Spirit's Triumphs on Mars

[00:00:01]Music
[00:00:11]Spirit was never designed to last this long. You know, the rover was never designed to go through Martian winter, and she went through three winters successfully. They were never designed to survive rover-killing dust storms, and yet Spirit survived several significant dust storms. Spirit climbed the 'Husband Hill,' so did Martian mountaineering, yet another thing it was never designed to do. So out of this rover that had a very limited scope of mission to begin with, we were able to do these magnificent adventures, and the rover was very successful on that. It's a testament to the people who designed and built the rover, and a testament to the people who operated the rover on the surface. The whole mission has had an amazing ability to turn what looks initially like it's going to be adversity into a great triumph. And Spirit in particular has really been known for this quality. One of the things that characterized Spirit on the surface of Mars, was the ability of that rover to turn lemons into lemonade. A couple years into the mission, Spirit's right front wheel broke. And we had to learn to drive the rover backwards. In fact, re-learn how to drive the rover. And we would drag that wheel. But out of that adversity came perhaps the most significant scientific discovery on the surface of Mars. We were hoping that Spirit would find evidence of past water history on Mars. And not only did Spirit find evidence of past water history on Mars, she found evidence of pH neutral water at 'Comanche Spur.' And she found evidence of hot water existing and kind of acting for long periods of time in the region near 'Home Plate,' which we call 'Silica Valley.' So from a science perspective, Spirit smashed expectations. She did way better than we would ever possibly have hoped for. What Spirit has told us, is that Mars was at one time like the Earth, some three-and-a-half to four billion years ago. There was liquid water on the surface, there was a thicker atmosphere, there were warmer temperatures. And there were even sources of energy like hot springs. These were all discoveries that Spirit has made. And this completely changes our thinking about Mars -- that Mars was in fact, at one time, a place that could have supported life. Spirit's legacy in terms of Mars exploration might be that she's made Mars a real place for us. She has helped to see what we would see if we were there. I also hope that she, again, has a broader legacy in terms of
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continuing to inspire people. To explore, to reach out beyond what they think they can accomplish.

We always knew that there would come a time when one of the rovers wouldn't be there. That's the interesting thing, is that you do become very attached. And you think of these rovers really as part of your team and part of your family. For years now, I've been getting the question: well how are you going to feel when she's gone? And I've always had this image of, sort of the New Orleans jazz funeral procession, where there's some sadness, of course. Because Spirit has been, essentially my entire career at JPL working with these two rovers. There is just so much to celebrate. A life, if you will, that lasted beyond any expectation and discovered wonderful things. So it's very bittersweet. I'm always going to be really proud of Spirit.

You know, Spirit was my first Mars rover and if you've ever had a first car, you know a little bit about what that's like. I have loved Spirit from the early days when it seemed like nobody else did, and I still do, and she's always going to have a special place to me, in my heart. I was there with her at the very beginning. And she just took me, and everybody, on a terrific ride across the surface of Mars, showed us things that nobody had ever seen before in the history of humanity. She opened up that other world for us and made it possible for us to see it for the first time as if we were there. And I'm always going to be -- you know it's the kind of thing I grew up dreaming about when I was a kid. And to get a chance to do that for real, with my real life, you know, Spirit made that happen for me. And she's always going to be special to me just for that alone.