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The Planetary Society Searches for Vulcanoids
Mark Gelfand Reports

Friday, January 10, 2004. White Sands Missile Range, New Mexico.

It's dawn, and the Big Dog Planetary Rocket launch has been scrubbed. We'll have to wait another week to launch its payload – an ultraviolet spectrometer to observe the planet Mercury; and my special interest, the VULCAM, a highly sensitive CCD camera that will search between Mercury and the sun for Vulcanoids, should they even exist.

I'm immersed in the exciting, but nail-biting, nitty-gritty of real rocket science.

Just hours earlier, I had left the below-freezing temperatures and snow of my home in Massachusetts to meet up in the deserts of New Mexico with Southwest Research Institute (SwRI) Principal Investigators, Alan Stern and Dan Durda. They welcomed me into their team, patiently answering my questions and ignoring my slightly rusty physics.

We left Las Cruces close to midnight, driving for an hour on twisting, mountain roads to the White Sands Missile Range. When we arrived, I was surprised to find nearly a hundred other people who comprised the team: Navy launch people, NASA rocket specialists, SwRI electronic technicians and astronomers…what a brain trust! They worked throughout the night and then, two hours before the minute-long window of acceptable launch time, the Fine Guidance Camera began to flicker.

Alan called the entire team together. My heart sank. I, too, had noticed the anomaly. Under great stress and time pressure, Alan made the inevitable decision to stop everything, coolly avoiding "launch fever". The team shared his gut feeling that if something were wrong now, the stress of launch would likely give rise to even more problems.

The team dispersed, going to their homes in Alamogordo, Las Cruces, El Paso, Boulder. Given the complexities of taking apart and reassembling the Big Dog payload, I returned to the East coast while awaiting the status of repairs. I wondered if they would be completed in time for the last possible launch date, only a week away. They were, even after other hardware problems were discovered and corrected, further fraying the nerves of the team.

Thursday, January 15, 2004. The Mission Inn, Las Cruces, NM.

I flew back in time for the rescheduled launch. But the bad luck continued; Army maneuvers at the White Sands Missile Range bumped us yet another day. The science window was

slipping away. Alan, Dan and I holed up in our budget motel, enjoying a Cheech and Chong movie to help reset our mood. Alan's cell phone rang and the launch was back on, early next morning.

Friday, January 16, 2004. White Sands Missile Range.

Forget about any sleep when you launch before sun-up. It drizzled for hours, and the fog at the Range was so thick you couldn't see the tower lights a mere 50 yards away. But, we didn't need to see and the rains weren't too heavy. Only gusty winds aloft could call it off, and the weather cooperated.

Twenty seconds before ignition, another glitch. The bad luck of Mercury imaging seemed unbearable. A reset worked, with just minutes to spare. It was nearing 5:30 am.

We rushed outside from the control room and with a roar and a glow, the 58-foot Terrier-Black Brant rocket (perhaps the largest sounding rocket ever launched) reached 10,000 feet in 4 seconds. About 8 seconds later, the Black Brant stage carrying our payload roared to life. Go "Big Dog" go!

Hurrying back inside, taking care in the dark fog not to trip over one another, Alan and Dan went back to their controls. When the payload shutter door opened, the sensitive VULCAM camera recorded the earth rushing away. Alan slewed the planet Mercury into the crosshairs at the sectroscope's slit, and recorded about 1000 data counts. The jinx was over!

Tightly choreographed, Dan next recorded the sensitive VULCAM data directly onto his camcorder. A little wash by the moon wasn't going to stop his science. He got real data to search for Vulcanoids.

Big Dog was rushing back to earth. Alan slewed to the moon, and captured our tertiary target. An amazing success!

The resources that I put into the mission pales to the excitement, education, kindness, and sheer awe that I experienced. Thanks to The Planetary Society and the Big Dog team, I now know the true meaning of the words "rocket science."