

**Planetary Wonderings**  
**July Focus: STEREO**  
by Mary-Frances Bartels, NASA Solar System Ambassador

A cinematic craze that comes and goes that I really enjoy is that of 3-D movies. Some of the 3-D movies I've seen include *Creature from the Black Lagoon*, *It Came From Outer Space*, *Comin' At Ya*, *Ghosts of the Abyss*, and an IMAX film on movie special effects. What is it that attracts me to 3-D films? (Let's forget, for the moment, the problem of eyestrain and other problems often encountered while viewing 3D.) I believe it's because the effect gives more information in the scene viewed. This helps the viewer to feel more a part of the film.

So, what does the genre of 3-dimensional movies have to do with space exploration? After all, everything looks pretty much 2-D when viewing them with either telescopes or space probe cameras. Occasionally 3-D pictures have been created from Mars lander photographs. Up until now there has not been a mission where 3-D has been the primary purpose.

Enter STEREO (Solar TERrestrial RELations Observatory)— a 2-year mission using “twin” space observatories providing the first ever 3-D pictures of the sun, studying the nature of coronal mass ejections. These powerful eruptions are a major source of magnetic disruptions on Earth and a key component of space weather. Space weather greatly affects satellites, communications, power systems, the lives of humans in space, and global climate. In order to acquire these unique stereo images the spacecraft must be flown in a rather challenging orbit. One will be placed ahead of Earth in its orbit, the other behind it. This provides the necessary separation between the craft's views to obtain 3-D images. Mission designers decided the best way to get the spacecraft into their respective orbits is to launch them together on one rocket and use lunar “swingbys.” This will be the first time that lunar swingbys have been used to manipulate the orbits of multiple space probes. The moon's gravity will be able to redirect each craft to its respective orbit, something the launch vehicle cannot do alone. STEREO will be able to complete its science objectives through the use of 16 instruments per probe. It is presently slated to launch July 30 at 2:55 PM EDT, but may launch as late as August 6.

A paper cutout model of the STEREO spacemay be found at <http://stereo.jhuapl.edu/education/activities/pdfs/STEREOModel.pdf>. The main website for the mission is at <http://stereo.jhuapl.edu>

**In other news** — In early June I was diagnosed with Stage III invasive breast cancer. I must undergo between three and six months of chemotherapy prior to surgery and radiation. Chemo leaves me extremely tired and drained most of the time. I will endeavour to continue writing this monthly column throughout treatment.

**Remember to keep looking up!**