

# Visualising Astronomy: Invisible — Impacts and Rings

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## Key Words

Visual communication  
Astronomy visualisation

The LCROSS mission may have hit the Moon, but it stood out as an opportunity for public communication. “*Anticlimactic visually*,” as MSNBC commentator Rachel Maddow described it, the coverage from NASA consisted of “*some choppy pictures of the Moon becoming a somewhat different shade of grey*.”<sup>1</sup>

Obviously, the mission faced a tremendous challenge by not having great images from the get-go. Imagine for a moment that the predicted fifth-magnitude flash had been captured by amateurs throughout the Americas, populating Flickr and other sites with a multitude of images that complemented the host of impressive releases from major observatories. But that didn't happen. Instead, NASA had a passel of low-resolution images from the trailing spacecraft, one of which showed, in mid-infrared wavelengths, a five-pixel bright blip at the time of impact. *C'est la vie — ou bien, c'est la science*.

A member of our production team attended the press conference at NASA Ames (just down the road from San Francisco, after

all), and when she inquired about the availability of images, the official word was to look on the LCROSS website.<sup>2</sup> Yet nearly two hours after the press conference, the only images available on the site were 800-by-600 JPEGs of some of the PowerPoint slides. None of the integrated spectra that principal investigator Anthony Coloprete presented showed up on the website, although one mysteriously appeared later in the day on Emily Lakdawalla's blog for the Planetary Society.<sup>3</sup> As she said in her post, “*I'm hereby performing a public service by posting all the important graphics I could find, and I've added some caption information as far as I know it*.” Why should this job fall to an intrepid science journalist and not the NASA team that theoretically wants to promote the good work of the mission?

Adding insult to injury, several of the images (including Figure 1) were mirror reversed! (Something I admit I didn't even notice before supplying images for educators to present as part of a PowerPoint the day of the impact: I thought they were simply rotated 180° and I “fixed” them inappropriately.) And the money shot? The mid-

infrared image that showed several bright pixels at the time of impact? It was released with enlargements of itself occluding the full image, so it wasn't even possible to reconstruct the original data (again, see Figure 1).

With the highly active Museum Alliance, NASA seems to have learned to support the informal education community, but perhaps not everyone has gotten the message. I'm truly dismayed by the slipshod approach to a project with as much potential impact (sorry, couldn't resist) as the LCROSS mission. Science centres and museums can play a small role in helping to mitigate such negative press, but not without the appropriate tools — including, especially, imagery — to do so.

Earlier in the same week as the LCROSS debacle (note that I say that from a public relations perspective, not a science perspective), a much more thorough press release from the Spitzer Space Telescope team announced the discovery of a gargantuan ring around Saturn<sup>4</sup>. Seen only in infrared, the ring was described by many

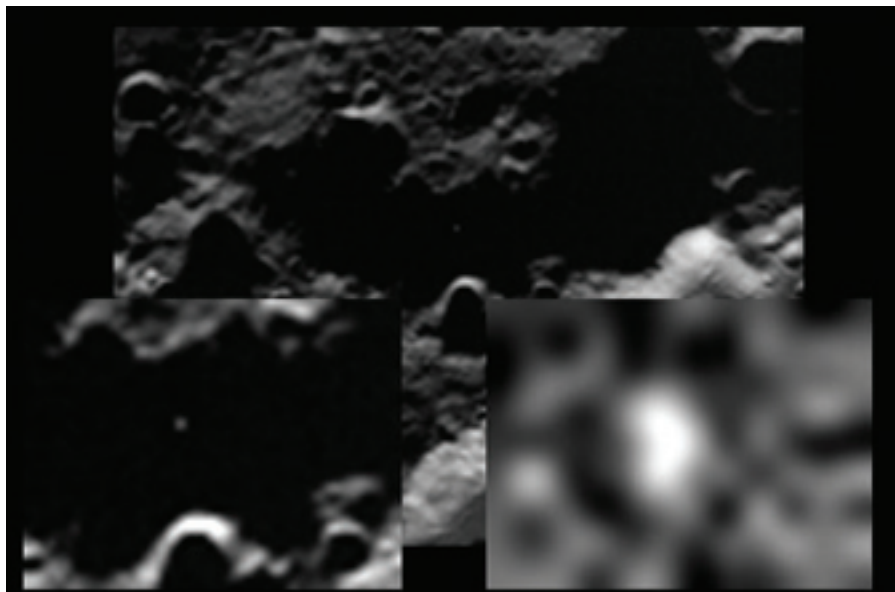


Figure 1. The mid-infrared flash detection images as released by the LCROSS team — mirror reversed and with enlargements overlaid into a single image that prevents users from showing the original image at full resolution. Credit: NASA/LCROSS

news outlets as “invisible”, a true statement strictly speaking, but my anecdotal experience suggests that this word can cause confusion.

In the case of the Saturn announcement, a colleague of mine from the Steinhart Aquarium (no intellectual slouch) found himself engaged by a radio story about the discovery but puzzled when the word “invisible” came up. This got me to thinking... Biologists deal with invisible things all the time, although typically in reference to microscopic entities too small for us to see — differently invisible, if you will. And yet, of course, almost all astronomical objects are similarly invisible “to the unaided eye”, as planetarians fondly say. So there’s something about the word that causes people to stumble.

One can imagine a continuum of invisibility: things made visible by magnification (e.g., microbes or the moons of Jupiter), things made visible by amplification (e.g., zodiacal light or the arms of a spiral galaxy), things made visible by viewing other wavelengths of light (e.g., Saturn’s newly discovered ring or the cosmic microwave background), and things inherently unseeable (e.g., magnetic fields and the curvature of space-time). Perhaps the word “invisible” most comfortably applies to this last category. Of course, the LCROSS situation suggests yet another point on the continuum: an event as opposed to an object, invisible in the sense of unwitnessed or not captured by any recording mechanism.

So, I pose this as an anecdotal observation. Added verbiage seems like the only obvious solution, so we may end up using phrases such as “invisible to the human

eye” or maybe even simply “not visible.” (I get the impression that people interpret “not visible” differently from “invisible”: the former suggests a class of objects that we cannot see whereas the latter suggests a class of objects that cannot be seen. Does that make any sense? I pity the non-native speakers of English reading this...) The Spitzer press release avoids use of the word “invisible” altogether, actually, but that’s only the first link in the chain.

By the bye, as far as the graphics for the Saturn announcement go, I preferred Figure 2 to the faux infrared view<sup>5</sup> more commonly reproduced. The images of Phoebe and Iapetus are nearly to the same scale, even if Saturn is understandably out of whack. But I like seeing wee Saturn in the middle of the gargantuan ring structure—and I appreciate seeing where Phoebe and Iapetus lie in relation to it.

Too bad it’s invisible.

## Notes

<sup>1</sup> <http://www.msnbc.msn.com/id/22425001/vp/33250209>

<sup>2</sup> <http://www.nasa.gov/lcross>

<sup>3</sup> <http://planetary.org/blog/article/00002159/>

<sup>4</sup> <http://www.spitzer.caltech.edu/Media/releases/ssc2009-19/release.shtml>

<sup>5</sup> <http://www.spitzer.caltech.edu/Media/releases/ssc2009-19/ssc2009-19c.shtml>

## Biography

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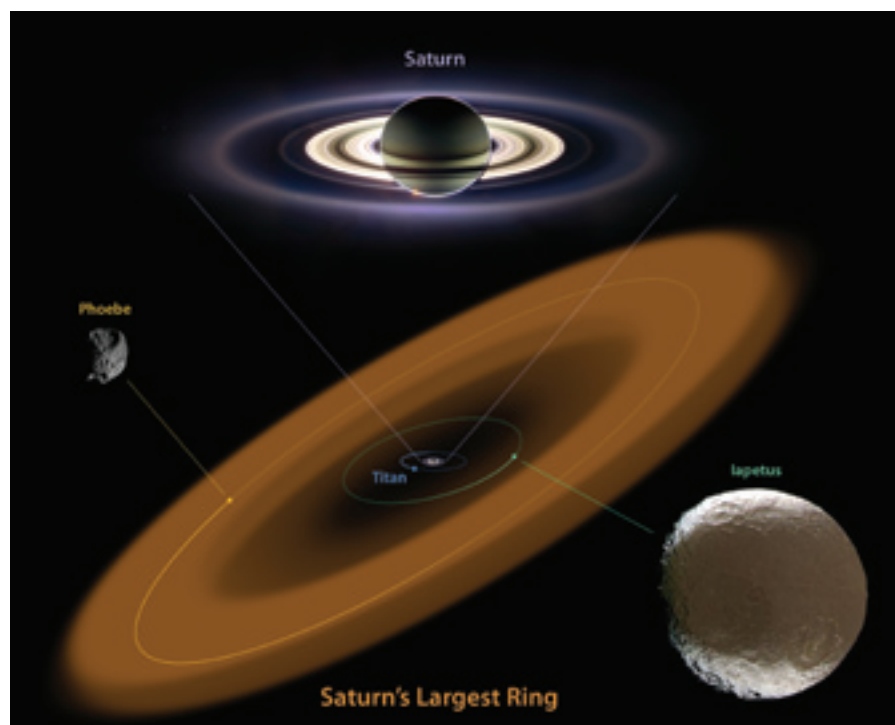


Figure 2. A graphic from the Spitzer Space Telescope team announcing the discovery of Saturn’s largest ring, seen only in infrared. Credit: NASA/JPL/Spitzer