



July 21
Anniversary
First Manned Lunar Landing

HONEYSUCKLE CREEK TRACKING STATION
AUSTRALIAN CAPITAL TERRITORY

HONEYSUCKLE CREEK PARTICIPATION IN APOLLO 11

TRACKING NETWORK

Honeysuckle Creek Tracking Station played a vital role in the support of the highly successful Apollo 11 mission. As with previous Apollo lunar missions, it was joined by the Tidbinbilla Deep Space Station to provide dual tracking capability.

Together with other stations located at Madrid (Spain) and Goldstone (California), the Honeysuckle station forms a network of stations which maintain a continuous track of the spacecraft. Other sites with smaller antennas provide additional coverage during the earth orbit phase and limited coverage during the lunar phase.

For the lunar surface activity phase of the mission on Monday, July 21, 1969, the complex was joined by the 210 ft. diameter radio telescope of the C.S.I.R.O. at Parkes, N.S.W.

LAUNCHING

Apollo 11 was launched virtually on time at 11.32 p.m. A.E.S.T. on Wednesday, July 16, 1969. About one hour later it was tracked by the Honeysuckle Creek/Tidbinbilla complex for about five minutes on the first two earth orbit revolutions. Following re-ignition of the SIVB third stage engine over the Pacific, the spacecraft was hurled out of earth orbit on a lunar trajectory at nearly 25,000 m.p.h.

TRANSLUNAR PHASE

The three days of translunar coast tracking on Thursday, Friday, and Saturday, July 17, 18, and 19, were uneventful. For the approximately nineteen hours of each day's track, the crew were in rest periods and their work schedule was light, preparatory to the crowded events to come.

LUNAR ORBIT PHASE

At acquisition on Sunday, July 20, Apollo 11 was in lunar orbit No. 4, and was tracked on successive orbits through orbit No. 9. Again, for most of this period the crew were asleep.

LUNAR ACTIVITY

By the time tracking was picked up at about 11.15 a.m. on Monday, July 21, Eagle was on the lunar surface, having touched down at about 6.17 a.m. earlier in the day. At touchdown, Armstrong had radioed Mission Control "The Eagle has landed". Although the complex was not tracking at the time, practically all personnel, whether on site or at home, listened to the live voice broadcast of that momentous event and realised, with its successful accomplishment, that man would indeed set foot on another celestial body for the first time.

Egress was not scheduled to occur until approximately 4.15 p.m. when only the Australian stations would be tracking. However, astronaut Armstrong elected to come out earlier and at 12.39 p.m. pulled the lanyard which deployed the T.V. camera and, with a sudden flicker, the Eagle's ladder and the bleak lunar landscape appeared on the monitor screens. Shortly after, Neil Armstrong climbed down the ladder and became the first man to set foot on the moon. As he stepped onto the surface he radioed the now famous words "That's one small step for a man, one giant leap for mankind".

At this time, the Parkes antenna had not acquired due to elevation constraints and it is a matter of great pride to know that the T.V. picture of the first step relayed to the world was received through the Honeysuckle Creek and Tidbinbilla antennas and processed through Honeysuckle Creek video equipment.

The events that followed are well known to all who watched through the afternoon. Perhaps the one thing that impressed most, apart from the whole fantastic achievement, was the mobility of the astronauts in the lunar environment. The demonstration provided by Aldrin was a welcome contrast to the generally awe-inspiring and businesslike tone of the event.

During the egress the astronauts gathered rock samples, deployed an American flag, and set up an experimental package to transmit information about moon quakes back to earth.

Later in the afternoon, watchers saw with some surprise, various items of equipment sailing out from the Eagle's hatch to land and bounce on the lunar surface. These items were those which were scheduled to be left behind to reduce, as much as possible, the weight of Eagle prior to lift-off. It is interesting to note that Mission Control at Houston, Texas, reported definite indications in the data from the passive seismometer each time an item of equipment bounced on the moon's surface.

Early on the morning of Tuesday, July 22, during Madrid's view period, the Eagle roared up and away from the moon to a successful rendezvous and docking with Columbia. Astronaut Collins had waited patiently in lunar orbit for 27 $\frac{1}{4}$ hours before being re-joined by his fellow astronauts.

TRANS EARTH PHASE

The complex acquired shortly after noon on Tuesday as Columbia, now alone since Eagle was jettisoned several hours earlier, circled in orbit No. 29. At 2.57 p.m. at the start of orbit No. 31, the Service Propulsion Engine was fired behind the moon for the journey home, and Honeysuckle Creek acquired within seconds of the predicted time to relay the data and voice that revealed a completely successful trans-earth injection.

As with the outward journey, the earth-bound tracks on Tuesday, Wednesday, and Thursday, July 22, 23, and 24, were uneventful, with the crew again in sleep periods. The track on Thursday was the longest of the mission, lasting from 12.40 p.m. Thursday until 2.29 a.m. Friday, only 20 minutes before splashdown.

SPLASHDOWN

Splashdown occurred on target 825 nautical miles south-west of Hawaii and about 13 nautical miles from the recovery ship, the USS Hornet. So ended man's first mission to the moon. It had lasted 195 hours, 18 minutes and 13 seconds, or a little more than eight days.

ASTRONAUTS:

Neil ARMSTRONG : Commander

Michael COLLINS : Command Module Pilot (Columbia)

Edwin ALDRIN, Jr. : Lunar Module Pilot (Eagle)