

Moons

Fascinating Bodies

NARRATOR:

When we think of interesting bodies in our Solar System, the first that may come to mind are our planet Earth, or Mars, or the large gas planets. But perhaps even more intriguing, attracting scientists and curious minds from far and wide, are the bodies that orbit around planets: MOONS.

LAUREN SCHURMEIER:

If I were to think of the most interesting thing about moons I would say just how different they are from each other.

CLAIRE MCLEOD:

It's important to study moons because they can give us information about how their planetary bodies are perhaps formed, like in the case of Earth

NARRATOR:

Our fascination with the Earth's Moon dates back to the beginning of human existence. But in 1610, Italian astronomer Galileo made a key discovery. He observed through his telescope what we now know are the four largest moons of Jupiter. This was important proof that everything in the Solar System does not revolve around the Earth. It was also the first of many moon discoveries to come.

CHRISTINE SHUPLA:

Our Solar System's number of moons has been steadily increasing over time. They find new ones every year. Earth has one Moon, Mars has two.

KERI BEAN:

Phobos and Deimos are the two moons of Mars, we believe that they are captured asteroids. Deimos is really tiny and it's actually being flung away from Mars. Phobos is kind of a bigger moon, and it's actually going to eventually crash into the surface of Mars.

CHRISTINE SHUPLA:

When you get to the gas giants, they have immense amounts of gravity, and their wide orbits have

enabled them to pick up many moons, some of them probably formed in orbit around the planets, others are captured asteroids and comets.

JANI RADEBAUGH:

Io is a, is the best moon of Jupiter. The surface of Io is covered in sulfur, and that's because there are hundreds of active volcanoes erupting on Io's surface.

ROBERT PAPPALARDO:

Europa's surface is very young, only about 60 million years old. Europa is intriguing because we think it has an ocean below its surface.

DAVID ROTHERY:

Nobody expected Enceladus to be an exciting place. You can see crystallised water ice with ammonia and various organic compounds being jetted into space.

JOHN ZARNECKI:

Titan is, I would say, quite unique. Titan does have lakes and even seas of liquid methane.

DAVID ROTHERY:

Pluto and Charon, its moon, are locked in rotation. As one rotates and the other orbits they keep the same face facing towards each other. It's the nearest thing we have to a double planet.

CHRISTINE SHUPLA:

My favourite moon does have to be our Moon, the Earth's Moon. That's the only place in our Solar System that we are likely to be able to go and find a piece of early Earth.

NARRATOR:

The first man-made object to reach our Moon was the Soviet Luna 2, that crash landed in September 1959. We got our first blurry view of the Moon's far side from Luna 3. Later, the Apollo manned landings gathered an incredible wealth of first - hand information about the lunar surface, some of which we are still trying to understand today.

KERI BEAN:

We can get some very, very interesting chemical data out of the Moon not available to us by looking at rocks from the Earth.

DAVID VANIMAN:

It became evident that the Moon was something else than just this odd object floating around the

Earth. It's a critical part of the Earth - Moon system. It is really a part of us.

NARRATOR:

The Moon may also tell us the story of how the Solar System came to be.

WILLIAM BOTTKE:

When you think about our Moon, it probably has the most complete and clear history available of the last four and a half billion years of Solar System evolution. There's really no other world like it.

NARRATOR:

Moons may hold the answer to our eternal question, are we alone?

ROBERT PAPPALARDO:

Are there places in the Solar System, where life could exist today? Does Europa have what we call chemical energy that could power life?

NARRATOR:

In our quest for the answers to the secrets of the universe, each moon can shed light on a different corner of the puzzle and bring us closer to new discoveries we could never have thought possible.

PAUL SPUDIS:

It's literally unlimited the amount of potential resources that we may find and use on the Moon. It's really, the only limitation is our own imaginations. There's no place we can't go, there's no place we can't live.