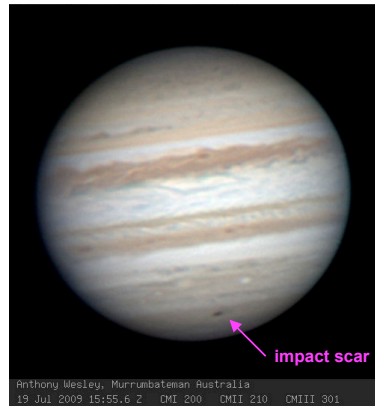


Another Impact on Jupiter

- Australian amateur astronomer Anthony Wesley discovered a large new dark spot near Jupiter's south pole
- Hours later, U.S. astronomers alerted by Wesley imaged Jupiter at other wavelengths
- The spot appears to be debris in Jupiter's atmosphere leftover from a comet or asteroid impact



Visible wavelength image of a dark impact scar near Jupiter's south pole. Image from Anthony Wesley, Murrumbateman Australia.

Discoveries in Planetary Science

<http://dps.aas.org/education/dpsdisc/>

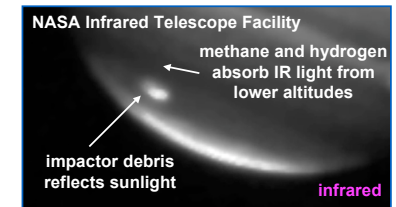
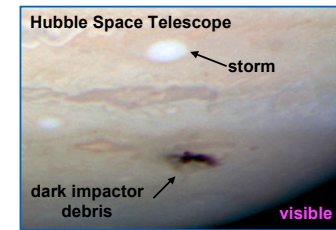
Information at Different Wavelengths

- Images at different wavelengths provide useful information:

Visible - The impactor debris is *dark* relative to Jupiter's cloud tops

Infrared - Impactor debris reflects sunlight at longer IR wavelengths. Nearby clouds appear dark because they lie at lower altitudes, and methane and hydrogen just above them absorb IR radiation.

Other IR images show that the atmosphere is warmed by the impact, and that ammonia is present in the atmosphere



Visible and infrared (2.23 microns) images of the impact site taken 4 days after discovery, and 20 hours after discovery, respectively

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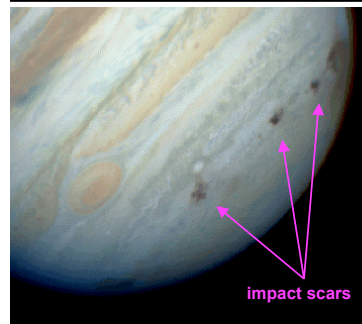
The Big Picture

- Impact events allow scientists to study the impact process, the atmospheric material excavated by the impact, and upper atmospheric motions
- A similar (but larger) impact event was observed at Jupiter 15 years earlier. At the time, it was thought to be a rare event.

Impacts on Jupiter are more common than previously thought

OR

Improved monitoring of Jupiter, particularly at infrared wavelengths, can now capture smaller impact events



Images of Comet Shoemaker-Levy 9 after Jupiter's gravity broke it into pieces, and the resulting impact scars in July 1994.

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For More Information...

Web Resources and Press Releases

- The Planetary Society - 09/13/09 - "The Jupiter Impact"
<http://www.planetary.org/blog/article/00002049/>
- University of Central Florida - 'Jupiter Impact'
<http://planets.ucf.edu/resources/jupiter-impact>
- Goddard Space Flight Center - 'What Hit Jupiter?'
<http://www.nasa.gov/centers/goddard/multimedia/largest/impact2009.html>

Images

- Slide 1 image from Anthony Wesley, Murrumbateman Australia
<http://jupiter.samba.org/>
- Slide 2 HST visible image from NASA/ESA/H. Hammel/Jupiter Impact Team
<http://hubblesite.org/newscenter/archive/releases/2009/23/>
- Slide 2 IRTF infrared image from NASA/JPL/IRTF
<http://www.jpl.nasa.gov/news/news.cfm?release=2009-112>
- Slide 3 SL9 fragments infrared image from H.Weaver/T.Smith/NASA
<http://www2.jpl.nasa.gov/si9/image2.html>
- Slide 3 SL9 impacts image from NASA/HST
<http://apod.nasa.gov/apod/ap950714.html>

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