A historical timeline of solar science discoveries—leading to the newest spacecraft in NASA's heliophysics fleet.

A New Heating Mechanism
Swedish astronomer Bengt Edlen detects highly ionized iron in the corona, indicating a temperature of 1.8 million degrees Fahrenheit.

The Corona as the Sun's Atmosphere
English astronomer Francis Baily observes a total solar eclipse and suggests that the hazy 'corona' outlining the Sun is its atmosphere.

Comet Tails in the Wind
Johannes Kepler observes comet tails and hypothesizes that they are blown by pressure from sunlight—what we now call the solar wind.

The Sun's Poles
Using observations from the joint ESA/NASA Solar and Heliospheric Observatory, Neil R. Sheeley Jr. and colleagues identify puffs of slow solar wind emanating from helmet streamers—bright areas of the corona that form magnetic loops and expand outward in space.

Nanoflares May Heat the Corona
Eugene Parker proposes that frequent, small eruptions on the Sun—known as nanoflares—may heat the corona to extreme temperatures. The nanoflare hypothesis contrasts with the wave theory, in which heating is caused by the disruption of Alfven waves.

Fast Wind from Coronal Holes
Images from Skylab, the U.S.'s first manned space station, identify that the fast solar wind is emitted from coronal holes—comparatively cool regions of the corona where the Sun's magnetic field lines open out into space.

The Slow and Fast Solar Wind
NASA's Mariner 2 spacecraft observes the solar wind, detecting two distinct streams: a slow stream travelling at approximately 215 miles per second, and a fast stream at 430 miles per second.

Slow Solar Wind and Helmet Streamers
Swedish physicist Hannes Alfvén proposes the existence of a new kind of wave forming in electrically conducting fluids. So-called Alfvén waves revealed a previously overlooked mechanism for heat and energy to be transferred on the Sun.

The First Theory of the Solar Wind
Building on Kepler's hypothesis from 400 years before, Cuno Hoffmeister (and later Ludwig Biermann) proposes that the Sun emits a steady stream of charged particles that push the ions in the comet tails always away from the Sun.

A Solar Wind Made of Particles
Eugene Parker connects the hot corona with the solar wind in a rigorous mathematical theory. According to the theory, heat pressure from the million-degree corona pushes the ions in the comet tails always away from the Sun.

A New Heating Mechanism
An innovative plasma physics model proposes the existence of a solar wind that can heat the corona, enabling a temperature of 1.8 million degrees Fahrenheit. This model suggests that the Sun's corona is much hotter than the Sun's surface.

The Coronal Heating Problem
Swedish astronomer Bengt Edlen detects highly ionized iron in the corona, indicating a temperature of 1.8 million degrees Fahrenheit. Comets and the Sun's corona are much hotter than the Sun's surface.

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