goldstone, California, to the site at Honeysuckle which accounts for the noise in the transmission -

SC - I've got S-band OMNI Z OMNI, track to MANUAL and beam Y and pitch, better say that again, yaw 2 70 , over.

CAPCOM Roger, Buzz. I broke up that pitch minus 50 at beam Y, over.

SC Roger, copy.

SC Houston, Apollo 11. Are you ready to copy some numbers on status report, etc.

CAPCOM Say again, over.

SC Roger, ready to copy some numbers on the status report, Houston.

CAPCOM Rog. Go ahead, over.

SC Okay, radiation CDR 11005, CMP 10006, LMP 09007. Medication negative, and I got some (garble).

CAPCOM Go ahead, over.

SC Battery C 37.1, pyro battery A and G both 37.1. RCS ALPHA 82, BRAVO 84, COCCO 85, DELTA 87, over.

CAPCOM Roger, we copy. Radiation 11005 10006 09007. No medication. 37.1 37.1 37.1 82 84 85 87, over.

SC That's affirmative. And you want a LM GM DELTA V at 1.1.

CAPCOM Roger, copy, 11.

CAPCOM Hello, Apollo 11, Houston. Please verify that 4 cryo heaters AUTO, the four fans OFF.

SC Okay, we have been holding the O<sub>2</sub> heater in the OFF position. I believe that was your last instructions. All the other heaters are to ON and all fans are OFF. Over.

CAPCOM Roger, standby.

CAPCOM 11, Houston. We would like all heaters AUTO, over.

SC All four on AUTO, all four fans OFF.

CAPCOM Hello, Apollo 11, Houston. As the sun sinks slowly in the west, the white team bids you good night. If we get a story on the 7/10<sup>th</sup> we can give it to you in about 15 minutes or so, if not, we'll give it to you in the morning, over.

SC Okay, sounds fine, thank you, Charlie, very much.

SC Have a nice day today, Charlie.

CAPCOM Thank you.

SC Good night ail.

PAO This is Apollo Control at 36 hours 11 minutes. At the present time Apollo 11 is 134 000 nautical miles from Earth. The velocity is 4216 feet per second. During that last series of transmissions from the crew, we received a status report from Buzz Aldrin and he reported that the crew has in the past 24 hours taken no medication. This is similar to the crew status report we received from them last night. We bid them good night at 36 hours 9 minutes or about 2 minutes ago. We anticipate that the crew will probably have a few more housekeeping type chores aboard the spacecraft before they actually turn in and also we'll probably be combining their eat period with the first part of that sleep period. At 36 hours 12 minutes into the flight of Apollo 11, this is Mission Control Houston.