

GENERAL MISSION INFORMATION

The primary objectives of the Apollo 11 mission were to land men on the lunar surface, to collect lunar materials for study, and to return both crew and samples safely to earth. The crew of Apollo 11 consisted of Neil A. Armstrong, Commander; Michael Collins, Command Module Pilot; and Edwin E. Aldrin, Jr., Lunar Module Pilot. The following is a summary of the Apollo 11 mission. More detailed information may be found in the Apollo 11 Mission Report (NASA SP-238).

The space vehicle was launched from Kennedy Space Center, Florida, at 08:32:00 a.m., EST., July 16, 1969, and was inserted into lunar orbit approximately 76 hours later. After a rest period, Armstrong and Aldrin entered the lunar module to prepare for descent. The command and service modules were then separated from the lunar module (Eagle). Descent orbit insertion was performed at approximately 1 ½ hours after separation and power descent to the lunar surface began approximately 1 hour later.

The Eagle landed in the Sea of Tranquility at 3:17 p.m., EST., July 20 (Fig. 1). The landing site was on a gently sloping mare just west of a young ray crater approximately 200 meters in diameter (Fig. 2). During the first 2 hours on the surface, the astronauts performed a post landing check-out of all lunar module systems, ate their first meal on the moon and elected to perform the surface operations earlier than planned. Armstrong egressed through the forward hatch and deployed the Modularized Equipment Stowage Assembly (MESA), located in the descent stage. A camera in the MESA provided live television coverage of Armstrong descending the ladder to the surface, with first contact made at 9:56 p.m., EST., July 20, 1969. Aldrin followed soon thereafter, and both crewmen used the initial period on the surface, to become used to the reduced gravity conditions. The Contingency Sample was taken from the surface, and a television camera was deployed so that most of the lunar module was included in the field of view (Fig. 2). The crewmen took numerous photographs, erected the U.S. flag, and deployed the scientific experiments, which included a solar wind detector, a passive seismometer, and a laser reflector. Aldrin spent considerable time evaluating his ability to operate and move about, and despite the limitations imposed by the pressurized suit, he was able to move rapidly and with confidence. Approximately 20 kilograms of rock and particulate material were collected to be returned to earth. The crew had spent a total of 2 hours and 14 minutes exploration time on the lunar surface.

The ascent preparation was conducted, and the ascent stage lifted off the surface at 1:02 p.m., EST., July 21. After a rendezvous sequence, the two spacecrafts were docked at 5:02 p.m., EST., July 21. Following transfer of the crewmen, the ascent stage was jettisoned, and the command and service module was prepared for the trans-earth injection. The entry phase was normal, and the command module landed in the Pacific Ocean at 12:01 p.m., EST., July 24.

The samples were retrieved from the spacecraft after recovery on board the U.S.S. Hornet and were transferred into the Mobile Quarantine Facility (MQF). Inside the MQF the sample containers were enclosed in plastic bags, to insure biological containment, and were passed to the outside of the MQF through a surface sterilization procedure and lock. The samples were flown to Johnston Island where they were transferred on board two separate jet aircrafts for transport to

the Manned Spacecraft Center and the Lunar Receiving Laboratory (LRL). One of the sample return containers, the second box collected (documented sample) was on board the first aircraft to arrive at Ellington Air Force Base, Houston, Texas. The sample was carried to the Lunar Receiving Laboratory in a motor van, and was introduced into the Crew Reception Area of LRL. The second aircraft arrived at Ellington Air Force Base a few hours later with the first sample return container filled on the lunar surface (bulk sample) and with the contingency sample. These samples were also brought to the LRL by motor van and introduced into the Crew Reception Area.

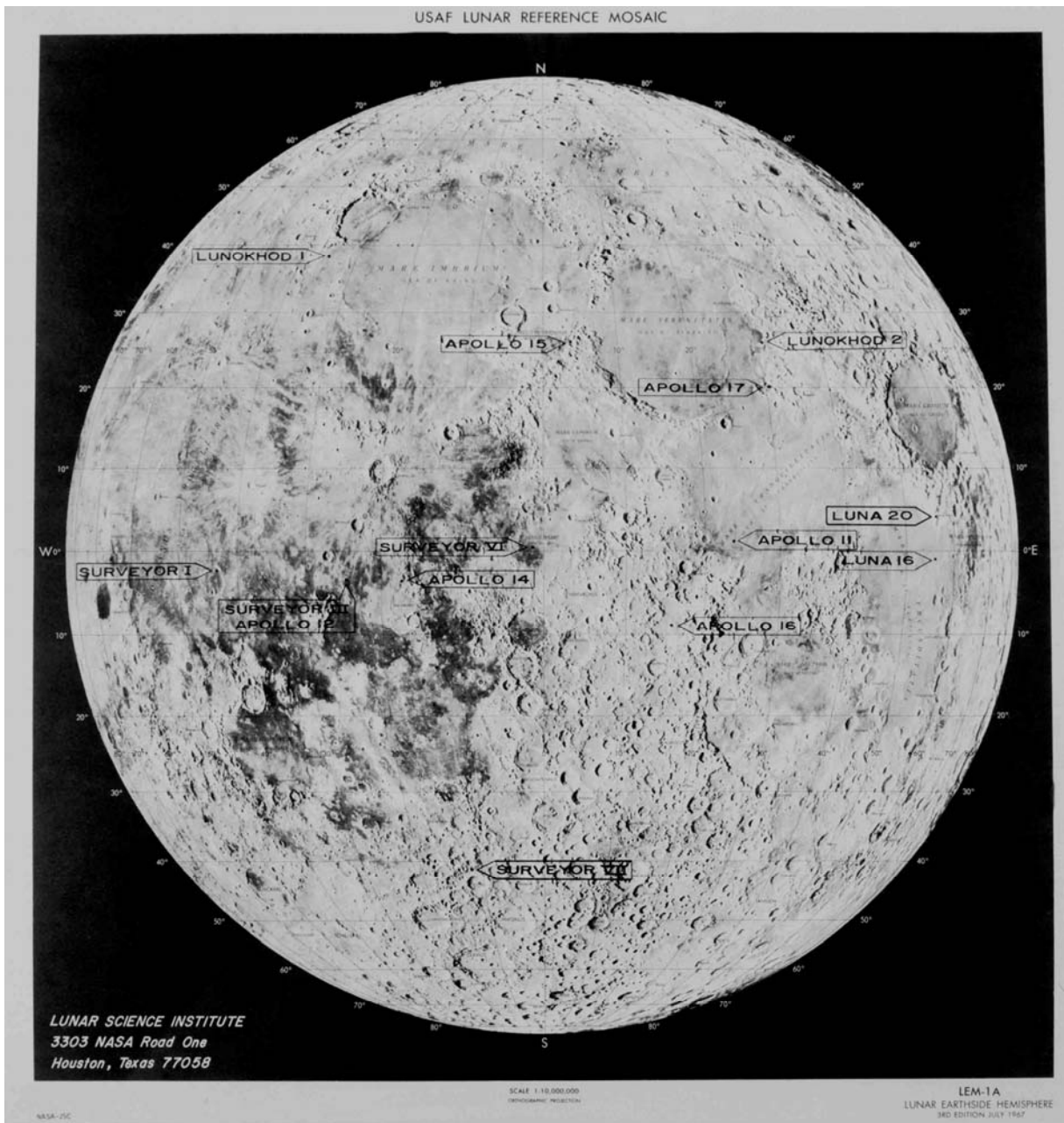


Fig. 1: USAF lunar reference mosaic showing all Apollo, Luna, Surveyor, and Lunakhod landing sites. Scale = 1:10,000,000 (S-76-25839)

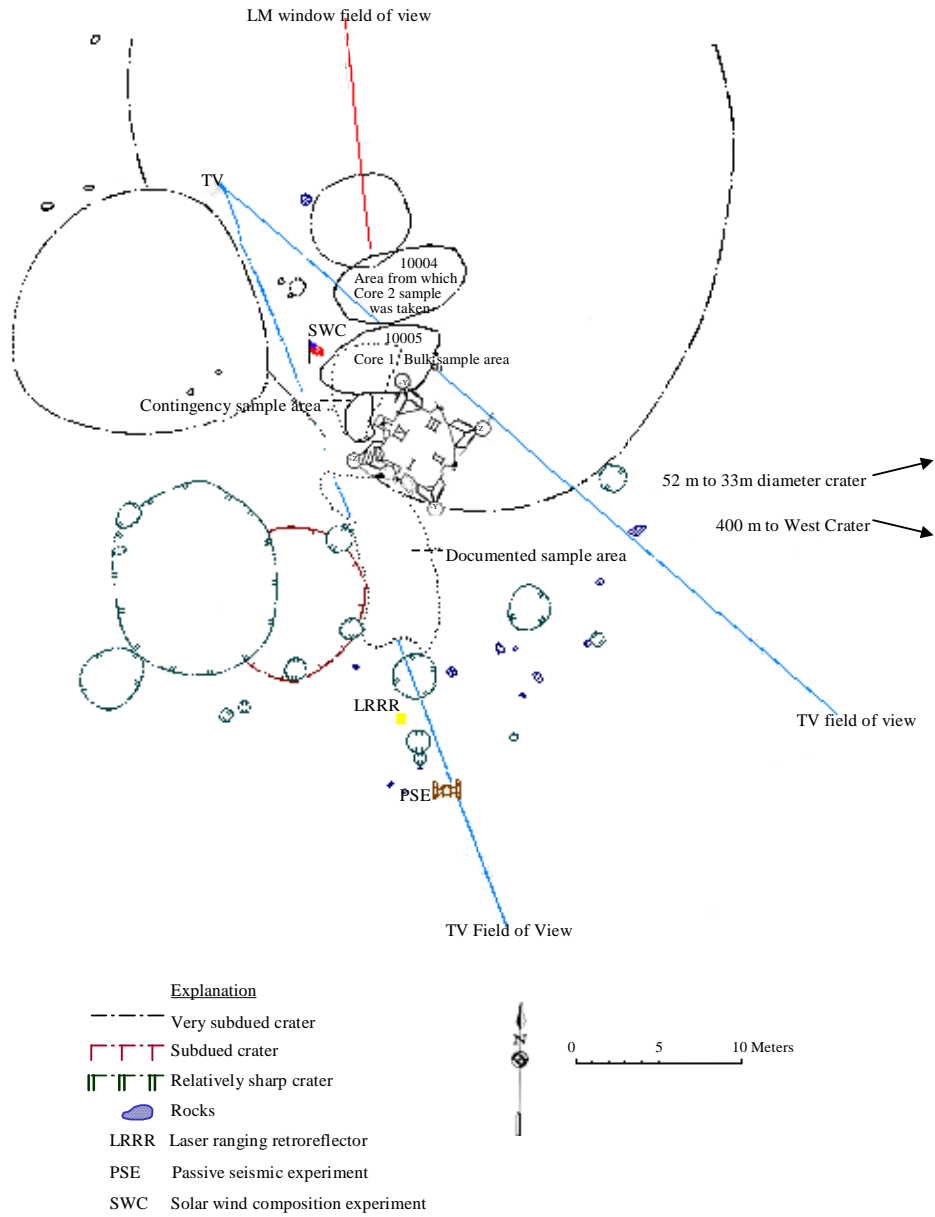


Figure 2. Sample locations for Apollo 11 landing site (image recreated by L. Carrillo).