



Use of Web 2.0 Technologies for Public Outreach on a Simulated Mars Mission

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Summary

Recent advances in social media and internet communications have revolutionized the ways people interact and disseminate information. Astronauts are already taking advantage of these tools by blogging and tweeting from space, and almost all NASA missions now have presences on the major social networking sites. One priority for future human explorers on Mars will be communicating their experiences to the people back on Earth.

During July 2009, a 6-member crew of volunteers carried out a simulated Mars mission at the Flashline Mars Arctic Research Station (FMARS). The Mars Society built the mock Mars habitat in 2000-01 to help develop key knowledge and inspire the public for human Mars exploration. It is located on Devon Island about 1600 km from the North Pole within the Arctic Circle. The structure is situated on the rim of Houghton Crater in an environment geologically and biologically analogous to Mars.



Living in a habitat, conducting EVAs wearing spacesuits, and observing communication delays with "Earth," the crew endured restrictions similar to those that will be faced by future human Mars explorers. Throughout the expedition, crewmembers posted daily blog entries, reports, photos, videos, and updates to their website and social media outlets Twitter, Facebook, YouTube, and Picasa Web Albums. During the sixteen EVAs of their field science research campaign, FMARS crewmembers collected GPS track information and took geotagged photos using GPS-enabled cameras. They combined their traverse GPS tracks with photo location information into KML/KMZ files that website visitors can view in Google Earth.



<http://www.fmars2009.org>

- twitter
- facebook
- YouTube Broadcast Yourself™
- Blogger
- Google earth
- Picasa
- skype
- zazzle

FMARS EVA Maps

The FMARS crew helped people back on "Earth" its extra-vehicular activities (EVAs) by sharing GPS tracks and geotagged photos in Google Earth. On this map, red lines depict the 128 km traversed by crewmembers during all 16 EVAs. Flights of the Maveric unmanned aerial vehicle (UAV) are shown in blue and yellow. The background image shows a view to the southwest with the Houghton Crater on the left.

Nikon donated geotagging Coolpix P6000 cameras.

Live Webcasts

Although the crew observed a strict 20-minute communication delay with "Earth" to simulate a real Mars mission, they broke this rule to conduct four successful live webcasts with student groups to provide them a glimpse of life on "Mars." These sessions included the SMU Talented & Gifted Program, NASA Kennedy Space Center Interns, NASA Digital Learning Network via Georgia Tech, and Gardendale Magnet Elementary School in Florida. The Omega Envoy rover also broadcast telemetry live from FMARS on Devon Island.



SMU Talented & Gifted Program

Selected Tweets @FMARS2009Crew

- The FMARS 2009 Mission has officially come to a close. Thanks to everyone for following us! [http://www.fmars2009.org](#)
- All of the FMARS space suits and backpack covers are now washed and dried ready for the next crew to use in 2010!
- Brian is the last remaining FMARS crew member in the Arctic. He is washing space suits and waiting for the remaining postcards to arrive.
- The final FMARS press release looks really good. We can't wait to release it and share the news of our accomplishment soon.
- The entire FMARS crew made it to Devon Island yesterday. Now we're working on final reports and a press release summarizing the mission.
- Joe, Vernon, and Stacy are in the Hub taking care of last minute maintenance like cleaning the water tank.
- The best of these flights today has just left Devon Island. FMARS 2009 is coming to a close. See you in 2010!
- FMARS is now very clean and organized. About 2/3 of the stuff here is now inventoried. See the website: [http://www.fmars2009.org](#)
- We're making up for tomorrow's long day of shutting down the Hub systems, inventory, packing, etc.
- The EVA 16 crew has made it back safely from the final FMARS 2009 EVA.
- Our last simulated Mars mission day. We have 2 EVAs today. 1st to remove the environmental and 2nd to make geology of the thermal pipes.
- It's necessary day at FMARS.
- EVA #15 is out the door for a late EVA to fly the UAV looking for hydrothermal pipes near Liberty Lake.
- Joe, Kristine, and Stacy are going on an EVA to fly the UAV around and look for specific targets.
- The FMARS crew is in the middle of a video conference with about 60 Florida middle-school students.
- Vernon got his boots, boots, and tubes all set up to make water from oxygen canisters collected on EVA 9 a few days ago.
- The EVA crew have finished the last set of three orbital electromagnetic readings and are taking photos before leaving down the equipment.
- After a long day, the weather went well when we switched to audio only with students. Thanks to all who were here!
- We're up earlier than usual preparing for our video conference, which begins in 15 min when [http://www.fmars2009.org](#)
- EVA crew is outside laying down the second coil for the time domain electromagnetic survey.
- We had a problem with EVA 16 to make more electromagnetic readings to look for ground water near FMARS.
- Live video webcast with FMARS crew on Thursday, July 23 at 10:30 AM EDT on the NASA Discovery Learning Network. [http://dln.nasa.gov](#)
- It's a busy day, but we're getting ready to go out for some more FMARS photography.
- The crew is back from a 6-hour, cross-country EVA to Gemini Hills. We found the system time to make some water from air.
- Happy Anniversary April 11 from analog Mars - we only wish we were celebrating this one from Mars itself!
- The crew worked very hard today on our first 5-person EVA and are taking a well-deserved rest today. A great day!
- Looks like a great day for weather at FMARS. Just had a supply flight with some new ATU parts and other goodies.
- Vernon and Stacy have returned from their previous EVA, testing the portable GPS navigation system.
- The FMARS crew just ate a huge meal from Chris Kramer.
- We had two successful EVAs today. A UAV flight, geology of a hydrothermal pipe, and installation of a station, station.
- We had our first EVA today. Ditas, Christy, and Stacy went to Wainio Rock to find a location for the camera station. Perfect day!
- We walked up to the wall of paraffin this morning to celebrate Brian's 16th day and the last full day of our Mars simulation.
- The FMARS crew is going over their safety protocols in today's morning meeting.
- Joe saw the UAV while Brian and Christy ran 5 miles in the Houghton Crater. It was a good day.
- The crew is ready today before going into an afternoon.
- We spent all day taking the spacesuits some much needed TLC and repairs.
- We started making some improvements to the spacesuits and got the seismic station working today.
- The FMARS crew had a long and productive day taking care of projects around the Hub. Doing ATUs, getting water, building had spill mats.
- It's a beautiful day on Devon Island. The Mars flag is now flying over the FMARS Hub!
- All six FMARS crew members are on Devon Island!
- Vernon and Brian are flying to Devon Island in less than two hours. Joe, Christy, and Stacy will go later today. Kristine tomorrow.
- Brian has made it to Houghton Bay and is busy with FMARS preparations while the rest of the crew makes their way here.



Stacy Casack, Vernon Kramer, Christy Garvin, Brian Shiro, Kristine Ferrone, Joseph Palaia