

## Life in the Solar System

Segment Number: Segment Working Title

By Your Lyford Rome

**VIDEO**

1950's B Movie Flying saucer footage – title of "Attack from space"

Image of night sky

Images of Roman and Greek Mythology, Mars and Venus

Images of woodcuts, science fiction magazine covers, and movie posters

Scene from Space 1965 showing rocket launch

Mariner 4 image of craters and Surveyor and Astronaut

Panoramas of Mars, Moon and Venus

Images of Earth over moon

Image of fumarole

Image of microbes

Images of sea vents, Yellowstone hot spots, caves

**AUDIO**

Sci-fi Theremin music builds.

NARRATOR: Creatures from outer space have been part of our collective imagination for quite a long time, and not just in science fiction.

Ever since humans first looked up at the night sky, some have wondered if we were alone in the cosmos.

Ancient cultures imagined the heavens populated with gods and other celestial beings.

Even as astronomy progressed, stories of the canals of Mars, beautiful Venusian women and cities of Moon Men still fired the imaginations of young and old alike.

In the 20<sup>th</sup> century, technology finally advanced to the point that we got to see these worlds up close

These missions revealed no civilizations, no cities, in fact, no living creatures at all.

The places were both alien and sterile, and one by one the exotic fantasies of life in the solar system were demolished by the harsh reality revealed by science.

But Earth science has also provided a source of hope that we still may not be alone.

Recent studies have revealed that life can exist in places that were previously thought hostile.

These organisms called "extremophiles" thrive in environments that would be lethal for other life forms.

They have been found at the bottom of the ocean in sea vents, in extreme heat and cold, in acidic and alkaline deposits, and deep

	underground in the dark and under tremendous pressure.
Radar dish – spacecraft launch	This knowledge has given scientists a fresh perspective of where to look in the solar system for life.
Solar system overview – planet by planet, Celestia rendering or Stellarium	Moons and planets that were once considered barren are now seen as including some habitable zones after all, at least for microbial life.
Zoom to blackness of space	Where are these zones in which extremophiles could survive?
Mars from space, showing river channels and rendered with oceans	Scientists believe that Mars may have been much wetter in the past, with oceans and conditions perfect for life.
Panorama from Spirit Rover	Currently surface conditions are too cold and dry for even the hardiest microbes, but there may be caves or areas underground that could support microbial life.
Caves and images from space. ExoMars drilling	
Image from Venera probes	Venus was once imagined to be a lush tropical paradise, but was revealed to be a hellish high pressure furnace, with surface temperatures hot enough to melt lead.
Venus balloon missions imagery	Still, there may be places high in the atmosphere that would be favorable to extremophiles.
Jupiter and Saturn from orbits	Even farther out from the Sun, Jupiter and Saturn seem unlikely to host any form of living creature.
	But liquid water is thought to exist even here on at least two of their moons.
Enceladus flyby	Enceladus, at Saturn, surprised scientists guiding the Cassini mission with spectacular geysers of briny water.
Europa image from Galile	And Europa, a moon of Jupiter, is thought to have a whole ocean far beneath its icy surface.
Titan from Cassini	But perhaps the most intriguing world is Saturn’s moon Titan, which may hold secrets of the most bizarre life forms yet.
Overview of rivers	It is so cold on Titan that liquid methane replaces water in its weather cycle.
Surface from Huygens,	The Cassini mission and the Huygens lander

over view of lakes

probe found evidence of rivers and lakes of liquid methane, brimming with many of the organic chemicals necessary for life.

Image of Earth alone in space

So while no one expects flying saucers to visit us anytime soon, our lonely planet may not be so alone in the solar system after all...

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