

*Santa Monica Amateur  
Astronomy Club*

May, 2018

# *The Observer*

Upcoming club meeting:  
Friday, May 11, 7:00 pm



***Stargazing  
(weather permitting) and  
the latest from space!***

***InSight, TESS, GAIA and more...***



## INSIDE THIS ISSUE

3 satellites:  
Mars InSight, TESS  
and GAIA

## OUR MEETING SITE

Wildwood School  
11811 Olympic Blvd.  
Los Angeles, CA 90064  
Free parking:  
Garage, SE corner of  
Mississippi & Westgate.

## PICTURE AT LEFT:

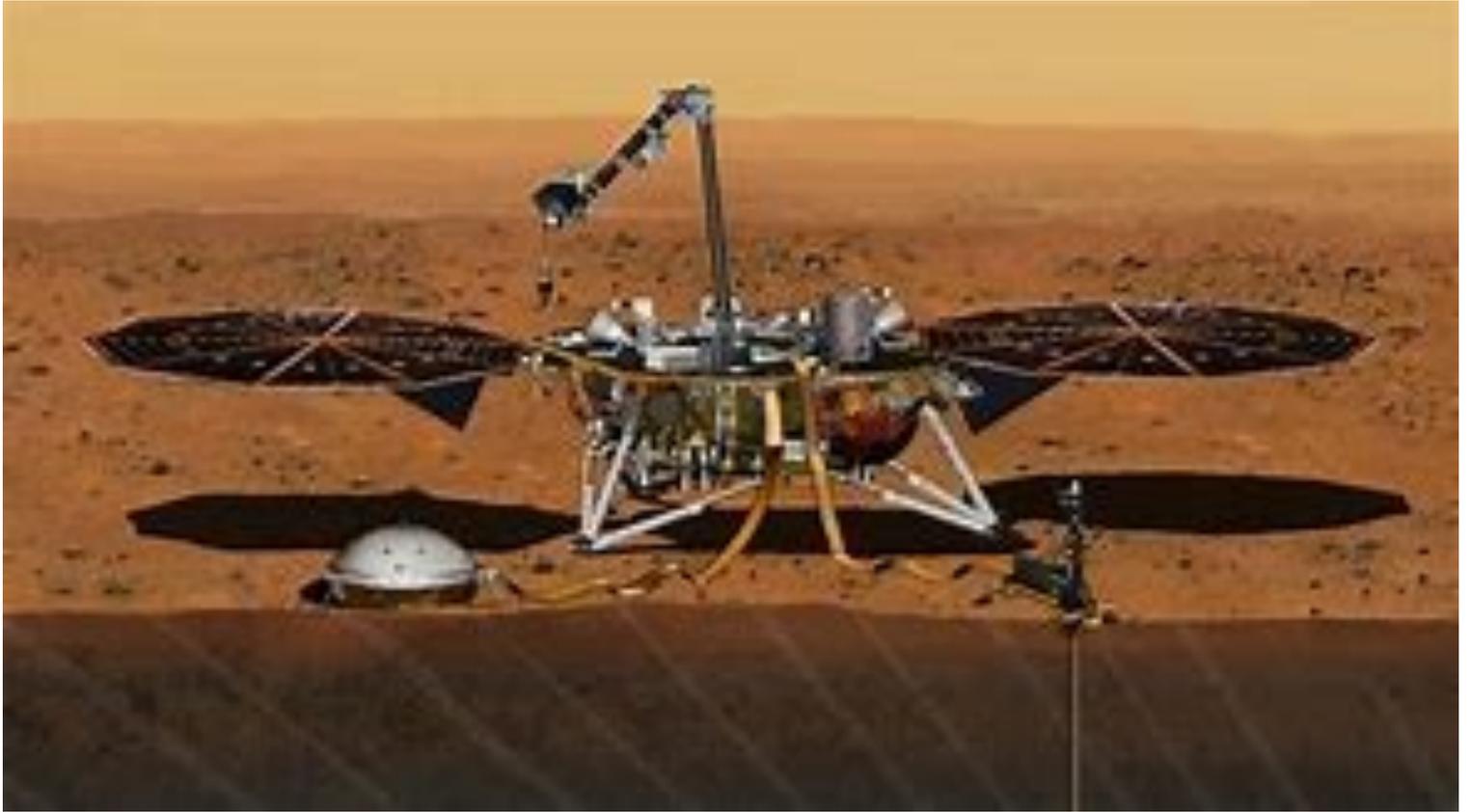
A vision of Mars, painted by  
space artist Chesley  
Bonestell. We have had  
some amazing glimpses of  
Mars—but what lies within?

We have been scheduled to do some stargazing with the students of our host school this month. The weather looks a bit iffy, but if the stars hold out, we'll go for it!

Otherwise, we still have a lot to say about many developments this month...including some dramatic and innovative space missions.



# Mars InSight is on its way!



The Mars InSight probe is on its way, after the first launch of an interplanetary mission from Vandenberg Air Force Base, right here in Southern California. An Atlas rocket got it on its way on May 5—anybody see it?

Landing on Mars is still tricky business, but if all goes well, InSight will give us an “in-depth” look at the Red Planet.

We have yet to land a fully functioning seismometer on Mars, and supplementing this with radio science, heat flow measurements and a few neat innovations, InSight will help us understand more about the interior—and hence, evolution—of our intriguing neighbor in the Solar System.

More about it at our meeting...

## TESS launches as well!



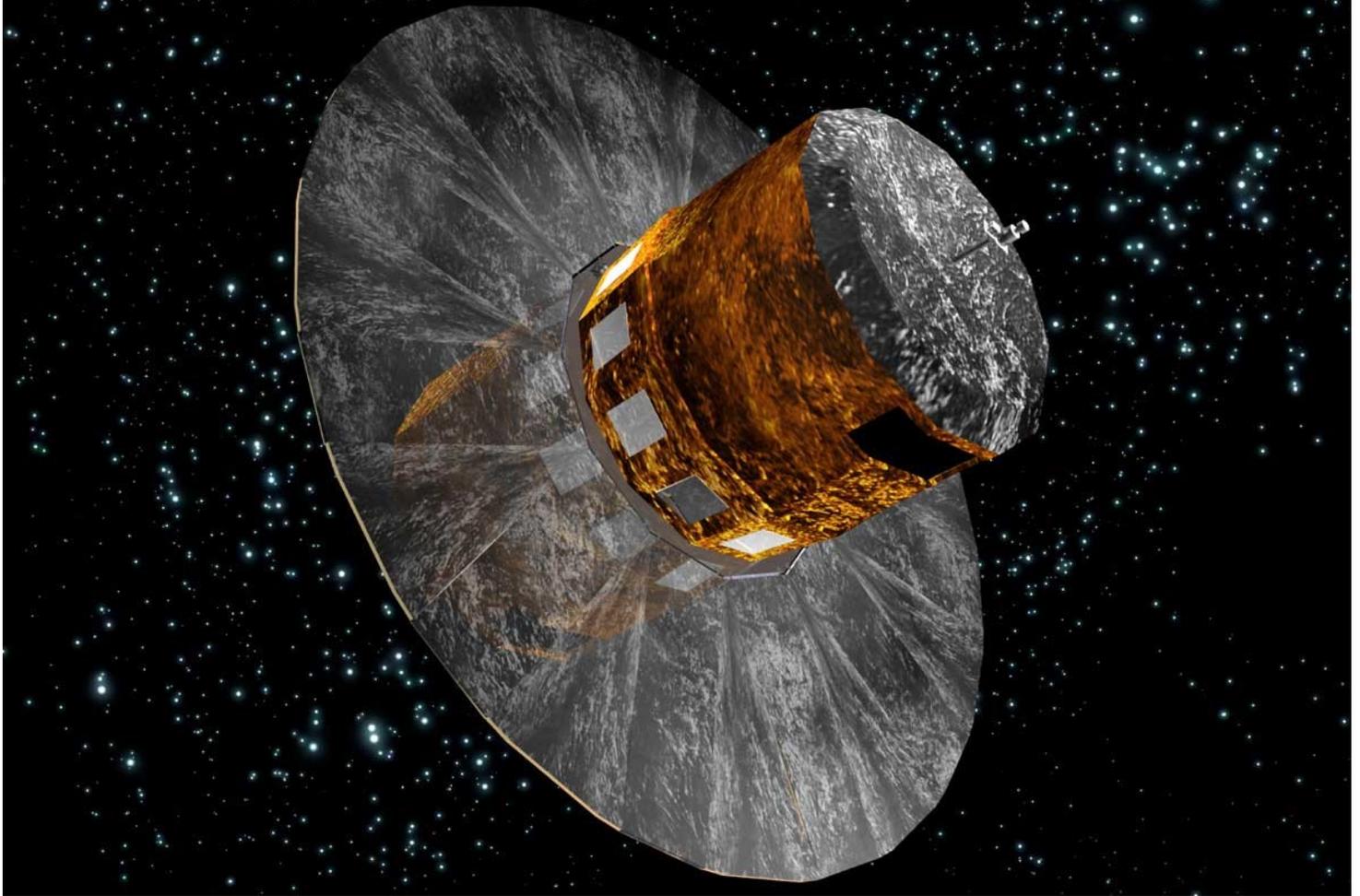
After the resounding success of the still-operating Kepler Mission to find exoplanets, a follow-up was in order. TESS is expected to find up to 20,000 extrasolar planets, using the same technique as Kepler: Search for stars whose light dims ever so slightly, but at regular intervals, marking the clockwork passage of a planet across its brilliant disk.

TESS launched aboard a Falcon 9 from Florida, and will have a novel orbit, taking it out as far as the moon, and in about half way. This keeps it in a 2:1 resonance with our moon, and helps to stabilize the orbit.

Kepler stared at one patch of the sky, but TESS will look in all directions, making it likely to find close-by exoplanets in whatever direction they happen to lie.

Extrasolar planets have opened our eyes to the wide variety of Solar Systems that grace the Milky Way. Who knows what we'll find next?

# GAIA: The biggest data download this side of Orion!



Data download? That doesn't exactly inspire visions of alien cities, exotic star systems and galactic empires. But the GAIA data release is a landmark event for astronomers. GAIA, a European Space Agency satellite, has been carefully mapping the distances and properties of stars to unprecedented precision.

How far, exactly, are the stars? That question has been a central quest of astronomy for centuries now. The path to stellar distances has been a circuitous one, a celestial house of cards, with each succeeding step outward painstakingly, but precariously, constructed on top of another.

Questions such as the true masses and luminosities of stars are central to all the more 'sexy' branches of astronomy. With the basic data agreed upon, we can really get to work refining things such as stellar evolution, the true shape of our Milky Way galaxy, and our own place in the vast stellar system. There will be a flood of papers soon—and you'll certainly be hearing some headlines.

## Parting Shot: The Snows of Comet Churyumov-Gerasimenko



As the heat of summer approaches, just picture this snowy scene when you want to think “cool”. It isn’t exactly a winter wonderland: Some of the streaks in this image are actually very “hot” cosmic rays impinging on the Rosetta Spacecraft’s camera—but many are actually bits of icy dust, flying off the cliffs of the outgassing comet. This is a composite picture, so you wouldn’t actually get caught in a snowstorm. Still, this wonderful scene reminds us that comets are active worlds, ambassadors from the frozen realms of the Outer Solar System. Our own, less frigid home is now known to have been shaped by events in the icy outer reaches of our sun’s domain.