Westminster Astronomical Society Inc, of Maryland

Volume 31, Issue 6
June 2014

The Mason-Dixon Astronomer

June Meeting:

- Wed., June 11th – 7:30 pm
  Bear Branch Nature Center
- **AL Observing Clubs**
  Curt Roelle will provide great information on this program.

Dinner Before the Meeting!

- Wed., June 11th – 6pm.
- Harry's Main Street Grill
  65 W Main Street
  Westminster, MD 21157

INSIDE THIS ISSUE:

St*r Points

Open or Galactic Star Clusters

June 2014 – Curt Roelle

Stars are regularly found in star clusters. This may not seem to be the case to the casual stargazer because so few clusters are visible without some kind of optical aid. There are two broad categories of star clusters – open and globular. This month we're discussing the open clusters, sometimes referred to as galactic clusters. This is the most common type of star cluster.

To say that stars are found in open clusters doesn't mean that stars form clusters. That is, mature stars don't meet-up, get together and form star gangs. Rather stars originate in clusters where they are formed. In other words, an open cluster will typically consist of younger stars. With time gravitational tugs from other clusters and molecular clouds of gas and dust passing by causes cluster members to eventually disperse.

Open clusters have been included in many catalogs prepared by observers. The names of these catalogs include, among others, Berkeley, Collinder, Dolidze, Harvard, King, Melotte, Messier, Ruprecht, Stock, and Trumpler. The most famous open clusters visible to the unaided eye are the Pleiades (Messier 45) and Hyades, two star clusters in the winter sky located in the constellation Taurus the bull.

M45: The Pleiades Star Cluster
Image Credit & Copyright: Robert Gendler

The best known clusters that are visible to the unaided eye are the Pleiades (Messier 45) and Hyades, two star clusters in the winter sky belonging to the constellation Taurus the bull.

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President's Message

June 2014 – Tony Falletta

Greetings Fellow Astronomers!

June is just about here and the nights are finally starting to warm up! In these past few weeks I have had my scopes out at some point or another. I have a variety of telescopes on hand. On the clear dark sky nights I've taken my SCT for a ride to deep space objects. On others nights when in planetary mode, I've put my little Maksutov to work. This past month has provided great viewing of Jupiter, Mars and Saturn. I hope you had the opportunity to enjoy a tour of our Solar System. I've also put my reflector to good use too. While my electrically powered Schmidt-type scopes are great Go-To instruments, my reflector is a simple star hopping joy. I set it up in a good spot and while it cools down (not much time needed for a reflector) , I attach my Telrad finder, select a small variety of eyepieces, perhaps a moon filter, a comfortable chair and I'm off to stars! During the day, solar viewing is a must. I have a solar filter for my reflector which works quite well. The views it offers are not nearly as detailed as my hydrogen-alpha scope but I just love the idea of using my telescope both day and night. It allows me to extend to the public the idea that astronomy isn't just a nighttime activity.

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June Meeting – Curt Roelle

Photo by: Slava Murygin

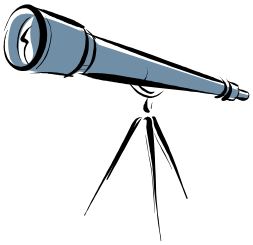
Astronomical League Observing Clubs

Did you know that when you join the Westminster Astronomical Society you also become a member of the Astronomical League? Well…it's true! One of the great things about the AL is that they provide some incentives to observe. One of those programs is the Observing Clubs. The clubs cover most aspects of astronomy, from observing to outreach, and every level of experience. There is even a club for completing a large number of the clubs!

There are several AL Observing clubs whose first member was from WASI, and most of the clubs have a WASI member in the top 10. Generally when you complete the requirements for the club, you receive a nice certificate and a pin.

Curt will provide an overview of the program. He will discuss the available clubs and in some cases will discuss the specific requirements. He will also show how to get more information and begin earning those pins.

Upcoming Events From Our Calendars



- **Planetarium Show** June 7th, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- **Monthly Meeting** June 11th, 7:30 p.m., at Bear Branch Nature Center (BBNC)
- **Soldiers Delight Public Stargazing** June 14th, 8 p.m., at Soldiers Delight Natural Environment Area in Owings Mills

Join The Westminster Astronomical Society…

Joining WASI gives you a great opportunity to meet fellow astronomers and provides group memberships to the Astronomical League and the International Dark-Sky Association. Additionally, benefits include access to our Library (over 500 astronomy-related books), the ability the borrow club scopes, a subscription to the Astronomical League's *Reflector*, access to members-only observing sessions and sites, and club discounts on astronomical magazine subscriptions.

Adult Membership is still only $25 per year.

NEW **NEW THIS YEAR – JUNIOR MEMBERSHIP** NEW

Yearly Membership For Anyone Under 18 Is Now Just $5!
(YES…JUST FIVE DOLLARS!)
http://www.westminsterastro.org

St*r Points for June…

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Closely related to the open clusters is the asterism. Asterisms are recognizable stellar groupings whose members may or may not be physically associated with each another. In other words, its stars may be present in their unique arrangement simply due to their chance alignment, with some stars being closer to us, while others are farther away.

Perhaps the best known asterism are seven stars in the constellation Ursa Major (greater bear) commonly referred to as the Big Dipper. The Big Dipper's stars are not a chance alignment. They are believed to have a shared origin. That means that the Big Dipper is also what astronomers refer to as a "stellar association." Furthermore, most of the Big Dipper's stars, as well as stars in several nearby constellations, happen to be traveling in roughly the same direction making them part of a stellar "moving group."

The Big Dipper is also known to astronomers by its catalog designation Collinder 285. So, if you've ever seen it, you should log it in your astronomical journal as you track and keep count of objects you've viewed.

Open star clusters are asymmetrical in shape and each, like a snow flake, is different. Astronomers classify open clusters in several ways. First is by their size. Not their true size, but by their angular size as they appear in the sky. They are also classified by brightness – the combined brightness of the stars in the cluster or the brightness range of its member stars. Open clusters are also classified by their concentration, from loose and irregular to rich and compressed.

There are many examples of open clusters. In the remaining space we'll discuss two clusters visible this time of year. Both are relatively unknown, yet fairly easy to locate and view in binoculars. The first cluster is near Leo the lion in a moderately unfamiliar constellation whose official name is Coma Berenices, or Berenice's hair.

Leo's most prominent feature is an asterism of stars in the shape of a backwards question mark known as the "sickle" formed by stars including 1st magnitude Regulus which marks the "dot" in the punctuation mark . The sickle represents the head and mane of the lion and Regulus its heart. To the left of the sickle is a triangle of stars representing Leo's hind quarters.

Around 10 p.m. ET in early June, Leo is low in the southwest and tilted so that its hind quarters are above and to the left of the sickle. From a dark sky site a rich smattering of faint stars about 30 degrees above Leo's hind quarters should be visible. This is the star cluster known as the Coma Star Cluster, or Melotte 111.

If you don't see it, sweep straight upward from the hind quarters using binoculars. The cluster's big, about 7½° wide, so it may not fit all at once in your binocular's field of view. If you need more help finding it there are many references, charts, and images on the web.

The other open cluster is known as Brocchi's Cluster or the coat hanger, and is cataloged as Collinder 399. It is an example of a random grouping of unrelated stars that happen to stand out. Its prominence is especially due to its coat hanger shape – a bar and a hook – formed by 10 stars.

The coat hanger is located in the constellation Vulpecula, the little fox. To find it in early June try looking around 11 p.m. by which time it should be clearing the trees. You can hop to it using known stars. If you're unfamiliar with the following directions don't worry. There are charts and images waiting to help you on the web.

Find the star Albireo in Cygnus the swan, also known as β Cygni. It represents the swan's head. To its lower right, locate α Vulpeculae, the brightest star in Vulpecula. Using your binoculars sweep from the former to the latter, and then continue about 1½ times the distance between them. You should now be looking at the coathanger.

If not, try again, and don't give up too soon. Double check that you've identified the correct stars and that they are the ones you're seeing in your binoculars. It's easy to get mixed up when you're using a hand held optical device.

Next month we'll discuss globular clusters.

President's Message

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Here are BBNC, we have been working steadily at making the Blaine Roelke Observatory a reality. At this point in time, I am happy to report that we recently met with the County where, on behalf of Wasi, Frank Roelke, Jim Reynolds and I worked out the final wording of our agreement. Once reviews and signatures are in place, the actually installation of the Dome will commence. It is hoped that we will see the Observatory open in an August or September time frame. It is truly an exciting for me to see our home here at BBNC be fully outfitted with a domed observatory.

Over on the Taneytown front, a few members of our Observatory Committee are scheduled to meet with City Officials in early June. This meeting was originally to be held in early May but was rescheduled for June. WASI will formally present our planned roll-off roof observatory to town officials and look to see if Taneytown can help bring this project to life.

In the early hours of the 24th of May, there was forecasted to be a meteor shower named Camelopardalids, so named due to its radiant being in the constellation Camelopardalis. This meteor shower was to be composed of the debris of the dust trail of Comet 209P/LINEAR. It was hoped that this shower was bring about 100-200 meteors an hour. Some predictions were saying it could be a meteor storm bringing forth 1000 meteors and hour! Finally, there were also predictions that said it could be almost a non-event, showing little if any meteors. Well, I and some of my fellow Wasi club members showed up at Bear Branch Nature Center and eagerly hoped and waited for a spectacular show. It was forecast to begin around 1:30am and peaking near 3am. I only saw about 7 meteors. At 3:15am I packed up and went home. I must say that in spite of my disappointment in seeing a good meteor shower, it was beautifully clear out. I could even see the Milky Way overhead. The constellation Camelopardalis lies right next to Ursa Minor, The Little Bear. While sitting comfortably in my lounge chair watching for the meteors that weren't to be, I found myself checking out the Little Dipper with my binoculars and decided that would make a nice target to write about.

This brings to me to "Tony's Astronomy Target" for the month. For the month of June, the selected target, as aforementioned, is Ursa Minor, The Little Bear, which is on Meridian on June 25th. Ursa Minor is best known for Polaris, the North Star. Start your observation right there at Polaris. This star not only shows us which way in north but also reveals itself to be a double star. Polaris is a pale yellow star shining at 2nd magnitude while its companion is a little blue colored star shining at a much dimmer 9th magnitude. Looking through binoculars will also show Polaris to be the diamond of an asterism called the Engagement Ring.

Work your way along the Little Dippers handle and just before the pot sitting on the east side of the handle you will spot another asterism called the Mini Coathanger. It looks very similar to the Coathanger asterism found in Vulpecula (hence the name). Next, work your way to the pot. Four stars form the pot. Running along the line from the handle to the end of the pot will lead to you to the giant orange star, Kochab. It is the 2nd brightest star in Ursa Minor and thus designated Beta Ursae Minoris. From Kochab, go to Pherkad, the other star which forms the outermost part of the pot. Kochab and Pherkad have been called the "Guardians of the Pole" since they continually circle Polaris. There is one more highlight about Ursa Minor I wish to point out. As you look at Pherkad, you will notice that it is a double star, While Pherkad shines at 3rd magnitude, its companion shines at 5th magnitude. You should be able to see the color contrast between the two. From there, head over to the last 2 stars of the pot. The star which joins the handle is white colored Zeta Ursae Minor, shining at 4th magnitude and very nearby is 5th magnitude orange colored Theta Ursae Minor. Finally, check out the last star of the pot, 5th magnitude Eta Ursae Minoris shining with hint of yellow color and its companion, 19 Ursae Minoris which glows with a hint of blue color.

That's all for now. I hope to see you at our next meeting. Don't forget to bring your telescope or binoculars along. With any luck, "Observation" will be the word of the night!

Clear Skies,
Tony Falletta

Do You Slooh?

Ever have one of those nights where you want to observe but when you stick your head outside you see nothing but the bottom of the clouds? Ever been sitting in your living room at 2pm, without a solar scope, and thought…boy, I would love to do some observing? Well…Slooh might be the answer. I have been using Slooh (as a member) since its inception. It has gone through many changes in both user interface and content. To get to some of the more unique features there is a cost, but they offer specials regularly.

Here is a recent e-mail I received from the Slooh team to give you some idea of what they have been up to. There is some out of date info but it will give you a good picture of the new Slooh. You can find Slooh on the web at http://www.slooh.com

Introducing the New SLOOH

Slooh COMMUNITY OBSERVATORY

New Interface

Today we unveil the new social interface of SLOOH, designed to help you learn and grow your interest in astronomy and related subjects. It fosters chatter among members, collaboration in groups, and easy access to how-to information as well as expert video and blog content. If you haven't already, please LOGIN to the Slooh Clubhouse.

Slooh and NASA Partnership

We are announcing today an exciting new partnership with NASA to engage the public in astronomy. For starters, we will work together to monitor and characterize near-Earth asteroids (NEA's), offering SLOOH members the opportunity to be a part of NASA's Grand Challenge to find all asteroids hazardous to human populations and know what to do about them. Learn more.

NASA and SLOOH will also partner to promote live astronomy events, starting with coverage of Comet 209P/LINEAR and its resultant meteor shower as it passes by Earth on Friday, May 23rd. Slooh and NASA's Marshall Spaceflight Center in Huntsville, Alabama will offer a double feature starting with the Comet at 3 PM PDT / 6 PM EDT / 22 UTC and then the meteor shower at 8 PM PDT/11 PM EDT / 03 UTC (5/24). SLOOH and NASA will discuss their partnership during the broadcast, which will be available live on Slooh.com and NASA.gov.

Observatory Expansion

Slooh's southern hemisphere observatory in Chile is in final testing and expected to be back online as soon as next week. Furthermore, we are pleased to announce plans to expand our facility in the Canary Islands by 10 telescopes to support our expanding membership base and partner initiatives. Slooh and the Institute of Astrophysics of the Canary Islands recently agreed an extension to 2020 of our decade long partnership in preparation for today's announcement.

Since 2003, it has been our mission to bring people together to share in the wonders of the night sky and contemplate our common cause on Earth. We are proud to say we are reaching more people with our shows, attracting more new members and working with more world-class partners and scientists than ever before. Thank you for your continued support as we strive to make astronomy a core value of our culture.

Warmly,
Michael Paolucci
Founder & CEO
Slooh

A stacked image of M42 that I took with the Slooh system.

"Doc's" Summer Reading Suggestions…

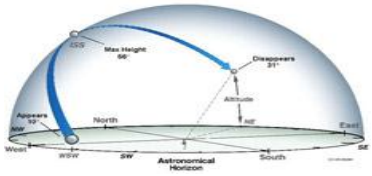
Submitted by: Pankaj "Doc" Desai, MD, FACP

SUMMER READING SUGGESTIONS 2014

Here are a few excellent books to find and read this summer- they are available from the Carroll County Public Library.

1. **Chasing Venus: The Race to Measure the Heavens by Andrea Wulf**- a must read for one and all, including non-astronomy folks amongst us that is a fascinating account of the world's scientific community coming together in 1761 then in 1769 to document this rare event—at the behest of Sir Edmund Halley who had predicted this event before his death.
2. **Longitude**- **by Dava Sobel**- the story of the epic quest of one man, John Harrison, of his forty year obsession with building the perfect time-keeper/chronometer and to try and win the Longitude Prize- which then gave the world the way to measure and record longitude for the future.
3. **A More Perfect Heaven**: **How Copernicus Revolutionized the Cosmos by Dava Sobel-** the story of the great Nicklaus Copernicus and his story that gave us the heliocentric nature of our solar system.

Spot the Station…



Over the past week we have had some great ISS spotting opportunities. I even caught it three times in a 24 hour period. If you would like some advance warning on passes near you…this site can help.

Spot The Station: http://spotthestation.nasa.gov

NASA's Spot The Station service gives you a list of upcoming sighting opportunities for thousands of locations worldwide, and will let you sign up to receive notices of opportunities in your email inbox or cell phone. The space station looks like a fast-moving plane in the sky, but it is dozens of times higher than any airplane and traveling thousands of miles an hour faster. It is bright enough that it can even be seen from the middle of a city! To learn more about the space station, its international crew, and how they live and working in space, please visit the space station mission pages.

You can sign up for test alerts that come to your phone several hours before the pass. Here is what the text messages look like on my phone.

NASA's Space Place

The Hottest Planet in the Solar System

By Dr. Ethan Siegel

When you think about the four rocky planets in our Solar System—Mercury, Venus, Earth and Mars—you probably think about them in that exact order: sorted by their distance from the Sun. It wouldn't surprise you all that much to learn that the surface of Mercury reaches daytime temperatures of up to 800 °F (430 °C), while the surface of Mars never gets hotter than 70 °F (20 °C) during summer at the equator. On both of these worlds, however, temperatures plummet rapidly during the night; Mercury reaches lows of -280 °F (-173 °C) while Mars, despite having a day comparable to Earth's in length, will have a summer's night at the equator freeze to temperatures of -100 °F (-73 °C).

Those temperature extremes from day-to-night don't happen so severely here on Earth, thanks to our atmosphere that's some 140 times thicker than that of Mars. Our average surface temperature is 57 °F (14 °C), and day-to-night temperature swings are only tens of degrees. But if our world were completely airless, like Mercury, we'd have day-tonight temperature swings that were hundreds of degrees. Additionally, our average surface temperature would be significantly colder, at around 0 °F (-18 °C), as our atmosphere functions like a blanket: trapping a portion of the heat radiated by our planet and making the entire atmosphere more uniform in temperature.

But it's the second planet from the Sun -- Venus -- that puts the rest of the rocky planets' atmospheres to shame. With an atmosphere 93 times as thick as Earth's, made up almost entirely of carbon dioxide, Venus is the ultimate planetary greenhouse, letting sunlight in but hanging onto that heat with incredible effectiveness. Despite being nearly twice as far away from the Sun as Mercury, and hence only receiving 29% the sunlightper-unit-area, the surface of Venus is a toasty 864 °F (462 °C), with no difference between day-and-night temperatures! Even though Venus takes hundreds of Earth days to rotate, its winds circumnavigate the entire planet every four days (with speeds of 220 mph / 360 kph), making day-and-night temperature differences irrelevant.

Catch the hottest planet in our Solar System all spring-and-summer long in the pre-dawn skies, as it waxes towards its full phase, moving away from the Earth and towards the opposite side of the Sun, which it will finally slip behind in November. A little atmospheric greenhouse effect seems to be exactly what we need here on Earth, but as much as Venus? No thanks!

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Check out these "10 Need-to-Know Things About Venus": http://solarsystem.nasa.gov/planets/profile.cfm?Object=Venus.

Kids can learn more about the crazy weather on Venus and other places in the Solar System at NASA's Space Place: http://spaceplace.nasa.gov/planet-weather.

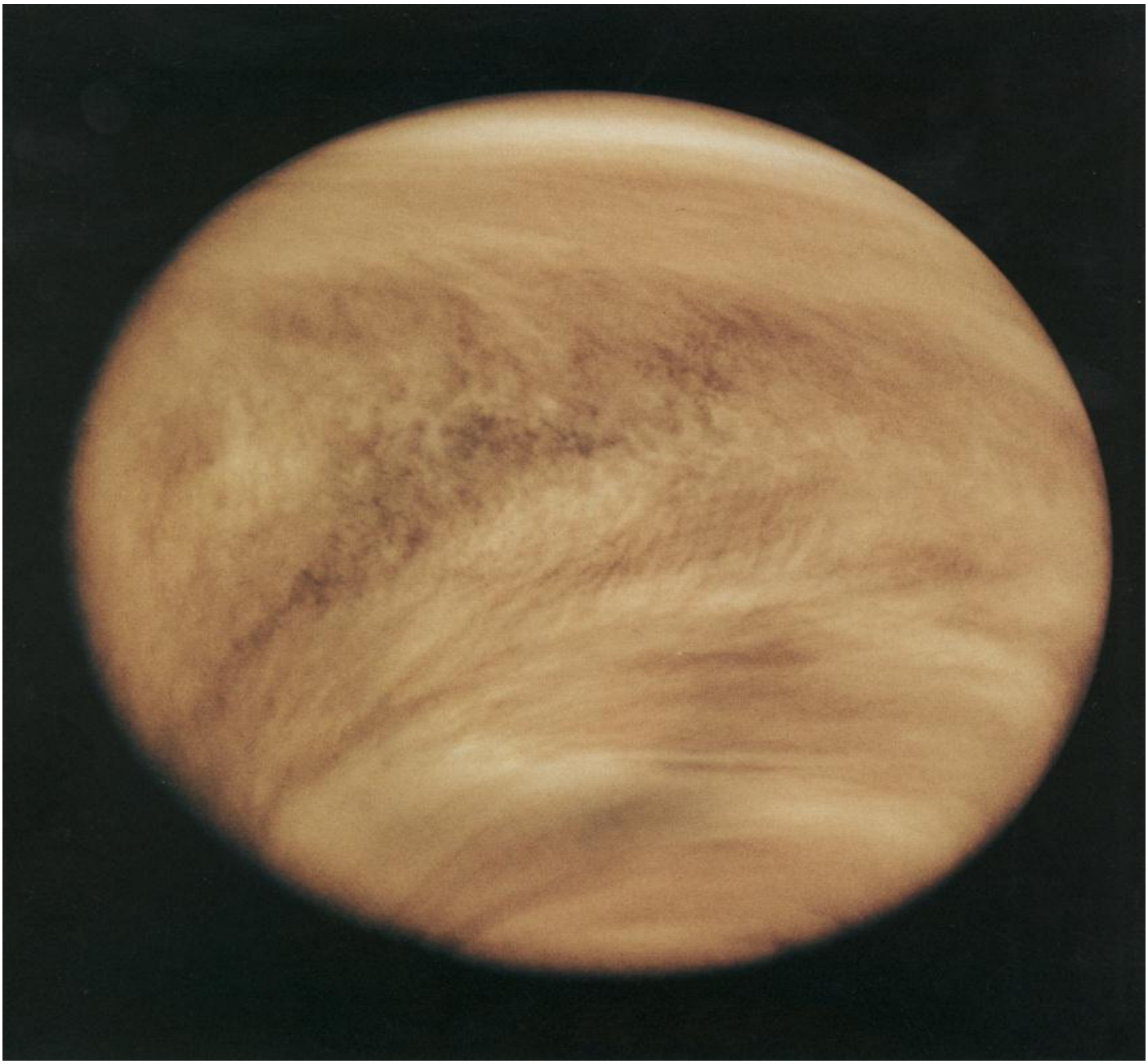

Image credit: NASA's Pioneer Venus Orbiter image of Venus's upper-atmosphere clouds as seen in the ultraviolet, 1979.