

The Sun releases a constant stream of particles and magnetic fields called the solar wind. This solar wind slams worlds across the solar system with particles and radiation – which can stream all the way to planetary surfaces unless thwarted by an atmosphere, magnetic field, or both. Here's how these solar particles interact with a few select planets and other celestial bodies.

COMET ●

Comets have a sort of atmosphere, called a coma. It's created as the comet's frozen ices turn to gas by the Sun's heat. Some of those gas particles become charged in the intense sunlight. Once that happens, they move in concert with the magnetized solar wind, forming what we see as the comet's trailing ion tail.

ASTEROID ●

An asteroid has no inherent protection around it, so the solar wind can easily batter its surface. The incoming particles sometimes kick material off into space, changing the fundamental chemistry of what's left on the ground.

MARS ●

When the solar wind crashes into Mars' atmosphere, all that energy creates a layer of electrified particles called an ionopause, which, in turn, also helps shield the surface from solar wind.

JUPITER ●

Jupiter's magnetic field is similar to Earth's, but much, much larger. This magnetic field creates a bubble that directs the solar wind to stream around the planet.

THE MOON ●

Because its atmosphere is so thin, the solar wind hits the Moon's surface directly, with just a little bit of deflection by small bubbles of magnetic field scattered across the surface. This bombardment deposits ingredients that could make water.

EARTH ●

The solar wind is mostly deflected by our magnetic field, but sometimes, when intense, some of it can leak through. Once in near-Earth space, the particles can trigger aurora near the poles.

