

At the Center of the Galaxy!



Ensign Johnson suddenly comes to the alarming realization that he is the only red-shirt in the landing party.

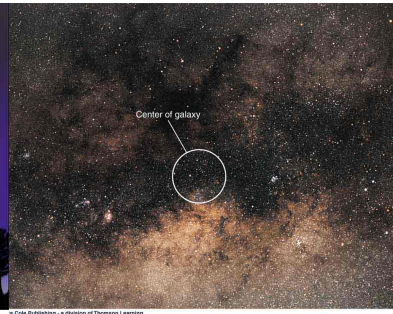
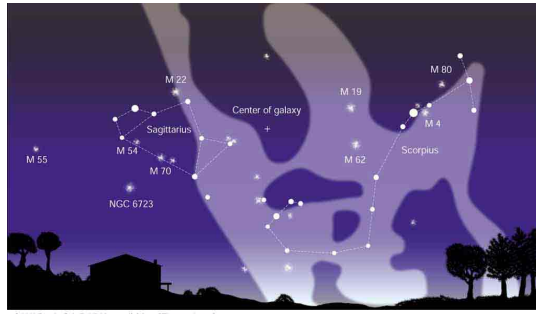


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Galaxy Centers are Mysterious and Wild

Below is a picture of where the Galaxy center is with respect to the horizon (for our latitude of 40° North). Note the constellations of Sagittarius and Scorpius.

This visible photograph shows the Galactic center. In this photo it would appear there is not much going on. WRONG. The dust and gas block our view!



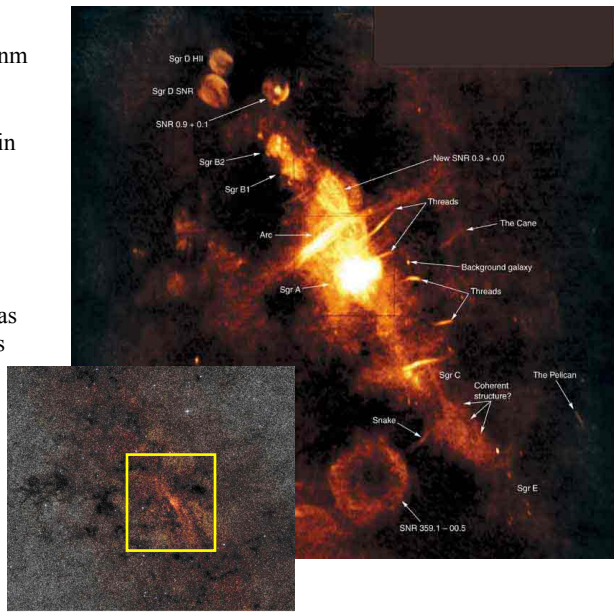
Dust Emission!

Dust radiates at about 4000 nm (visible is 400-700 nm).

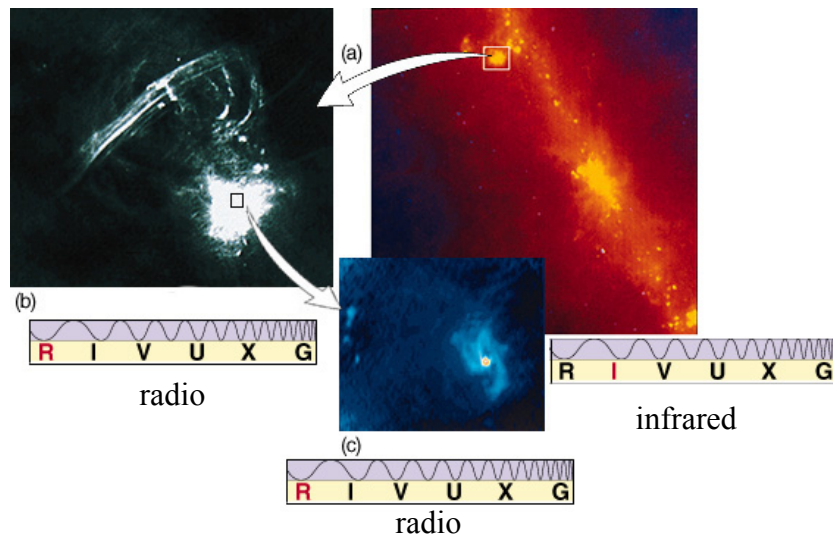
The Galaxy center is bright in this "dust shine".

Most features are supernova remnants.

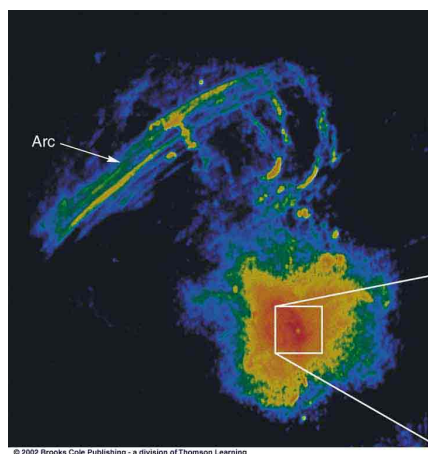
The channeled look of the gas suggests that magnetic fields are at work.



Zooming in on a Radio Image of Sgr A

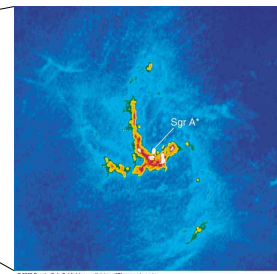


Sgr A is the most central object in our Galaxy.

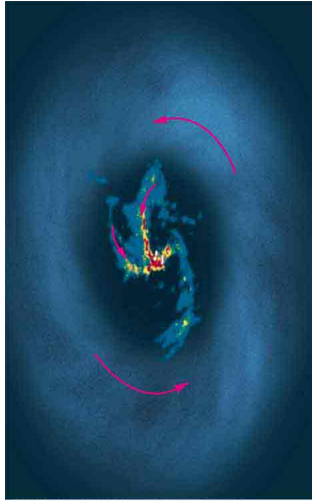


This is a spiral swirl of gas around an intense radio source. The arms of the swirl are streaming into the center.

It is thought that this is where a 3 million solar mass black hole lives.



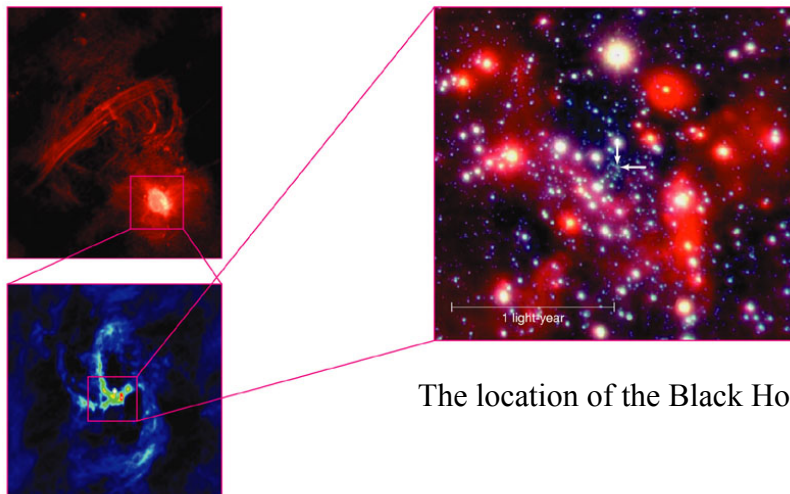
Evaluating the Black Hole Hypothesis



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- The center is less than 4 AU in diameter.
- The emitted light suggests that there are many stars in the disk. These stars are so packed that they are 1000 AU apart (whereas stars near the sun are 330,000 AU apart).
- Though material around Sgr A is moving fast, the center is not moving, suggesting that it is very massive.
- Stars in this disk are orbiting about every 2.8 years (until they are sucked in to the black hole).

Suggests a Black Hole in Center



The location of the Black Hole

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