

Sun-Earth Day Mission Highlights:

Introduction to the 2011 Theme!

[Opening Sound Clip]

[Troy Cline]

Although our technologies have changed over time, our goal **to understand the Sun**...remains the same.

[Sound clip]

My name is Troy Cline and welcome to Sun-Earth Day 2011: Ancient Mysteries-Future Discoveries. This new theme opens the door to a variety of topics ranging from ancient solar sites and discoveries to current and future discoveries. Many of these new discoveries involve NASA missions that, when combined, tell an even greater story of our dynamic solar environment. So...throughout the 2011 we'll share information from the Sun-Earth Day Technology Though Time series as well as numerous interviews with people who are directly involved with current and future NASA missions.

So let's start this year's podcast lineup by interviewing a scientist who is directly involved with a mission called the Magnetospheric Multiscale Mission that's going to launch in 2014. MMS, as it's called, has one main task: understand a phenomenon called magnetic reconnection that causes huge bursts of energy in the magnetic fields surrounding Earth. Here to tell us more is Tom Moore; a heliophysicist at NASA's Goddard Space Flight Center who is the project scientist for MMS.

[Music Transition]

[Tom Moore]

The MMS Mission is designed to measure the i) speed and ii) variability of a key process known as magnetic reconnection, and to relate them to:

- * boundary conditions imposed by the solar wind
- * internal conditions within the so-called electron diffusion region (EDR).

The EDR is small and fast moving, like trying to sample fireworks on the national Mall from the International Space Station, so:

- * MMS instruments are up to 100x faster than prior missions
- * to record what is going on during passages through the EDR.

The EDR is three dimensional so MMS must consist of

- * a triangular pyramid of four identical spacecraft flying in formation
- * defining a plane plus another point outside that plane.

So what? Reconnection is thought to organize and propel all space plasma weather around the Sun and Earth and elsewhere in the solar system and universe. The most visible signs of it are the auroras that hooked me on this field of study in my hometown of Portsmouth, NH.

You can learn lots more about MMS and reconnection from the lead scientists in the following podcast segments.

[Closing]

I'd like to thank Tom for his time and I look forward to future interviews with people involved with the MMS mission.

As many of you already know, every year we update our Sun-Earth Day resources for educators, museums, community groups and amateur astronomers. We also collect a variety of additional hard copy educational resources that are placed in a beautiful and new Sun-Earth Day folder. If you haven't already, I'd like to remind you to register on the Sun-Earth Day website in order to receive your FREE folder of materials while supplies last.

I'm excited to announce the release of a new mobile version of NASA's Space Weather Viewer! This app is an adaption of the current Space Weather Media Viewer and features near-real-time imagery from a wide variety of NASA missions, as well as video interviews with prominent scientists about the causes of space phenomena and NASA-created visualizations. You can download the app by doing a search in iTunes for the 'NASA Space Weather Media Viewer'. After downloading the app, we would really appreciate seeing your reviews and comments!

I hope you enjoyed this Sun-Earth Day Highlights podcast. We are very interested in hearing your questions and comments. If you have something to say, just join us in Facebook or send an email to sunearthday@gmail.com. If selected we'll share it on one of our upcoming podcasts!

For all other details about the Sun-Earth Day program including information about our past SED themes be sure to visit our website at sunearthday.nasa.gov. While there, don't forget to register in order to receive Sun-Earth Day updates!

You can learn more about NASA by simply visiting www.nasa.gov.