
PART I
100
LUNAR DAYS

1
00:00:00,500 --> 00:00:08,609
[music]

2
00:00:10,611 --> 00:00:14,982
On October 16th 2017 the Lunar Reconnaissance Orbiter mission

3
00:00:14,982 --> 00:00:18,585
celebrates one hundred lunar days of being at the Moon. It’s

4
00:00:18,585 --> 00:00:22,222
a big accomplishment. Now you may be wondering – if the

5
00:00:22,222 --> 00:00:25,659
spacecraft launched way back in 2009, how are we only at one

6
00:00:25,659 --> 00:00:29,329
hundred days? What is a lunar day, and how does it differ from

7
00:00:29,329 --> 00:00:33,066
a day on Earth? On Earth, a day is about the time it takes for

8
00:00:33,066 --> 00:00:36,837
the Earth to turn once on its axis with respect to the Sun. A

9
00:00:36,837 --> 00:00:39,640
lunar day is also about the time it takes the Moon to turn once

10
00:00:39,640 --> 00:00:42,609
on its axis with respect to the Sun, and that’s about

11

00:00:42,609 --> 00:00:47,214
twenty-nine and a half Earth
days. So, it’s about a month.

12
00:00:47,214 --> 00:00:50,250
Now you may be confused about
how the Moon rotates, if we

13
00:00:50,250 --> 00:00:53,954
always see the same face from
Earth. The answer lies in a

14
00:00:53,954 --> 00:00:57,124
process called synchronous
rotation, which is caused by

15
00:00:57,124 --> 00:01:00,961
tidal forces between the Earth
and the Moon. We always see the

16
00:01:00,961 --> 00:01:03,563
near side of the Moon, because
as the Moon orbits around the

17
00:01:03,563 --> 00:01:08,068
Earth, it is also continuously
turning. In fact, it rotates at

18
00:01:08,068 --> 00:01:12,139
the same rate it orbits the
Earth, on average. So, a lunar

19
00:01:12,139 --> 00:01:15,409
day takes about the same amount
of time as one complete lunar

20
00:01:15,409 --> 00:01:19,212
orbit. One hundred lunar days
means one hundred chances to

21

00:01:19,212 --> 00:01:21,448
observe a complete day/night
cycle on the Moon -

22
00:01:21,448 --> 00:01:25,319
photographing the surface with
different Sun angles, measuring

23
00:01:25,319 --> 00:01:28,221
the rising and falling
temperatures, and studying the

24
00:01:28,221 --> 00:01:32,326
way certain chemicals react to
those daily changes. If we want

25
00:01:32,326 --> 00:01:34,928
a better idea about long-term
trends and processes on the

26
00:01:34,928 --> 00:01:38,632
Moon, being able to study it for
one hundred days and counting is

27
00:01:38,632 --> 00:01:42,336
a good place to start. And
thanks to all the data gathered

28
00:01:42,336 --> 00:01:45,639
from LRO during this time, our
understanding of the Moon has

29
00:01:45,639 --> 00:01:49,843
increased exponentially. Stay
tuned for our next video that

30
00:01:49,843 --> 00:01:52,245
explores the significance of
being at the Moon for one

31

00:01:52,245 --> 00:01:54,815
hundred days, and what we've
been able to accomplish