

Offered Title: The Golden Apples of the Sun

I borrow a title from one of my favorite authors, Ray Bradbury, for this week's topic – The Parker Solar Probe.

In Ray Bradbury's short story from 1953, a manned rocket travels close to the Sun and gathers some of the Sun's essence. Based on the story's text the astronauts appear to be traveling in a giant refrigerator, keeping them cool. They grab some of the Sun in a bucket, close the bucket lid, stow it on board, and head "north", away from the Sun. To Earth I presume.

That was their target, and by 1953 standards it was an achievement way beyond technology of the day. However, they would have needed to penetrate to the core to capture the Sun's essence. Outside the core are swarming, seething rivers and tsunamis of photons and plasma. That would certainly be interesting and valuable to collect, but to me it's not the golden apple. Grabbing some fusing hydrogen and helium, now that's the ticket. So what if there is no technology known able to achieve this. Some day.

Back to reality, the Parker Solar Probe (PSP) was successfully launched on August 12th and is making its way to the Sun. What's so special about PSP? It's going to do what Ray Bradbury's spaceship did, except it won't be manned or use a bucket. It will use instruments to measure what's going on 3.8 million miles above the Sun's surface. By contrast, Mercury gets 29 million miles from the Sun. It will be traveling in the Sun's atmosphere, the lower corona, with temperatures of 2500 degrees F and intense radiation. PSP will get closer to the Sun than any other probe so far.

Unlike the giant refrigerator in Bradbury's story, PSP's instruments will be protected by a 4.5-inch-thick shield made of carbon-carbon composite. This shield will face the Sun continuously. All the instruments on board are located well back and in the central portion of the shield's shadow. This placement also protects them from radiation. Without the shield...toast in 30 seconds or so.

With so many other probes already sent to and studying the Sun, this seems like overkill, just collecting data to have more data. Well, you can't have too much data, but that's not the reason for sending PSP. As we learn more about our closest star's behavior we understand more about risk to life on earth. Our Sun is a life provider, but it can also be disruptive. As we understand and tally the risk to our civilization posed by a severe Solar Flare, or Coronal Mass Ejection, protecting our satellites and electrical grid becomes vitally important.

PSP's data about magnetic field dynamics, energy flow, solar wind, and mechanisms of transport for energetic particles will add to our ability to predict significant solar events...and prepare.

What's in the Sky?

August 31 & September 1; Dusk; Southwest: Venus and bright star Spica are around a degree from each other and make a pretty pair.