1
00:00:00,000 --> 00:00:05,000
(Music)

2
00:00:05,000 --> 00:00:13,000
On August 25, 2003, NASA launched the Spitzer Space Telescope to reveal secrets of the infrared universe.

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MIKE: We've been flying for about 10 years, that's about 30, 3,600 days. We have 5,000 published papers.

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That means every day, every single day, a new paper based on Spitzer data announcing

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new results and new discoveries is published, which to me is absolutely amazing.

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00:00:30,000 --> 00:00:36,000
SUZANNE:Spitzer is an infrared telescope, which means it sees through the dust that's out in space.

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00:00:36,000 --> 00:00:42,000
And by seeing through the dust, we get to pinpoint the stellar nurseries that are out there

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00:00:42,000 --> 00:00:45,000
where stars are being born.

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00:00:45,000 --> 00:00:49,000
Shortly after launch, Spitzer began its rich history of surprising revelations

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00:00:49,000 --> 00:00:52,000
within our solar system and beyond.

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00:00:52,000 --> 00:00:56,000
It discovered Saturn's largest ring, one seen only in infrared light.

12
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It identified buckyballs in space,

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00:01:00,000 --> 00:01:06,000

carbon cages that can trap other small molecules or atoms like tiny time capsules.

14
00:01:06,000 --> 00:01:11,000
Working with Hubble, it helped pinpoint some of the most distant galaxies in the universe.

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00:01:11,000 --> 00:01:15,000
And Spitzer's ultra-high resolution map of the Milky Way

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substantially improved our understanding of our own galaxy's structure.

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But perhaps the biggest surprise for the mission is that it turned out to be a powerful tool

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for studying exoplanets: planets that orbit other stars.

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MIKE: We've made the first observations of light from exoplanets. We've measured the temperature,

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00:01:35,000 --> 00:01:40,000
the atmospheric composition, the atmospheric structure, the atmospheric circulation.

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00:01:40,000 --> 00:01:45,000
We've measured the temperature, for literally dozens of exoplanets around all sorts of stars,

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00:01:45,000 --> 00:01:50,000
including stars like the sun. Spitzer made the first-ever temperature map of a hot exoplanet,

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00:01:50,000 --> 00:01:53,000
hinting at its astoundingly windy environment.

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By mid-2009, Spitzer ran out of onboard coolant. Surprisingly, this did not end the mission.

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It merely marked the transition to a new phase of operation and discovery.

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SEAN: After the coolant ran out we were still able to take great quality data with Spitzer due to its

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unique engineering design, which allowed it to stay cold enough so that one of the cameras

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could continue to operate.