

Mars' Bygone Atmosphere

I'm Ashwin Vasavada, the Mars Science Laboratory deputy project scientist, and this is your Curiosity rover update.

Curiosity has been continuing the analysis of the John Klein area where it drilled into rock and acquired its first sample of rock powder. After delivering a number of small portions to SAM and CheMin, Curiosity dumped the remaining material in two piles. One pile is made up of material that went through a sieve; the rest wasn't sieved. We put those piles near the original holes so that instruments on Curiosity's arm and mast, like ChemCam, could study them all together.

Curiosity's science team reported their progress in unraveling the different chemical compositions of rocks, soil, and dust. The ChemCam team fired a series of laser shots, (zap, zap, zap), right down the side of the drill hole, revealing how composition changes with depth.

In spite of all the busy work on rocks and dust, Curiosity occasionally does take time to stop and smell the atmosphere. The SAM instrument took a deep breath last week in order to look at a gas called Argon. SAM compared the amounts of light Argon, Argon-36, and a heavier form, Argon-38. SAM found that the mix of Argon at Mars today is heavier than in the Earth's atmosphere, the Sun, and in Jupiter. These measurements are evidence that Mars once had a thicker atmosphere, and much of it was lost long ago. That would help explain the evidence for rivers and lakes in the past, in spite of the cold and dry conditions today.

Through the month of April, Mars will be behind the Sun, as seen from Earth. This planetary alignment, called solar conjunction, happens every 26 months. Because the Sun can disrupt radio signals between Curiosity and Earth, we won't send any more commands to Curiosity until we know they'll be safely received. In the mean time, the operations team will listen for a daily signal from the rover letting us know that it's healthy and continuing to study the weather and space radiation all on its own. We'll plan to pick up science operations once again in early May.

This has been your Curiosity rover report. Please check back for more updates.