



## News Release

### CONTACT:

Barbara Whitney, *Space Science Institute*, (608) 698-0798

James Harold, *Space Science Institute*, (303) 666-7472

SSI Media, Dan Ray, (608) 852-6880

Daniel.Ray@colorado.edu

[www.spacescience.org](http://www.spacescience.org)

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### GLIMPSE: RESEARCHERS LOOK DEEPER AND MORE CLEARLY INTO OUR GALAXY THAN EVER BEFORE

Stretching for nearly 100,000 light years and holding at least 200 million stars, the Milky Way is all around us. But, in some ways, less is known about it than many of our distant galactic neighbors.

The Earth is situated about halfway from the center of the enormous, spiraling Milky Way galaxy. Despite being placed near the heart of this massive collection of dust, stars and matter, seeing all of these features has historically been complicated by the one thing that should make it simple: our closeness.

With so much right around us, astronomers, until recently, had never been able to clearly see all the way through to the other side of the Milky Way.

Researchers with the Space Science Institute, the University of Wisconsin and Boston University have for the first time overcome this hurdle with GLIMPSE – the Galactic Legacy Infrared Midplane Survey Extraordinaire. The GLIMPSE project, using the Spitzer Space Telescope, has allowed researchers to peer deep into our galaxy, all the way to the other side, some 60,000 light years away. A full-resolution picture of this data will be unveiled on June 3 at the 212th American Astronomical Society Meeting in St. Louis. The data is a combination of GLIMPSE images and data collected during the MIPS GAL survey – which also used the Spitzer Space Telescope. The general public can view all of this data at [www.alienearts.org/glimpse/](http://www.alienearts.org/glimpse/).

“Previous surveys didn’t have the sensitivity or resolution to do this,” said Barbara Whitney, senior research scientist with the Space Science Institute. “This was a big advance.”

One of the advantages of GLIMPSE is that infrared wavelengths of light were captured by the telescope, rather than visible light. This type of light has a wavelength too long to be seen with the naked eye, but it is still all around us.

Virtually everything that gives-off heat also releases light in the infrared – humans, planets, stars and gas clouds all release infrared light. Its longer wavelength also keeps it

from being obscured by other objects. This means that researchers can see through nearby stars to the very edge of our galaxy.

Other surveys have looked into the galaxy for radio waves. Although this allowed them to see all of the way through, many objects could not be seen – such as stars.

“At these wavelengths we can see all the way through the galaxy for the first time,” Whitney said. “It’s really spectacular.”

Evolving imaging technology has also played a major role in making the results of GLIMPSE so breathtaking, she said.

“It’s a lot like how cameras are getting much better resolution than just a few years ago,” Whitney said. “But this is even better than that.”

GLIMPSE has 100 times the sensitivity and over 10 times the resolution of previous surveys of our galaxy’s interior. During the survey the telescope was pointed in 111,000 different directions. And it took a picture in four different wavelengths of light in each of these directions. The result has been the most detailed and complete look at the Milky Way in human history.

The survey peered from the position of our sun inward, toward the center of the galaxy. Ultimately, about 70-percent of the galaxy and 100 million stars were captured in the nearly half-million pictures taken.

“The full-resolution image will be 180 meters long,” Whitney said. “We can now see forming stars up close, and actually count them up.”

With this vast leap in resolution, quality and scope, many characteristics of the galaxy can now be more accurately studied and explained, she said.

Not only will this tremendous amount of data be shared with the American Astronomical Society, but the survey’s images are also available for the public to view online.

“You can look at any part of the image and zoom-in for a better look,” said James Harold, director of information systems and technology with the Space Science Institute.

The quality and scope of GLIMPSE are not the only things that have advanced since the last infrared survey of our galaxy, Harold said.

“A couple of decades ago there would have been no way to get this to the public,” he said. “I think it’s very exciting that the public can have access to data of this caliber.”

Anyone with a web browser can examine virtually any portion of the galaxy that interests them at [www.alienearths.org/glimpse/](http://www.alienearths.org/glimpse/). The full-sized, 180-meter-long image of the data

will formally be unveiled on Tues. June 3, at the 212th meeting of the American Astronomical Society in St. Louis.

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The Space Science Institute is a nonprofit organization that carries out world-class research in space and Earth science, together with innovative science education programs that inspire and deepen the public's understanding of planet Earth and its place in the grander Universe. The institute's integrated research and education programs span planetary science, space physics, astrophysics, astrobiology, and Earth science.

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*Space Science Institute*  
*4750 Walnut Street*  
*Suite 205*  
*Boulder, CO 80301*  
*(720) 974-5888*  
[www.space-science.org](http://www.space-science.org)