

Building Curiosity: Testing in the Mars Yard

Hi, this is Richard Rainen and this is your Building Curiosity update. I'm in the middle of the Mars Yard at the Jet Propulsion Lab where we are testing out an engineering model of the Mars Science Laboratory Rover, more commonly known as Curiosity. The Mars yard was created to try to simulate the types of different terrains that we might encounter on the surface of Mars.

We have everything on this Mars yard from rocks that are the size of about 25 to 30 inches in height, to varying slopes and the slopes vary from about five degrees all the way up to about 20 degrees which is the driving capability of this particular vehicle.

We've put flag stone on the surface to simulate bedrock. There's also loosely compacted soil. And in addition to that we've over here created a sandpit with very non-cohesive sand much like beach sand. If you recall the MER rovers have had some difficulty when they have gotten into deep sand areas and actually have gotten stuck. So we're evaluating this rover and see how it behaves in the sand media.

We're going to be driving up the rover on both flat sand, as well as slope sand and evaluating how the vehicle behaves. How much slip, whether it gets itself stuck, things of that nature. We'll also be looking at the visual odometer markers that we have on the wheels. There are asymmetric patterns, actually holes inside the wheels of the rover that will leave an imprint on the surface of Mars. That's really important for the vehicle as it tries to determine whether or not it's gotten stuck. It's going to be looking at these imprints and verifying that it has traversed the distance that it expects to traverse. If it looks like it's not traversing even though the wheels are going that is an indication to the vehicle that it is getting stuck and it will stop and call back home.

Testing with the vehicle has gone very well to date. The vehicle has matched our computer predictions in almost every way. From this point forward it goes down into the test bed for avionics integration and further electrical check outs.

This is Richard Rainen and this has been your Building Curiosity update.