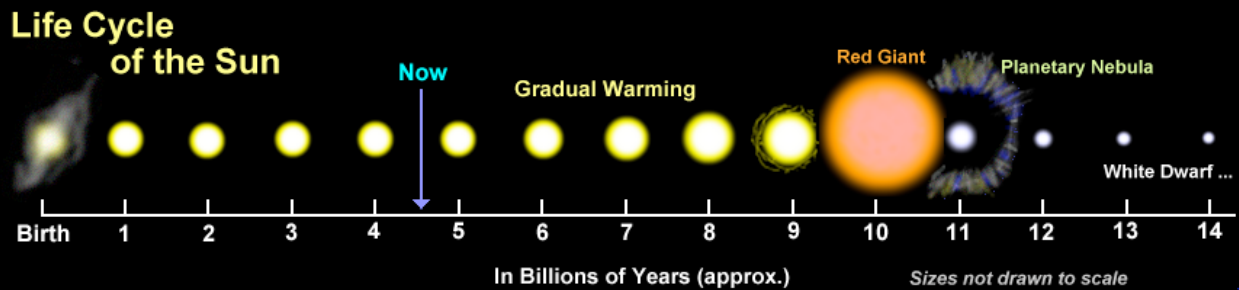


Life of the Sun



Presentation link

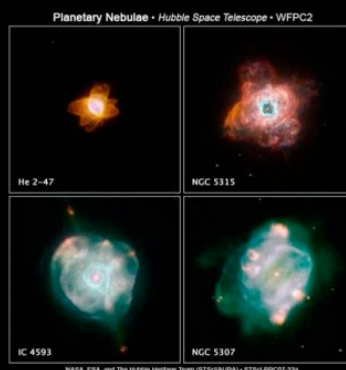
<http://janus.astro.umd.edu/astro/stars/SunsLife.html>

The Life of the Sun

The sun is said to stop dying in 5 billion years. As it grows old it will run out of helium and hydrogen. This will make the outer layers expand and cool, and the sun will become less bright. This will eventually become a red giant star. After this phase the helium atoms in the core of the sun will fuse together. This forms carbon atoms that give off energy. The core will then become stable because the carbon atoms can not compress any more. The outer layers will go out into space forming the planetary nebula. This has nothing to do with the planets. After this the core will be exposed. Most of the mass will be in the planetary nebula and the core will cool and shrink. Soon the sun will be only a thousand miles in diameter. The star is now a white dwarf, a stable star with no nuclear fuel. Its heat will eventually die out in over a billion years and it will become dark and cold.

How it Effects the Other Planets

A couple of possibilities exist. Prior to forming a planetary nebula, a low-mass star forms a red giant. Planets close to the star are engulfed in the expanding star, spiral inside it, and are destroyed. In our own solar system, Mercury and Venus are doomed. The orbits of planets farther out (Jupiter, Saturn, Uranus, Neptune, and Pluto) will also expand. However, they will not expand by much (less than double in size), so they will remain in orbit about the Sun forever, even after it has collapsed to form a white dwarf.



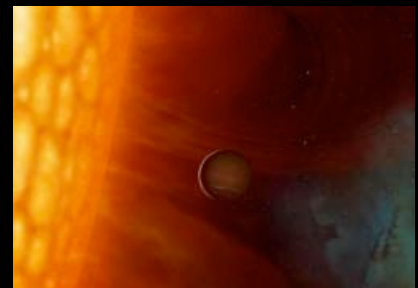
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Effecting the Earth

The earth might escape destruction because as the sun grows into a red giant star the earths orbit will widen. But Earth will also induce a "tidal bulge" on the Sun's surface, with its own gravitational pull slowing it down enough to drag it to a fiery demise. They estimate that no one will be on earth at that point in time anyway



When the Sun expands into a red giant several billion years from now, the Earth will be dragged into its atmosphere to a fiery demise, a new study argues

(Illustration: Mark Garlick/HELAS)



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