

light years

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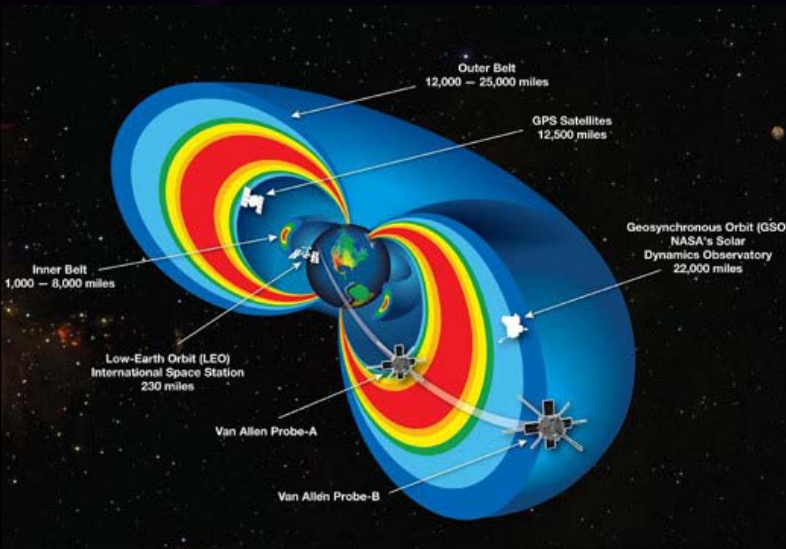
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This illustration shows the Van Allen radiation belts and the positions of the twin Van Allen probes.

March 9th, 2013

07:00 AM ET

Studying Earth's protective radiation belts

Two regions of radiation encircle the Earth. They're called the Van Allen belts, and they are a pair of dynamic regions of trapped radiation, separated by a void and held in place by the Earth's magnetic field. They protect the planet from the radiation of space and the effects of solar weather.

We've known about these two belts since James Van Allen, the eponymous astronomer, discovered them in 1958. It's important that we know as much as we can about the Van Allen belts and how they change, because most of Earth's satellites live in the region.

Two NASA probes detected a third radiation belt, which disappeared a few weeks later. It appears that solar weather caused its formation, and disappearance.

The **Van Allen Probes** are the second mission in the Living With a Star program that also includes the **Solar Dynamics Observatory** (and its mascot, our **favorite rubber chicken**). Launched in August 2012, the twin spacecraft are built to withstand the harsh conditions of the belts they're studying, and have already started to return interesting data.

The discovery of the third Van Allen belt was recently revealed in a NASA press conference. The probes observed it almost immediately after they were turned on to collect data. The observation was so unexpected that the science team made sure to rule out an instrument malfunction. Just as startling as the discovery of a third belt was the observation of its disappearance four weeks later, in the wake of solar activity.

Dan Baker, director of the Laboratory for Atmospheric and Space Physics at the University of Colorado, Boulder, said at the conference that although a third ring has been reported in the past, he believes that this event, referred to as a

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"storage ring" is "fundamentally different" from previous events.

His colleague Mona Kessel, a Van Allen Probes program scientist, pointed out that we still don't completely understand what's happening in the Van Allen belts: "We're trying to piece this all together right now. stay tuned – we will know more."

But, rest assured, though a whole host of satellites reside in the Van Allen belts, many are capable of being shut down or moved around to protect them from a damaging solar storm headed their way. The astronauts aboard the international space station are also safe: ISS flies below the inner radiation belt.

Post by: **CNN's Sophia Dengo**
Filed under: **Discoveries • In Space • the Sun**

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People in Orbit

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Hardware in Orbit

- March 1st** | SpaceX Falcon 9/Dragon flight to ISS on CRS-2 cargo supply mission
- March 15th** | Soyuz TMA-06M flight returning Expedition 34 crew from ISS to Earth (Kazakhstan)
- March 28th** | Soyuz TMA-08M flight launching
- March** | Orbital Sciences test launch of their first

Truth

My uncle was in the Air Force at time of Apollo missions. He said it was a coverup and money was actually used to