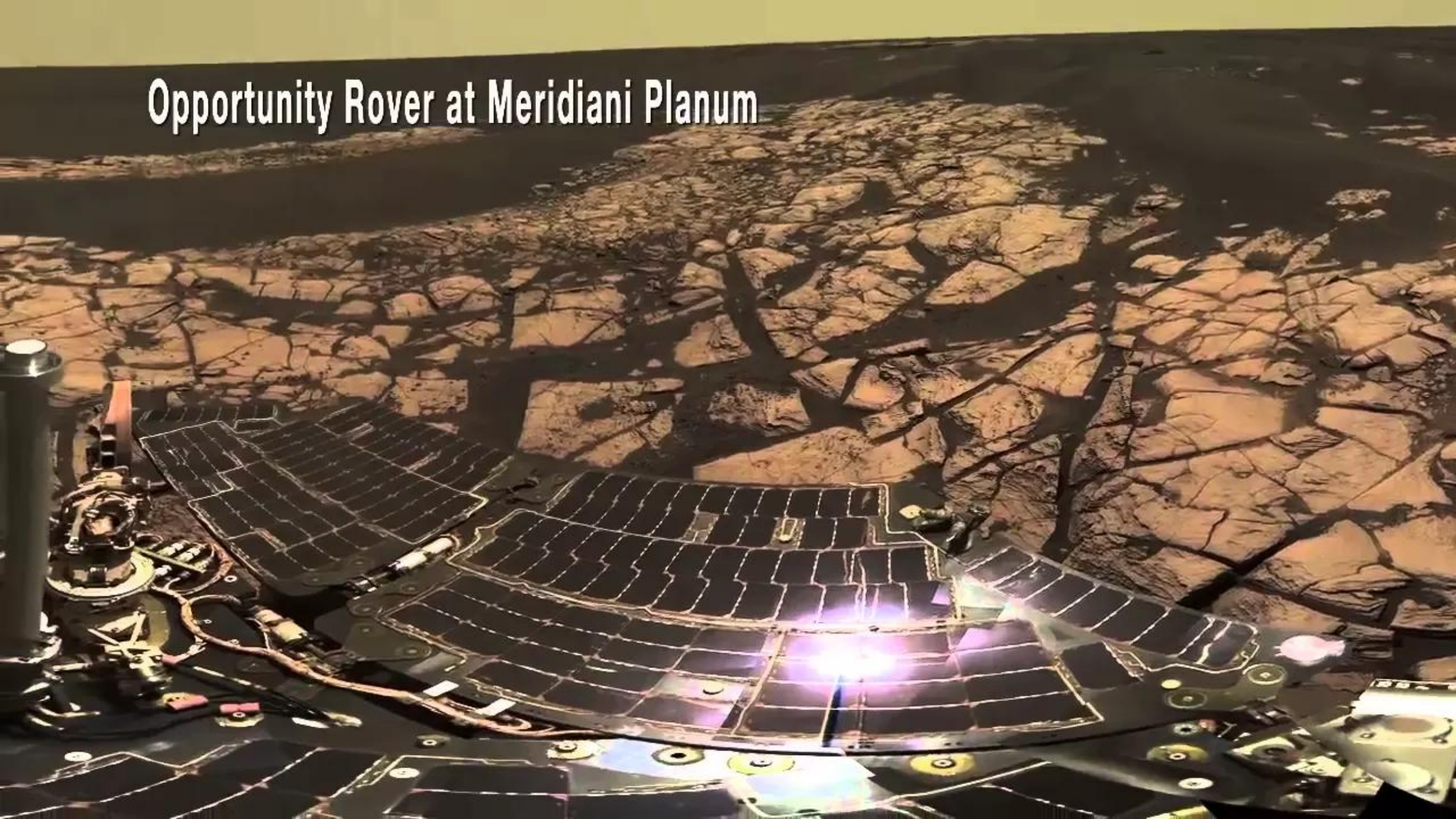
Opportunity Rover at Meridiani Planum

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00:00:04,000 --> 00:00:08,000
Hi, I'm Joel Hurowitz, a scientist with the surface sampling system team

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00:00:08,000 --> 00:00:11,000
and this is your Curiosity rover report.

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00:00:11,000 --> 00:00:16,000
This week the Curiosity science team released its initial findings from its first ever

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00:00:16,000 --> 00:00:18,000
drilled sample on Mars.

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00:00:18,000 --> 00:00:21,000
This sample was collected from the 'John Klein' drill site,

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00:00:21,000 --> 00:00:26,000
which is located about 500 meters east of where we landed about 7 months ago.

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00:00:26,000 --> 00:00:30,000
Curiosity obtained her first drill sample and passed that sample on

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00:00:30,000 --> 00:00:33,000
to her on board analytical lab instruments, called CheMin and SAM.

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00:00:33,000 --> 00:00:38,000
These powerful instruments tell us about what minerals are present in these rocks

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00:00:38,000 --> 00:00:42,000
and whether they contain the ingredients necessary to sustain life as we know it.

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00:00:42,000 --> 00:00:46,000
What the Curiosity team has found is incredibly exciting.

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00:00:46,000 --> 00:00:51,000
When we combine what we've learned from our remote sensing and contact science instruments

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00:00:51,000 --> 00:00:57,000

with the data that's coming in from CheMin and SAM, we get a picture of an ancient watery environment,

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00:00:57,000 --> 00:01:00,000
which would have been habitable had life been present in it.

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00:01:00,000 --> 00:01:04,000
As an example, the information that we're getting from the CheMin instrument,

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00:01:04,000 --> 00:01:08,000
tells us that the minerals that are present in this lake bed sedimentary rock

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00:01:08,000 --> 00:01:13,000
at John Klein, are very different from just about anything we've ever analyzed before on Mars.

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00:01:13,000 --> 00:01:18,000
And they tell us that the John Klein rock was deposited in a fresh water environment.

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00:01:18,000 --> 00:01:24,000
This is an important contrast with other sedimentary environments that we've visited on Mars, like the

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00:01:24,000 --> 00:01:30,000
Meridiani Planum landing site where the Mars Exploration Rover, Opportunity, has been operating since 2004.

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00:01:30,000 --> 00:01:33,000
At that site, sedimentary rocks record evidence of an environment

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00:01:33,000 --> 00:01:38,000
that was only wet on a very intermittent basis, and when it was,

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00:01:38,000 --> 00:01:41,000
the waters that were there were highly acidic, very salty,

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00:01:41,000 --> 00:01:45,000
and not favorable for the survival of organic compounds.

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00:01:45,000 --> 00:01:50,000
This is in direct contrast to the fresh water environment we're seeing here at the John Klein Site.

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00:01:50,000 --> 00:01:54,000
The SAM instrument is telling us that these rocks contained all of the ingredients necessary

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00:01:54,000 --> 00:01:58,000
for a habitable environment. We found carbon, sulfur and oxygen,

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00:01:58,000 --> 00:02:02,000
all present and a number of other elements in states that life could have taken advantage of.

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00:02:02,000 --> 00:02:05,000
All in all, these few tablespoons of powder from a Martian rock

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00:02:05,000 --> 00:02:10,000
have provided the Curiosity science team with an exciting new data set that tells us that Gale Crater,

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00:02:10,000 --> 00:02:14,000
and perhaps all of Mars, contained habitable environments.

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00:02:14,000 --> 00:02:18,000
This is an incredible success for the Curiosity mission to Gale, and the science team