# My 2018 Summer Trip Across the Planetary Sky

By: Norman McCall, September 28, 2018

As time moved into September as the last few weeks of the summer of 2018 faded, I reflected on the celestial display that had streamed nightly across the sky between the curtains of twilight and dawn. Throughout this past summer the unique planetary alignment of 2018 (as per the picture below) allowed earth-bound sky watchers the unique opportunity to observe **all eight planets** as they traveled across the night sky all **in a single evening**! My astronomical goal for 2018 was to travel through my telescope to all eight planets from the luxury of my personal backyard urban observatory, SkyThrall.

## The Visual Observer Trip – Venus, Jupiter, Saturn and Mars

The exceptional planetary alignments of 2018 allowed the casual visual observer – using only the unaided eye – to catch a partial show of this majestic event by observing Venus, Jupiter, Saturn and Mars as nightly they cast their magical spell across planet Earth.

Throughout this past summer, each night they faithfully blazed their trail of wonder across the celestial firmament – like brilliant actors parading their grandeur on the darkened stage of the night sky! To me



the visual experience of seeing the four major planets flow across the evening sky was a **delightful "planetary trip"** that I will not forget.

As shown in the adjacent picture, in the summer of 2018, the solar system alignment with all of the planets on one side of the Sun allowed an earth bound observer to view each planet as they traveled across the night sky between twilight and daybreak on a single day! For those of you who may have missed the celestial event, your next opportunity to see the planets perform their dance over the course of a single night will be in June 2019, assuming vou live in mid-northern latitudes.

Planet positions 23-June-2018 at 14:00 hours Not to scale. See: theplanetstoday.com

# The Start of My Planetary Journey

The journey began in late June when I held my first 2018 VIP Star Party BBQ with family and friends to showcase my new Celestron EdgeHD C11 Schmidt Cassegrain telescope (SCT) in my SkyThrall

backyard observatory. It was a Saturday – or Saturn Day as it was known to the ancient Romans – a good day to begin our interplanetary journey.

Shortly after my guests arrived, we headed outside in the early afternoon to do some daylight observing. Although billowing clouds were threatening our view, we hoped intermittent breaks in the cloud coverage would provide an opportunity to catch a few good views.

With anticipation we rolled the shed away from the telescope, turned on the computer system, powered up the GoTo GGX-L mount, and popped 36mm a wide-angle eyepiece into the telescope. We were ready to begin our 2018 summer trip across the planetary sky.

## The Moon – Goddess of Luna

The journey began with the Moon – appropriately named after the Roman Goddess of Luna – shining in the mid-afternoon sky inviting us to view its cratered face. Selecting the target on the GoTo hand controller, the mount quickly guided to the target. Looking through the eyepiece brought us directly to our destination. With a magnification of 230x and a wide-angle eyepiece the telescope made us feel like we were hovering directly just above the Moon's surface. The pocketed landscape filled the field of view impressing upon us the violent beginnings of the early solar system.

At lower magnification the Moon was outlined against the background of the blue afternoon sky providing a beautiful contrasting canvas which highlighted the white grandeur of its glowing pockmarked face. Admired for millennia by all civilizations, our satellite companion has been used as a universal calendar to mark the passage of time by indicating the start of a new year, the passage of seasons, establish the date of seasonal celebrations and even defining the female biological menstrual cycle with the Latin word "menses" meaning "month".

# The Sun – Apollos the God of Light

The next stop on our journey was the Sun – our local star – aptly named after Apollos, the God of Light. With the aid of a new hand made solar filter we focused our attention on the ball of fire which makes life on this earth possible.

Searching across its surface, we concentrated our attention on observing several small sunspots. Due to the low level of solar activity and resulting low contrast they were just barely visible to the untrained eye. To assure my guests we were not "seeing things" – as in imagining things – I used my Mobile Observatory astronomy application on my phone to access on-line images of the current solar activity providing credence to our observations.

Once the sunspots of interest were confirmed, together we stretched our observing skills to see subtle elements of solar activity – the umbra (centre) and penumbra (outer) regions – to the delight of everyone. From time to time large clouds drifted across the sky masked the Sun from view forcing us to take intermittent breaks from our journey.

## Jupiter – God of the Sky & Thunder

Jupiter was named by the Romans after the God of the Sky and Thunder. As the largest planet in our solar system, Jupiter still demands respect from all who are privileged to view it with the aid of a telescope. Dressed in magnificent storm-swept bands and arrayed with it four brilliant moons – Io, Europa, Ganymede and Callisto danced in unison around their planetary master forever honouring the God of Thunder.

As host of my VIP Star Party, I was anxious to entertain my guests with a view of the largest planet before it could hide behind my neighbour's tree. Therefore, although it was still mid afternoon, in the off chance of success, I drove the telescope over to Jupiter which was cloaked to the naked eye by the brightness daylight sky.

To our surprize and delight, the C11 EdgeHD captured the image of Jupiter beautifully floating on the backdrop of the blue sky. As expected, the contrast of the planet to the daylight sky was very low and its four companion moons were nowhere to be seen. It was however a delightful pleasure to give my guests their first view of the "King of the Planets" before the sun was even set.

#### Mercury – The Messenger God

As the day progressed the twilight approached, Venus, was the first visual planet to unveil its presence. As the Roman "goddess of love" it seduces the viewer to adore its beauty. However, do not yield to the temptation! Rather you must first pursue Mercury, named after the fast-moving Roman Messenger God. As the innermost planet, it races around the Sun every 88 Earth days. Lurking just above the horizon it is often veiled from sight in the rays of Apollos.

Although Mercury was small it did not escape our pursuit. As the sun slowly dropped off stage west, it was with delight from my SkyThrall Observatory with my VIP family and friends that we captured an enchanted moment together viewing the sparkle of the innermost planet. Before long, Mercury stole away behind a rooftop to continue its endless pursuit of the Sun.

## Venus – Goddess of Love and Beauty

We next continued our journey by travelling over to the brilliant Venus – rightly named for the Goddess of Love and Beauty. Clothed in white and shining like a diamond it boldly demanded nothing lass than our full attention. The view filled us with admiration and confirmed its stature and place not only in ancient mythology but within our solar system.

Using a 2.5x Barlow and a 24mm eyepiece, the apparition was like that of a young maiden in the sky teasing us with a partial view of her crescent face, glistening like a silver spoon it reflected the brilliance of the setting sun. In the darkening stage of the eyepiece we each basked in the view of its rays, like those of a giant diamond engagement ring. When compared to Mercury, Venus clearly stole the show until it slowly rolled off the stage and disappeared into the western sky.

#### Saturn – God of Agriculture and Harvest

After the sun had set and the night sky darkened, the next heavenly entertainer to focus on was Saturn, named by the Romans after Saturnus (Latin), the God of Agriculture and Harvest. Being quite visible to the naked eye, this jewel of the sky has been known to humanity since prehistoric times. However, it was not until Galileo in 1610, with the aid of his primitive telescope were astronomers able to begin to unravel its ancient secret – the planet was arrayed with beautiful rings!

Viewed through my backyard telescope it shimmered in all its beauty to the delight of my guests. Although clouds sought to mask the view and rob us of the entertainment, each of my guests was able to steal a view and see for



Stacked video image of Saturn, Credits: Dale Armstrong 2018

themselves the rings, its long-kept secret.

Having achieved more than we had hoped for, I parked the scope and closed the observatory to end my VIP Star Party. As my friends headed home. I retired for the night energized to continue my journey over the following weeks.

#### Mars – God of War

Mars, the Roman God of War lived up to its name in 2018 when it reached opposition (i.e. opposite the Sun in the Earth's sky) on July 27<sup>th</sup> and then achieved its closest approach in 17 years on July 31<sup>st</sup>. Growing to a magnitude of -2.8 it was twice as bright as Jupiter, but dimmer than Venus. Boasting a 24.3" disk (almost at its maximum of 25.1") the Red Planet did not disappoint earthlings on its neighbouring planet.

Warmed by the Sun, Mars managed to veil its surface in a fit of summer dust storms. For viewers in earth's Northern latitudes since the planet in 2018 was low in the sky, atmospheric turbulence impaired the view more then usual. In early September, with some perseverance and stable viewing conditions on a trip to a dark sky site, using an 8" SCT the southern polar cap was visible in spite of the summer storm clouds.



Mars, Credits: Dale Armstrong 2018

However, to capture significant detail of the God of War required the use of high-speed astrophotography and lucky-imaging techniques. The image below was captured on September 11, 2018 at our dark-sky site using the Astronomy club's 12-inch RC telescope and a ZWO ASI224MC high-speed video camera operating at f/20 and capturing at than 200fps using ROI cropping. (During the session I was a passenger in this observing session.)

Once digitally processed, the image reveals detail not available to the visual observer. As the dust had settled down from earlier in the summer, processing revealed Niliacus Lacus, Mare Erythraeum and the bright Argyre Basin just above the South Polar Cap. The processed image is a delightful memento helping me remember my 2018 planetary journey!

#### Neptune – God of the Sea

The next stop on my journey was a trip to Neptune, the eighth planet in our solar system. Named by astronomers after the Roman God of the Sea it is the fourth-largest planet by diameter, the third-most-massive planet and the densest of the giant planets. Its blueish color gives it a characteristic mystique.

Rising onto the evening stage at 19:00 hours in the second week of September, it presented me with an opportunity to view this mysterious object. Using my SkyThrall observatory setup I selected Neptune from the solar menu on my Celestron NexStar+ hand controller. Pressing the GoTo button, the mount quickly brought the scope over to the target.

Anxiously I searched the field of view looking for the blue giant. To my surprise, it was nowhere to be seen. To increase my field of view, I switched to a Hyperion 36mm Aspheric 72° eyepiece. Still no luck.

Diligently I scanned the whole field of view looking for a majestic blue planet. As my eyes became dark adapted, I gradually became suspicious of a blue tinged "star' near the centre of the FOV. After centering the object, I stepped up the magnification with my 2.5x Barlow. Finally, the God of the Sea arose out of the dark and stepped onto the centre stage in my eyepiece. (I had been mistakenly been looking for a large planet.) I had reached the next destination of my planetary journey: Planet Neptune.

## Uranus – God of the Sky

Uranus is named after the Greek God of the Sky and is the seventh planet from the Sun. Although discovered by William Herschel in 1781, it was ultimately named Uranus by the German astronomer Johann Elert Bode in order maintain conformity with the other planetary names in the theme of classical mythology. Unfortunately, the planet is an almost featureless planet in visible light, without the cloud bands or storms associated with the other giant planets. As summer of 2018 passed, it began to rise in the late evening sky. Uranus was my last and final and stop of my summer trip across the planetary sky.

The opportunity came on Monday September 17 when, before heading off to bed at 23:50 hours I made one last loving security check of my backyard observatory. To my surprise, the sky was clear and the stars inviting. Here was the chance to finish my journey. With adrenalin rising, I opened up my SkyThrall Observatory to begin a late-night observing session.

Within 15 minutes I was travelling off to Neptune in my C11 telescope riding on my Celestron CGX-L mount. Using my GoTo feature, the scope quickly arrived at my destination. Having learned my lesson in searching for Neptune – expecting to see a large planet when due to distance its appearance was small – I was drawn into the first bright (white) object in the eyepiece. Upon closer inspection with a 2.5X Barlow, I met with disappointment when it proved to be was just another star. Correcting course, using the GoTo hand controller I travelled around the immediate area which resulted in more dead ends. Now who was it that told me this hobby was easy?

Eventually I realized there was an issue with scope alignment requiring me which had taken me to the wrong area of the sky. The solution required a restart the session after completing a multi-star alignment of my mount. Once complete, the GoTo command immediately brought me to Uranus, the final stop on my 10-week journey. Using various eyepieces and my Barlow I able to fully view this mysterious planet using magnifications from 136x through 245x and beyond. Shortly after 01:15 AM I ended my trip across the planetary sky. I could now park my scope, close my SkyThrall Observatory and head off to bed satisfied that I had achieved my objective of visiting each of the major planets in the summer of 2018!

I am now looking forward to June of 2019 when I may be fortunate enough to repeat the journey in a single evening between twilight and dusk. Hopefully, this article has stirred your interest in taking your own planetary journey across the sky in 2019.