April
1  Solar Program: H-alpha observing at Houge Park. Sun party hours: 2:00 until 4:00 p.m.
7  Board meeting at 6:00.
13 Astronomy Class at Houge Park. 8:30 p.m. The topic: Spring Constellations / Highlight Objects. (outdoors)
13 Houge Park star party. Sunset 7:42 p.m, 42% moon rises 2:52 a.m. Star party hours: 8:45 until 11:45 p.m.
14 Dark-Sky weekend. Sunset 7:42 p.m, 30% moon rises 3:26 a.m.
21 Dark-Sky weekend. Sunset 7:49 p.m, No moon. Henry Coe Park’s “Astronomy” lot has been reserved.
27 Houge Park star party. Sunset 7:54 p.m, 38% moon sets 1:22 a.m. Star party hours: 9:00 until midnight. Includes "Introduction to Observational Astronomy" class for SJAA members.

May
5  General Meeting. Board meeting (*) at 6:00; General Meeting at 8:00. Our speaker is Marita Beard, a San Jose high-school teacher, who is a participant in NASA/SOFIA "Partners in Science Education" program.

4  Solar Program: Sun-spotting at Houge Park. Sun party hours: 2:00 until 4:00 p.m.
6  SJAA Auction XXXII - starting at noon at Houge Park.
11 Astronomy Class at Houge Park. 8:15 p.m. The topic: Star Parties — where are they, how to prepare for and enjoy them.
11 Houge Park star party. Sunset 8:07 p.m, 58% moon rises 1:27 a.m. Star party hours: 9:15 until midnight.
12 Dark-Sky weekend. Sunset 7:42 p.m, 30% moon rises 3:26 a.m.
19 Dark-Sky weekend. Sunset 7:49 p.m, No moon. Henry Coe Park’s “Astronomy” lot has been reserved.
20 Partial Eclipse of the Sun, visible in San Jose. The moon can be seen covering part of the sun. Do NOT try this yourself; you will risk your eyesight.
25 Houge Park star party. Sunset 8:18 p.m, 23% moon sets 11:59 p.m. Star party hours: 9:30 until midnight. Includes "Introduction to Observational Astronomy" class for SJAA members.

Upcoming Events

There are many astronomical events coming up this year.

Annular Solar Eclipse - There is an eclipse on Sunday May 20. Don’t be confused by those who say May 21. They are going by Universal Time. In San Jose the moon will cover 83% of the sun. For an animation of what you will see from San Jose, go to http://astro.ukho.gov.uk/eclipse/0132012/San_Jose_CA_United_States_2012May20_anim.gif

Venus Transit - You may recall that a transit of Venus occurred 8 years ago but it was not visible from San Jose. This transit is visible from here and it won’t be visible anywhere on the planet again for 112 years. It will occur on June 5. Don’t be confused by those who say it happens on June 6. That’s also using Universal Time. Do not look at the sun during either of these events without proper eye protection.

SETIcon II - Two years ago, the SETI Institute held their first conference dedicated to all things SETI. This year, SETIcon II will be held the weekend of June 22-24. For more information see their website at http://seticon.com/.
The Shallow Sky

Venus continues its spectacular evening show, growing ever brighter toward its peak brightness of -4.7 around the end of the month. By then it has waned to a crescent. That’s a bit non-obvious: when the moon is a crescent, it’s a lot fainter than a full moon. So why is Venus brightest in its crescent phase?

It has to do with its orbits. The moon is always about the same distance away, about 385,000 km or 239,000 miles (I’ve owned cars with more miles than that!), though it varies a little, from 362,600 km at perigee to 405,400 km at apogee.

When we look at the full moon, not only are we seeing the whole Earth-facing surface illuminated, but the central part of that light is reflecting straight up off the moon’s surface. When we look at a crescent moon, we’re seeing light that’s near the moon’s sunrise or sunset point — dimmer and more spread out than the concentrated light of a full moon — and in addition we’re seeing less of it.

Venus, in contrast, varies its distance from us immensely. We can’t see Venus when it’s “full”, because it’s on the other side of the sun from us and lost in the sun’s glare. It’ll be more than a year before it’s full next, in April of 2013. But if we could see it when it’s full, Venus would be a distant 1.7 AU from us — about 170 million miles — and its disk is a tiny 9.9 arcseconds — about the size of Mars this month.

In contrast, when we look at the crescent Venus around the end of this month, although we’re only seeing about 28% of its surface illuminated, and that only with glancing twilight rays, it’s much closer to us — less than half an AU, or about 45 million miles. So its disk extends a huge 37 arcseconds, bigger than Jupiter this month.

Of course, eventually, as Venus pulls between us and the sun, its crescent gets so slim that even expanding size can’t compensate. So peak brightness happens when those two curves cross, when the disk is somewhere around 27% illuminated, as happens at the end of this month and the beginning of May.

Saturn is high in the sky and its skies opposition on April 15, with rings tilted at 13 degrees to us. On the other end of the sky, Jupiter disappears into the sun’s evening glow during April.

Mars is also visible in April evening skies, but it’s past its opposition and already shrinking. As I write this, in March, I haven’t heard many reports of good Mars observations — the weather hasn’t been cooperative in giving us those steady skies we need to see detail during such a distant opposition. But keep trying — you never know when you’re going to get lucky with the weather.

During the first week of the month, at around 9pm, you’ll be looking at Mare Acidalium, Sinus Sabaeus and Sinus Meridiani. By the middle of the month, Syrtis Major dominates the center part of the disk, with Hellas looking like a polar cap in the south, and more subtle features like Nilometer and Utopia ringing the north pole. A week later, you’ll be looking at Camerum and Tyrthernum in the south, Mare Boreum ringing the north pole, and Pluto rises around midnight, so if you want to catch it you’ll have to stay up late — or get up very early.

Slim and bright

Akkana Peck

The moon is dimmer when it is a crescent but Venus gets brighter in a similar phase. Why is that? Read Akkana’s explanation here.

This is my first post to this list and of course my first OR. First of all thanks to Dave Ittner and the mentoring program at SJA. I am a complete newcomer to this hobby, case in point that in December of 2011 I did not know that any thing such as the Orion Nebula existed. Ranch Canada del Oro OSP is a great (dark) site for South Bay residents and thanks to Christopher Kelly for organizing the star party at this location.

If you keep watch on Mars regularly during the month, pay attention to its phase over the course of the month: it’ll go from nearly full to noticeably gibbous.

When we look at a crescent moon, we’re seeing the whole central part of that light is reflecting that!), though much closer to us — less than half an AU, or about 45 million miles. So its disk extends a huge 37 arcseconds, bigger than Jupiter this month.

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The Planet in the Machine
Diane K. Fisher and Tony Phillips

The story goes that a butterfly flapping its wings in Brazil can, over time, cause a tornado in Kansas. The “butterfly effect” is a common term to evoke the complexity of interdependent variables affecting weather around the globe. It alludes to the notion that small changes in initial conditions can cause wildly varying outcomes.

Now imagine millions of butterflies flapping their wings. And flies and crickets and birds. Now you understand why weather is so complex.

All kidding aside, insects are not in control. The real “butterfly effect” is driven by, for example, global winds and ocean currents, polar ice (melting and freezing), clouds and rain, and blowing desert dust. All these things interact with one another in bewilderingly complicated ways.

And then there’s the human race. If a butterfly can cause a tornado, what can humans cause with their boundlessly reckless disturbances of initial conditions?

Understanding how it all fits together is a relatively new field called Earth system science. Earth system scientists work on building and fine-tuning mathematical models (computer programs) that describe the complex inter-relationships of Earth’s carbon, water, energy, and trace gases as they are exchanged between the terrestrial biosphere and the atmosphere. Ultimately, they hope to understand Earth as an integrated system, and model changes in climate over the next 50-100 years. The better the models, the more accurate and detailed will be the image in the crystal ball.

NASAs Earth System Science program provides real-world data for these models via a swarm of Earth-observing satellites. The satellites, which go by names like Terra and Aqua, keep an eye on Earth’s biosphere, atmosphere, clouds, ice, and oceans. The data they collect are crucial to the modeling efforts.

Some models aim to predict short-term effects—in other words, weather. They may become part of severe weather warning systems and actually save lives. Other models aim to predict long-term effects—or climate. But, long-term predictions are much more difficult and much less likely to be believed by the general population, since only time can actually prove or disprove their validity. After all, small errors become large errors as the model is left to run into the future. However, as the models are further validated with near- and longer-term data, and as different models converge on a common scenario, they become more and more trustworthy to show us the future while we can still do something about it—we hope.

Diane K. Fisher

For a listing and more information on each of NASAs (and their partners’) Earth data-gathering missions, visit http://science.nasa.gov/missions/earth.html. Kids can get an easy introduction to Earth system science and play Earth word games at http://spaceplace.nasa.gov/ecosphere.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

March 10 Talk
Dr. Graeme Smith from the Lick Observatory gave a talk on “Two Views of the Moon”. He showed many pictures from the Apollo program but they were different from the ones we usually see. He also covered many geological features of the moon.

Directions to Houge Park
Houge (rhymes with “Yogi”) Park is in San Jose, near Campbell and Los Gatos.

From Hwy. 17, take the Camden Avenue exit. Go east 0.4 miles, and turn right at the light, onto Bascom Avenue. At the next light, turn left onto Woodward Road. At the first stop sign, turn right onto Twilight Drive. Go three blocks, cross Sunrise Drive, then turn left into the park.

From Hwy. 85, take the Bascom Avenue exit. Go north, and turn right at the first traffic light, onto White Oaks Road. At the first stop sign, turn left onto Twilight Drive. You will now be passing the park. Turn right at the first driveway, into the parking lot.

Jim Van Nuland

The annual SJAA Yosemite star party will be held on August 10 and 11, at Glacier Point in Yosemite National Park. Up to 30 people will be given free admission and camping, in exchange for two public events on Friday and Saturday evenings. In what time is left, we can be tourists.

We are expected to have at least one scope per two people, and to attend both star parties, not just Friday or Saturday. For these reasons, this is probably not suitable for a family camping trip.

The camping is rough by modern standards: no dining room, no showers, no hot water. Read about it on the SJAA Yosemite page <http://www.sjaa.net/yosemite.html> and the FAQ page at <http://www.sjaa.net/yoeseqag.html>. Then contact me with remaining questions. That first page also has sun and moon rise and set times.

If you can tolerate the limitations, tell me the number of people you’ll have, and the number of scopes that will be set up for the public. E-mail me at jm@sjpc.org, or phone 408-371-1307 11 a.m. to 11 p.m. Priority is given to SJAA members.

SJAA Yosemite Public Star Party 2012
Jim Van Nuland

ClaudiaSat is one of the Earth-observing satellites collecting data that will help develop and refine atmospheric circulation models and other types of weather and climate models. ClaudiaSat’s unique orbit reads the vertical structure of clouds, including liquid water and ice content, and how clouds affect the distribution of the Sun’s energy in the atmosphere. See animation of this data simulation at http://www.nasa.gov/mission_pages/calipso/multimedia/cloud_calip_mm.html.

CloudSat’s unique radar system reads the vertical structure of clouds, including liquid water and ice content, and how clouds affect the distribution of the Sun’s energy in the atmosphere. Ultimately, they hope to understand Earth as an integrated system, and model changes in climate over the next 50-100 years. The better the models, the more accurate and detailed will be the image in the crystal ball.

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This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.
The Last Month In Astronomy

MAR-12-2012 New Jupiter Movies

Scientists including amateur astronomers have made some new movies of Jupiter. The movies are taken from images captured by the Cassini spacecraft which flew by Jupiter on the way to Saturn in 2000. These movies capture a wave perturbing one of the jet streams. “This is the first time anyone has actually seen direct wave motion in one of Jupiter’s jet streams” according to Simon Miller, lead author of an article on these movies published in the April 2012 issue of Icarus. Amateur astronomer Gianluigi Adamioli is a co-author of the paper. He said “Understanding the emerging analogies between Earth and Jupiter, as well as the obviously profound differences, helps us learn fundamentally what an atmosphere is and how it can behave.”

MAR-07-2012 Bubbles in the MW

A team of volunteers, citizen scientists if you will, have found 5,000 star born bubbles in the Milky Way. These volunteers, 35,000 of them, found these bubbles as of the online Milky Way Project. According to Robert Simpisen, a postdoc at Oxford, “The Milky Way Project is an attempt to take the vast and beautiful data from Spitzer and make extracting the information a fun, online, public endeavor”

MAR-02-2012 Dark Matter Slippery

Images from Hubble as well as the Canada-France-Hawaii telescope have found something interesting in the colliding galaxies called Abbé 520. The problem? The colliding galaxies have moved on but the dark matter appears to have become detached from the galaxies. The dark matter location is inferred from gravitational lensing.

FEB-28-2012 Asteroid 2011 AG5

There are 8,744 near-Earth objects (NEOs). One of them has gotten some press recently as representing a real threat for the morning of February 5, 2040. Actually, not much of a threat. The odds as of now are 1 in 425,000.

FEB-23-2012 Higgs Can’t Hide

The search for the Higgs boson has narrowed the range of possible masses for the particle. The Fermi National Accelerator has announced the most precise measurement of a related particle, the W boson. This raises confidence that the Large Hadron Collider (LHC) will find the Higgs particle later this year.

FEB-21-2012 Geologic Activity on the Moon

50 million years might sound like a long time ago but in the total lunar history it is recent times indeed. It is the time some geologic activity clearly occurred on the moon. The Lunar Reconnaissance Observer has pictures of scars that appear to be the result of that activity. According to Richard Vondrak from NASA “This pulling apart tells us the Moon is still active”.

FEB-21-2012 New class of planets

Hubble has discovered a new class of exoplanet. Gl214b, discovered by the MEarth project in 2005, is a watery world with a thick, steamy atmosphere. It is 2.7 times the size of Earth and orbits a red dwarf star every 38 hours. During a transit of the planet in front of its star. The spectroscopic study yielded results that suggests a steamy atmosphere with more water than Earth.

FEB-13-2012 ESA’s 3 Launchers

The Europeans have rounded out their launch capabilities with the Vega light launch rocket. Vega can put 1500 kg into a sun-synchronous orbit. The Vega joins the Soyuz medium lift and the Ariane heavy lift rockets. The Vega qualification launch was conducted from French Guiana. The Last Month In Astronomy

It Must Be Astronomical ...

Board Elections

At the March General meeting the board selected officers. The result is that all officers are keeping their current positions.

Auction Rescheduled

The annual SJAA auction has been rescheduled to May 6, 2012. The auction starts at noon and goes into the late afternoon. The auction takes place at Houge Park.

“...And I’ll leave you with this question: when the Moon passes between the Earth and the Sun, it’s a solar eclipse, and when the Earth passes between the Sun and the Moon, it’s a lunar eclipse. So what do we call it when, for us on the surface, the Earth gets in between us and the Sun?
Answer: night. — Phil Plait, the “Bad” Astronomer

Loaners

The loaner program offers members a means to try scopes of various sizes and technologies before you buy. For more information please see the loaner program web page http://www.sjaa.net/loaners.shtml

School Star Parties

For information on school star parties including how to schedule one see http://www.sjaa.net/school.shtml

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School Star Party Link

http://sanjoseastronomy.blogspot.com/

http://chandra.harvard.edu/photo/2012/a520/

http://hubblesite.org/newscenter/archive/releases/2012/13/full/


http://www.sjaa.net/news/press/2012/03/Fledgling%20stars%20flicker%20in%20the%20heart%20of%20Orion.aspx

http://mindexstitute.org/program/webpage.php/2012/2620/


http://hubblesite.org/newscenter/archive/releases/2012/13/full/

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☐ New    ☐ Renewal (Name only if no corrections)

Membership Type:
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☐ Regular with Sky & Telescope — $53
☐ Junior (under 18) — $10
☐ Junior with Sky & Telescope — $43

Subscribing to Sky & Telescope magazine through the SJAA saves you $5 off the regular rate. (S&T will not accept multi-year subscriptions through the club program. Allow 2 months lead time.)

☐ I prefer to get the Ephemeris newsletter in print form (Add $10 to the dues listed on the left). The newsletter is always available online at http://ephemeris.sjaa.net

Questions?
Send e-mail to membership@sjaa.net

Bring this form to any SJAA Meeting or send to the club address (above). Please make checks payable to “SJAA”.
You can join or renew online:
http://www.sjaa.net/membership.shtml

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