Curiosity on Mars: Wind and Radiation on Mars

Hi, I'm Ashwin Vasavada, the deputy project scientist for the Curiosity rover and this is your Curiosity rover update.

A lot of what this mission is about is figuring out the possibility that ancient Mars was a habitable environment. But we're also studying the present environment. Two instruments that help with that are the RAD instrument and the REMS instrument.

The RAD instrument is a radiation assessment detector. It measures the high-energy radiation coming up from the cosmic rays and the sun. That radiation is changed as it goes through Mars' atmosphere to where we detect it on the surface.

By measuring the radiation at Mars' surface Curiosity is helping prepare for human missions to Mars.

Another instrument that Curiosity has that measures the modern environment is called the rover environmental monitoring station. It's basically our weather station. We measure a lot of things including pressure, and humidity, temperature and wind.

It's been seeing little dips in pressure around noon that seemed like the signature of dust devils. Only thing is our pictures haven't turned up any dust devils.

Spirit and Opportunity saw lots of dust devils moving across the horizon. Our best guess at what's going on is that Curiosity is seeing dust devils go right over it, only thing is we're not seeing the dust devils.

So what we think is happening is the same sorts of vortexes, driven by convection are occurring on Mars at the Curiosity's site but just not picking up dust.

Another thing that REMS has been measuring is winds. Turns out we're in a pretty interesting place inside of Gale Crater. We're right at the base of a 5-kilometer high mountain to the south of us and then there's a pretty tall crater rim to the north of us and we're sitting in kind of a flat depression between the two.

The winds blow up and down the mountain as the temperature changes during the day and up and down the crater slopes and then along the depression where we're at.
So right now we're trying to figure out from the REMS data exactly which parts of that wind field we're measuring.

With Thanksgiving coming up we've been preparing a few days worth of commands to send up to the rover to keep it busy while people here take some much needed time off. The rover will be acquiring a big panorama of our surroundings while we're away.

I'm Ashwin Vasavada and this has been your Curiosity rover update.