Ask an Astronomer

Question: "Can you feel a solar wind?"
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Our star, the Sun, is the source of light and heat for us here on Earth, but it has other, more subtle, effects as well. The Sun produces a kind of wind, one that is very different from the breezes that we're all familiar with.

Unlike winds on Earth, which are circulating air currents, the solar wind starts in the outer layers of the Sun. There the temperatures are so high that the hydrogen gas atoms are broken up into electrons and protons. These charged particles are churned up by the Sun's strong magnetic field and are flung out through the solar system, forming this wind.

Occasional outbursts on the surface of the Sun, like this solar flare, greatly increase the strength of the solar wind.

So can we ever feel this wind? Well, down here it turns out we're very well protected.

Long before the solar wind ever reaches the ground, it's deflected by the Earth's magnetic field. Some of the charged solar wind particles can make it though near the poles but are stopped by the atmosphere, producing beautiful nighttime displays of aurorae.

Spacecraft that operate beyond the Earth's magnetic field have no such protection, and their sensitive electronics can be disrupted by the solar wind. Therefore, these spacecraft must be built with durable electronics that can survive long-term exposure to this radiation.

So, even though we can't feel the solar wind, we do experience it indirectly through its affect on the atmosphere and our artificial eyes and ears in deep space.

For "Ask an Astronomer," I'm Dr. Robert Hurt of the SIRTF Science Center.