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RECREATING THE SOUNDS OF MARS AND VENUS



Analysis by Jennifer Ouellette
Tue Apr 3, 2012 12:14 PM ET
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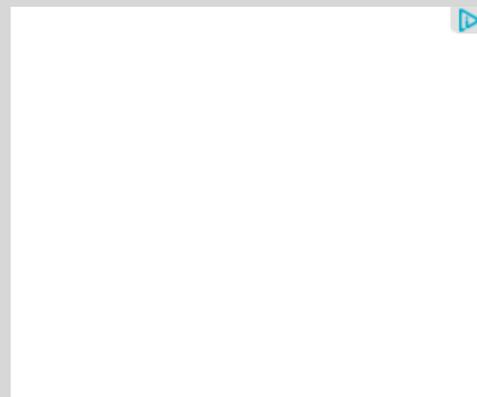


Should we ever succeed in sending astronauts to Mars or Venus, it's likely they would need to stay on the planets for several months, at least -- or possibly set up permanent shop there. But how would they fill their leisure hours? Perhaps they could start a band! But the very different atmospheres of Mars and Venus would make their voices and instruments sound very different than they would on Earth.

Until now, we could only speculate about what those sounds might be. Only a couple of the probes we have sent into to space to explore our solar system have been equipped with microphones, and while sonification of the solar corona and the rings of Saturn offer haunting glimpses of the sounds of space, we have lacked any sense of sounds likely to be heard on the surfaces of other planets.

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Enter Tim Leighton, an acoustician at the University of Southampton in England, who has ingeniously employed the physics and mathematical tools of his trade to [create the natural sounds](#) one would be likely



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to hear on the surface of Mars or Venus -- things like lightning, or whirlwinds, or even ice volcanoes found on Saturn's moon, Titan. Leighton is showcasing his latest extraterrestrial sounds for the first time at a special event held in Winchester, England, this week.

Back in 2004, Leighton made headlines when he recorded a waterfall in Hampshire and then used those sounds to model what a waterfall made of liquid methane would sound like on Titan, a project commissioned by NASA in honor of the Cassini-Huygens mission.

He calculated the relative properties of water and methane, along with Titan's unusual atmosphere, and used that input to "transpose" each bubble in the terrestrial waterfall to reflect how it would be different on Titan's surface -- and to reproduce that sound electronically.



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Leighton's latest project built on that past success using tailor-made software, which takes into account a planet's unique atmosphere, pressure and fluid dynamics. So what would happen to our astronaut rock band's sound if they performed on Venus? Apparently they'd sound like Smurfs, only with a deep bass.

"On Venus, the pitch of your voice would become much deeper," he explains. "That is because the planet's dense atmosphere means that the vocal cords vibrate more slowly through this 'gassy soup.' However, the speed of sound in the atmosphere on Venus is much faster than it is on Earth, and this tricks the way our brain interprets the size of a speaker.... When we hear a voice from Venus, we think the speaker is small, but with a deep bass voice."

The electronically constructed sounds will make their debut this week at the Astrium Planetarium at INTECH near Winchester, as part of the soundtrack to the "Flight Through the Universe" shows. Attendees will have the chance to hear what Leighton claims is "as close as we can get to the real sound of another world" -- at least until we send manned missions to Mars and Venus.

Images: Mars and Venus. Credits: NASA/ESA

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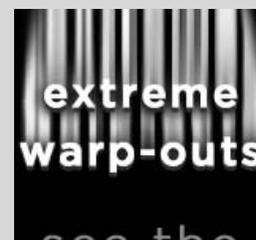


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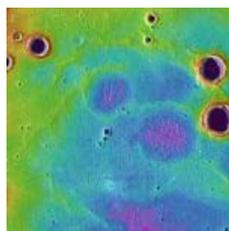
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Keith
 You've missed the point. Science is about making predictions from theory, then testing against observations, and if they disagree, amending the theory in the light of the new data. These guys aren't stupid, they know you cannot make the observations about speaking and listening on Venus - they did that to hook the listeners (I know - they came to my school and got us hooked). What will be testable are their predictions on thunder (for which you need good speakers - laptop speaker don't have enough bass), dust devils, stuff like that, which a future microphone could test. There was a lot of hard science behind those. What they made my class realise is that they have placed us right at the heart of that key bit of science we never see, between making the predictions and waiting to get the observation to test those predictions. This accounts for 90% of science but we the public never see it. Their study gets us discussing this at the point most scientists work, in the uncertain time between prediction and observation. I asked them what if a future probe discovers that their predictions weren't right, and they said in that case they learn something new about the science they didn't know when they made the theory.
 05 April 2012, 10:06:23 – Flag – Reply

Jim Essery
 This is nothing but speculation on his part. Until we get an actual recording from either of these planets it's nothing more than fantasy.
 04 April 2012, 19:49:51 – Flag – Reply

Randy Thom
 I don't buy it. I strongly suspect that if you were to record actual thunder anywhere on Earth in the open air that recording would be closer to the actual sound of thunder on Mars than the electronically synthesized sound presented here. This is mostly mumbo jumbo in my opinion. The same goes for all the sonic speculations presented in this article.
 03 April 2012, 22:32:01 – Flag – Reply

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