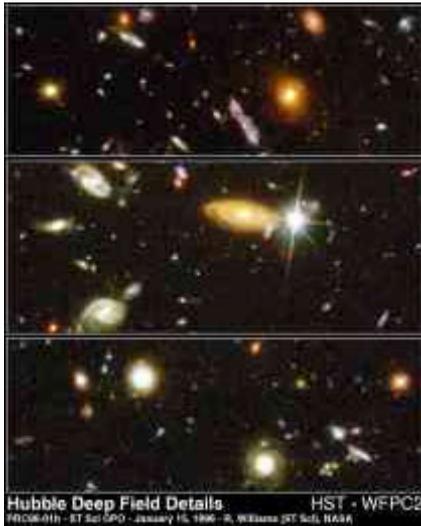


# Stars

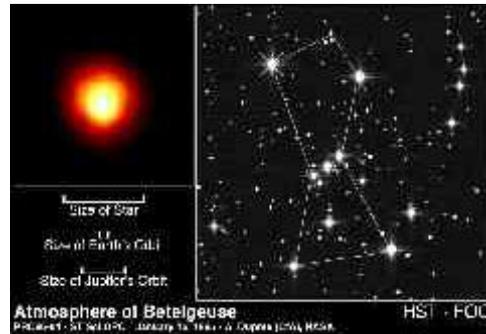


Hubble Deep Field Details HST - WFPC2  
FFC06-01h - ST ScI OPO - January 16, 1996 - R, Williams ST ScI, NASA

Stars are gigantic, glowing balls of gas, scattered throughout space. They burn for anything from a few million to tens of billions of years. The nearest star (apart from the Sun), is over 40 trillion km (25 trillion miles) away. They are all so distant that we can see stars only as pinpoints of light in the night sky. Stars glow because the enormous pressure deep inside generates nuclear fusion reactions in which hydrogen atoms are fused together, releasing huge quantities of energy.

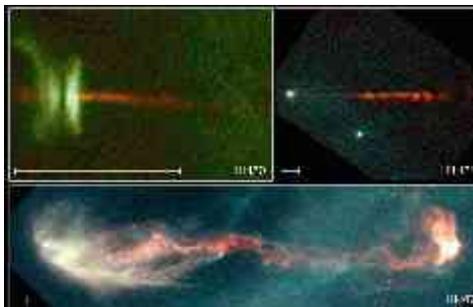
The surface temperature of the coolest stars is below 3500°C, that of the hottest brightest stars is over 40000°C. The colour of medium-sized stars varies along a band on a graph called the main sequence, from hot and bright blue-white stars to cool and dim red stars.

It is hard to know how many stars there are in the universe, for the vast majority of them are much too far away to see. But astronomers guess there are about 200 billion billion! With the naked eye, you will only be



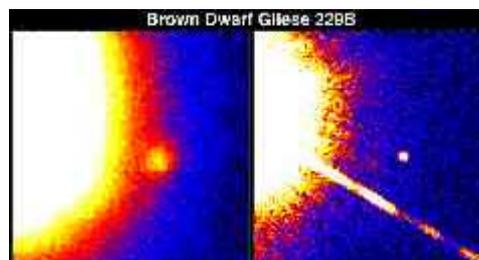
Atmosphere of Betelgeuse HST - FOC  
Prepared by ST ScI OPO - January 19, 1996 - R. Camporesi (ST ScI), NASA

able to see about 2000 stars clearly.



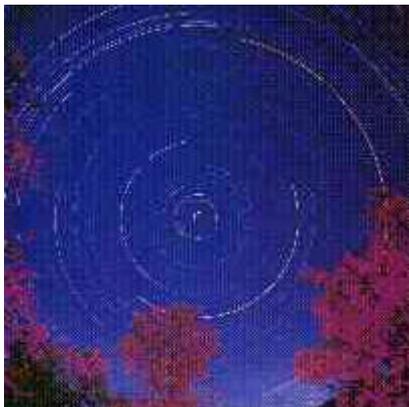
Some of the biggest stars are supergiants. Antares is 700 times as big as the Sun. There may be a star in the Epsilon system in the constellation of Auriga that is 3 billion km (1 860 million miles) across - 4000 times as big as the Sun!

The light from variable stars flares up and down. Cepheids are big young stars that pulsate over a few days or weeks, RR Lyrae variables are old yellow stars that vary over a few hours.



Brown Dwarf Gilese 229B

Stars twinkle because the Earth's atmosphere is never still, and starlight twinkles as the air wavers.



Stars start off life as a large ball of gas and dust, but depending on their size they may end up in very different forms. Some possible phases of a star's life are: Red Giant, White Dwarf, Brown Dwarf, Red Supergiant, Neutron Star, Supernova and a Black Hole.