MOON 2019-English script

00:54
As unfortunately often happens, the great achievements of human history occur in moments that are not very edifying of our evolution.
01:18
Our story begins in a small village in northern Germany during the Second World War.
01:25
In the city of Penumunde, the third Reich, had built a site for the experimentation of new weapons that would have changed the fate of the war.
Here the V1 and V2 were developed, the forerunners of all ballistic missiles and space vectors of the modern age.
The first V2 was successfully launched in March 1942 but, despite sowing death and destruction, especially in England, they never changed the course of the conflict.
01:58
Leading the Penemunde site was Wernher von Braun.
02:04
In the spring of 1945, with the Red Army only 160 km away, von Braun deserted, and, armed with false documents, allowed 500, technicians and scientists to surrender to the Allied Forces.
02:21
After several years of research in the Army Ballistic Missile Agency, in 1960, von Braun was appointed director of the Marshall Space Flight Center and was entrusted with the project for the construction of the Saturn V, the carrier that will bring the man for the first time on Moon.
02:46
With the defeat of the Axis two opposing blocks were formed. The Soviet one and the Atlantic Pact. It was the beginning of the Cold War and the nuclear arms race and missile technologies to launch these weapons against the enemies.
03:06
On October 4, 1957, the Soviet Union marveled the world with the launch of the first artificial satellite, Sputnik 1, showing to be able to hit anywhere in the world.
03:27
On 12 April 1961 the Soviet Union completed the first manned orbital flight. Yuri Gagarin, on board the Vostok 1 capsule, performed an elliptical orbit around the Earth, reaching a maximum altitude of 302 km traveling at a speed of 27,400 km / h.
03:50
The United States had accumulated a delay that only the words of the great leader could overcome. John Fitzgerald Kennedy.
04:54
It was the beginning of the Apollo program. Arrive at the moon by the end of the 60s.
The first difficulty was to create a rocket that was sufficiently powerful for the achievement. The Saturn project was born, entrusted to von Braun.
The first version, Saturn 1, makes 10 flights mainly to test the first stage.
It was followed by Saturn 1B, which in its 9 launches tested the Apollo technologies.
And finally the Saturn V the most powerful rocket ever made by mankind.
05:30
The chosen trajectory, for almost all the Apollo missions, was the one called "Trajectory of free return" which, by using the mutual gravitational forces of the Earth and the Moon would have allowed a considerable fuel saving.
05:48
At that time there were several theories on the consistency of the lunar surface.
To understand this, NASA created the Surveyor Program.
06:00

From 1966 to 1968 seven lunar landers were launched to the Moon.
It was necessary to demonstrate the possibility of a soft landing and collect images of the landing sites for future missions.
The development of the probes was entrusted to the JPL and did not include any return to Earth.
Parts of Surveyor 3 were returned to Earth by Apollo 12 astronauts.
06:47
John Houbolt, a NASA engineer, had another fundamental insight: the "Lunar Orbit Rendezvous" using a spacecraft consisting of: a command module (top left) for the astronauts, a service module (bottom left), for air and fuel and a Lunar landing module (right). Houbolt vigorously defended his approach by convincing the director of NASA and von Braun himself.
07:22
On July 16, 69, the United States was ready to conquer the Moon.
The previous missions had tested, even at great cost, all the phases of the mission. The unfortunate Apollo 1 who caused the death of the astronauts in a fire during a pre-flight test, Apollo 4, 5 and 6, unmanned missions to test the rocket and the lunar module, Apollo 7,8,9,10, all with crew to test all the operations, moon landing excepted.
08:14
At 8:32 am Pacific time, from platform 39 of the Kennedy Space Center, Apollo 11 took off with Neil Armstrong, Buzz Aldrin and Michael Collins on board.
08:28
2 minutes and 30 seconds later, the first stage of Saturn V had brought the rocket to an altitude of 61 km at a speed of 8 600 km / h. At this point the five F1 engines were turned off and took place the separation of the first stage. The subsequent ignition of the second stage have brought the crew in orbit around the Earth.
08:58
At the end of the ignition, the second stage was abandoned in space.
09:06
After two and a half hours, after a series of checks, the third stage transferred the spacecraft to the lunar orbit.
09:18
After three hours from the launch and en route to the Moon, the crew had to perform one of the most complicated maneuvers of the mission. The separation of the Lunar Module from the third stage of Saturn V.
09:32
The maneuver was performed manually by the crew.
09:38
The command module and the lunar module, in this new configuration, have continued their journey to the Moon which will last another 70 hours.
10:21
Once in proximity of our satellite, another ignition, this time the engine of the service module, has allowed slowing down and enter into lunar orbit.
10:47
A hundred hours from the launch, Armstrong and Aldrin positioned themselves inside the Lunar module and separated from the command module on which Collins remained.
11:11
During the descent, the astronauts realized that the site of the landing was much more rocky than the photographs had showed and the on-board computer reported two alarms that Hoston considered irrelevant for the continuation of the mission. Armstrong took the semi-manual control of capsule, which he landed at 20:17 Greenwich time on the 20th of July with only 25 seconds of fuel left.
11:50
Six and a half hours after touching the ground, at 2:57, Armstrong made his descent to the surface

and made his big step for mankind. Aldrin followed him shortly after, defining the lunar panorama "A magnificent desolation".
12:58
The extra-vehicular activity program was very dense. They had to do: positioning the flag, a telephone call with the oval office, collecting rock samples and assembling the ALSEP, a series of scientific instruments for the study of the Moon.
Among these was a laser reflector that is still used today for measuring the Earth-Moon distance.
13:35
ALSEP was mounted by the astronauts about 100 meters away from the lunar module, so it would not be damaged during the take-off phase. It consisted of various instruments including a seismometer, a magnetometer and an ion meter.
The total duration of the extravehicular operations was two and a half hours.
14:02
After the return into the lunar module, with some difficulties due to the too small door, the two astronauts were ready for the return to Earth.
14:24
The take-off started at 17:54.
14:29
About four hours later the command module and the lunar module met in orbit to begin the journey back to Earth.
14:52
During this journey, the lunar module and the service module, no longer useful for the mission, will be abandoned in space.
15:18
At 195 hours from the take-off, on July 24, 1969, the command module began the delicate phase of re-entry into the Earth's atmosphere.
The friction would have brought the module to the temperature of 2700 Celsius degrees causing it to decelerate at a speed suitable for the opening of the three parachutes.
15:45
Shortly before the sunrise, the crew landed in the Pacific Ocean 2,660 km east of the Isle of Wake and 24 km away from the recovery ship, the aircraft carrier USS Hornet.
16:05
The astronauts were recovered from a helicopter and the spacecraft was transported aboard the ship.
Today it is preserved at the National Air and Space Museum in Washington in memory of the glorious days.
17:12
We can not tell you what the future holds.
The legacy of Apollo 11 must inspire us to new conquests and perhaps reach the Moon, for those who follow us, will no longer be an adventurous journey but a pleasant trip to discover the wonderful places of this story.