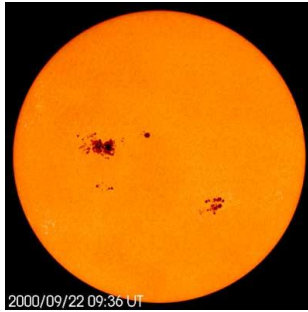
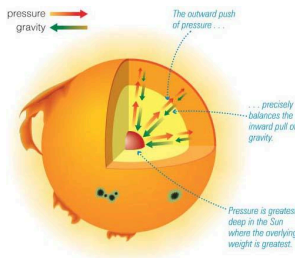


## The Sun

a) The sun has many things that occur on it that people don't know about. There are some patterns and solar activities, such as sunspot cycle, solar flares, and solar wind. Sunspots are phenomena on the photosphere of the sun, they appear visible as dark spots. They expand and contrast as they move across the surface of the sun and can be up to 49,710 miles in diameter which is big enough to see from earth without a telescope. They are caused by magnetic activity which doesn't allow convection which forms areas of reduced surface temperatures. A solar flare is a large explosion in the sun's atmosphere. It can affect all layers of the solar atmosphere, it heats plasma to millions of kelvins x-rays and UV emitted by the flares can affect Earth's ionosphere and can disrupt radio communications. Solar wind is charged particles ejected from the atmosphere of the sun. It is mostly made up of protons and electrons. This can create a vast bubble that can surround the solar system. Also it is so powerful it can knock out power grids on earth. (1,2,3)



b) Aurora is a light displayed in the sky, particularly in polar regions caused by charged particles directed toward the Earth's atmosphere. It is only seen at night and only occurs in the ionosphere. They are created by solar wind that blows the charged particles to Earth's atmosphere. One problem that can occur with satellite systems is sun outage, which blocks out radio signals from satellites, or it will become degraded. (4)



c) Ancient astronomers thought that the sun was a ball of fire but new studies have shown that nuclear fusion is occurring in the middle of stars that allows them to put out so much energy. In the core of the sun there is nuclear fusion and it causes it to have enormous temperatures up to 15 kelvins. Also it is one of the most important things that makes life possible on earth, creating newer and heavier atoms by fusing smaller nuclei together. It creates new and heavier atoms by fusing smaller nuclei together. (5)

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