

Opportunity on Mars - Eight Years and Counting

Transcript:

Music.

John Callas: I often get asked, well, how long will Opportunity last? And, you know, I can't say.

And, you know, I don't think anyone knows. You know, 8 years ago we were scratching our heads and said, well, maybe 6 months if we're really lucky. But here we're 8 years later and the rover is still in very good health. And now we're at Endeavour Crater.

We're seeing new geology, older geology. It's a whole new window on the history of Mars.

It's the earliest period of Mars in which there was water -- sustained liquid water -- on the surface.

It was in that era that life started on the Earth. So that's when we think Mars was the most Earthlike.

And we've already seen evidence of that era reflected in some of the minerals that we've discovered at this new location.

We've assessed them to be gypsum. And that's significant because these are minerals that form in water.

And they form in place. Perhaps groundwater came up and filled cracks and fractures in the geology that formed these veins of light-toned material.

That's the great advantage that you have with a rover that can travel and move. It's not the same stuff. It's new stuff every day.

Music.

Callas: Right now Opportunity's going through her 5th Martian winter. And this one's a little more challenging than the previous winters, because dust continues to accumulate on the solar arrays, which has reduced the power levels we can produce. We had to take the rover and drive it up onto a ridge that gives us about a 15-degree tilt towards the north. That's where the sun will be in the wintertime because we're in the southern hemisphere.

It's kind of like adjusting your deck chair to maximize your suntan.

Music.

Callas: In a very unusual way, this roving vehicle, when it's stationary, allows us to probe the interior of Mars.

Its radio signal now becomes a proxy for the rotational rate of Mars.

And so we're going to measure the rotational rate of Mars very precisely, which will give us a handle on the physical interior of the planet: its distribution of material inside, the size of the core, maybe the fluid state of the core.

Music.

Callas: Right now, Opportunity is alone on the surface of Mars.

We had to say goodbye to Spirit after over 6 years of successful operation of that rover.

But soon Opportunity will have company, and that'll be Curiosity, the next rover.

Now, Curiosity will land a quarter of the way around the planet from Opportunity, so there's no chance of them meeting up. But it's nice that we are continuing the multivehicle exploration of the surface.

Music.

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