
Power

1
00:00:05,240 --> 00:00:10,240
Hi, I'm Joel Hurowitz, a scientist with the
surface sampling system team and this is your

2
00:00:10,240 --> 00:00:12,720
Curiosity rover report.

3
00:00:12,720 --> 00:00:17,460
This week the Curiosity science team released
its initial findings from its first ever drilled

4
00:00:17,460 --> 00:00:19,210
sample on Mars.

5
00:00:19,210 --> 00:00:22,990
This sample was collected from the “John
Klein” drill site, which is located about

6
00:00:22,990 --> 00:00:26,869
500 meters east of where we landed about 7
months ago.

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00:00:26,869 --> 00:00:32,330
Curiosity obtained her first drill sample
and passed that sample on to her onboard analytical

8
00:00:32,330 --> 00:00:34,950
lab instruments, called CheMin and SAM.

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00:00:34,950 --> 00:00:39,160
These powerful instruments tell us about what
minerals are present in these rocks and whether

10
00:00:39,160 --> 00:00:43,520
they contain the ingredients necessary to
sustain life as we know it.

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00:00:43,520 --> 00:00:47,020
What the Curiosity team has found is incredibly

exciting.

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00:00:47,020 --> 00:00:51,989
When we combine what we have learned from
our remote sensing and contact science instruments

13
00:00:51,989 --> 00:00:57,820
with the data that's coming in from CheMin
and SAM, we get a picture of an ancient watery

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00:00:57,820 --> 00:01:01,720
environment, which would have been habitable
had life been present in it.

15
00:01:01,720 --> 00:01:05,260
As an example, the information that we're
getting from the CheMin instrument, tells

16
00:01:05,260 --> 00:01:10,030
us that the minerals that are present in this
lakebed sedimentary rock at John Klein are

17
00:01:10,030 --> 00:01:14,100
very different from just about anything we've
ever analyzed before on Mars.

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00:01:14,100 --> 00:01:19,670
And they tell us that the John Klein rock
was deposited in a fresh water environment.

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00:01:19,670 --> 00:01:24,380
This is an important contrast with other sedimentary
environments that we've visited on Mars,

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00:01:24,380 --> 00:01:28,580
like the Meridiani Planum landing site where
the Mars Exploration Rover, Opportunity, has

21
00:01:28,580 --> 00:01:30,170
been operating since 2004.

22
00:01:30,170 --> 00:01:35,600
At that site, the sedimentary rocks record
evidence of an environment that was only wet

23
00:01:35,600 --> 00:01:40,520
on a very intermittent basis, and when it
was, the waters that were there were highly

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00:01:40,520 --> 00:01:45,990
acidic, very salty, and not favorable for
the survival of organic compounds.

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00:01:45,990 --> 00:01:49,829
This is in direct contrast to the fresh water
environment we're seeing here at the John

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00:01:49,829 --> 00:01:50,869
Klein Site.

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00:01:50,869 --> 00:01:55,049
The SAM instrument is telling us that these
rocks contained all of the ingredients necessary

28
00:01:55,049 --> 00:01:56,740
for a habitable environment.

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00:01:56,740 --> 00:02:01,210
We found carbon, sulfur and oxygen, all present
and a number of other elements in states that

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00:02:01,210 --> 00:02:03,259
life could have taken advantage of.

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00:02:03,259 --> 00:02:07,259
All in all, these few tablespoons of powder
from a Martian rock have provided the Curiosity

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00:02:07,259 --> 00:02:12,040

science team with an exciting new dataset
that tells us that Gale Crater, and perhaps

33
00:02:12,040 --> 00:02:15,170
all of Mars, contained habitable environments.

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00:02:15,170 --> 00:02:19,200
This is an incredible success for the Curiosity
mission to Gale, and the science team is looking

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00:02:19,200 --> 00:02:23,980
forward to digging deeper into Mars' ancient
watery past in the weeks, months, and years

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00:02:23,980 --> 00:02:25,020
ahead.