WEYMOUTH ASTRONOMY

Trips / Events

Ideas for trips and events always welcome!

events@weymouthastronomy.co.uk

- **13 Aug NLO—Astronomy Fair**
- *17 Aug CADAS—Lunar photography with a Webcam—Bill Reed*
- *6 Sept WAS—Dawn, Rosetta and New Horizons—Robin Catchpole*
- *21 Sept CADAS—Deep Sky Imaging—Philip Perkins*
- *4 Oct WAS—AGM & Astronomers' Question Time*
- *19 Oct CADAS—Starting out in Astronomy*
- *1 Nov WAS—Lunar geology from the comparative safety of your own home—Barry Fitzgerald*
- **16 Nov CADAS—Solar Imaging—Sheri Lynn Karl**
- **6 Dec WAS—TBA**
- **21 Dec CADAS—Christmas Social and Members Short Talks**

If you are interested in giving a talk or workshop, let the organisers know. They like to offer new titles in their programme line-up.

WAC Upcoming Events:

9 Sept—How Astronomy has Changed—Lillian Hobbs

14 Oct—Sundial workshop—John Macdonald

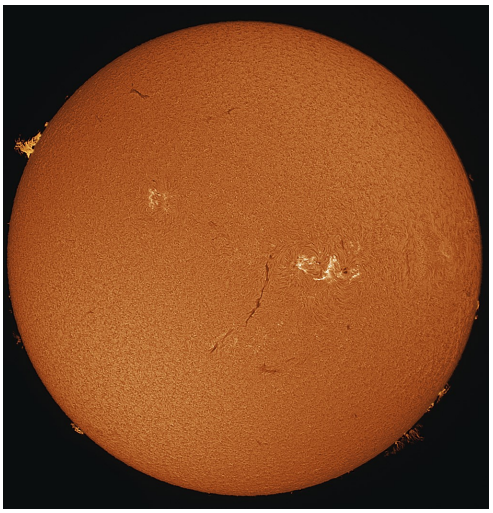
11 Nov—Aurora in the Solar System—Sheri Karl

9 Dec—Christmas Quiz Night

More to come!

Plans for informal viewing nights will take place after the monthly meetings, weather permitting.

Sky Watcher



WAC News—

The Sun has been increasingly quiet over recent months however last week, a few spectacular active regions appeared. Luckily on the 19th there was good enough weather to capture several features face on. There wasn't anything concerning about the magnetic fields of these behemoths at the time but as the large sunspot group rotated out of view Spaceweather sent an advisory. Sunspot complex AR2565-AR2567 erupted on July 23rd, *twice*, producing two strong solar flares in quick succession. The first @ 0211 UT registered M5 on the Richter Scale of Flares. The second @ 0516 UT registered M7.6, making it the strongest flare of 2016 so far. Radiation from the two flares ionized the top of Earth's atmosphere, causing a blackout of shortwave radio transmissions over the Pacific side of Earth. This event was certainly a reminder of how vulnerable our modern communications are to the effects of the Sun. This was not even an Earth directed event but it still caused disruption on a large scale.

Until next month ~SK

Venus and Jupiter prepare for their close-up this August

By Ethan Siegel

As Earth speeds along in its annual journey around the Sun, it consistently overtakes the slower-orbiting outer planets, while the inner worlds catch up to and pass Earth periodically. Sometime after an outer world—particularly a slow-moving gas giant—gets passed by Earth, it appears to migrate closer and closer to the Sun, eventually appearing to slip behind it from our perspective. If you've been watching Jupiter this year, it's been doing exactly that, moving consistently from east to west and closer to the Sun ever since May 9th.

On the other hand, the inner worlds pass by Earth. They speed away from us, then slip behind the Sun from west to east, re-emerging in Earth's evening skies to the east of the Sun. Of all the planets visible from Earth, the two brightest are Venus and Jupiter, which experience a conjunction from our perspective only about once per year. Normally, Venus and Jupiter will appear separated by approximately 0.5º to 3º at closest approach. This is due to the fact that the Solar System's planets don't all orbit in the same perfect, two-dimensional plane.

But this summer, as Venus emerges from behind the Sun and begins catching up to Earth, Jupiter falls back toward the Sun, from Earth's perspective, at the same time. On August 27th, all three planets—Earth, Venus and Jupiter—will make nearly a perfectly straight line.

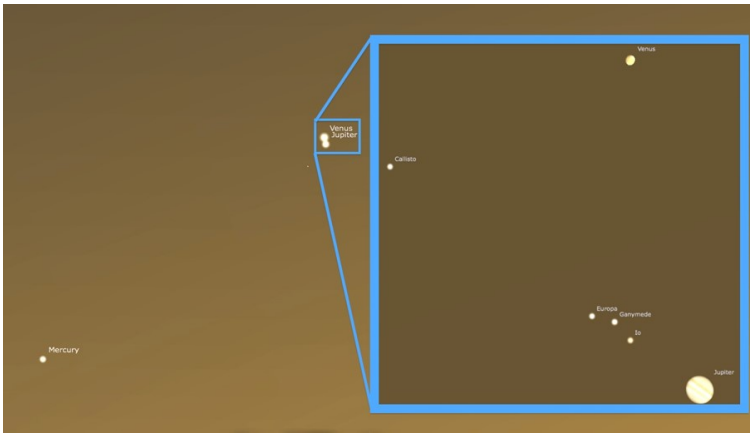


Image credit: E. Siegel, created with Stellarium, of a small section of the western skies as they will appear this August 27th just after sunset from the United States, with Venus and Jupiter separated by less than 6 arc-minutes as shown. Inset shows Venus and Jupiter as they'll appear through a very good amateur telescope, in the same field of view.

Close approach (continued)

As a result, Venus and Jupiter, at 9:48 PM Universal time, will appear separated by only 4 arc-minutes, the closest conjunction of naked eye planets since the Venus/Saturn conjunction in 2006. Seen right next to one another, it's startling how much brighter Venus appears than Jupiter; at magnitude -3.80, Venus appears some *eight times brighter than* Jupiter, which is at magnitude -1.53.

Look to the western skies immediately after sunset on August 27th, and the two brightest planets of all—brighter than all the stars—will make a dazzling duo in the twilight sky. As soon as the sun is below the horizon, the pair will be about two fists (at arm's length) to the left of the sun's disappearance and about one fist above a flat horizon. You may need binoculars to find them initially and to separate them. Through a telescope, a large, gibbous Venus will appear no more distant from Jupiter than Callisto, its farthest Galilean satellite.

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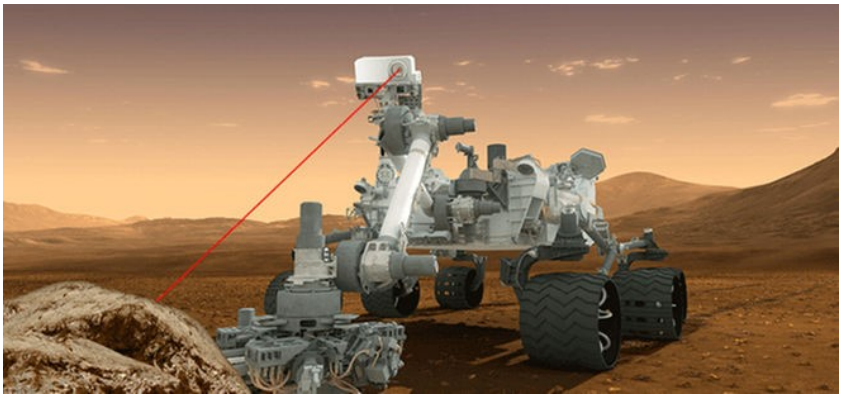
The South West Astronomy Fair is a fantastic day out for the whole family. They are prepared, rain or shine to provide a fascinating and interesting event.

An Pew! Pew! Pew! Mars Rover Curiosity Can Now Fire Laser On Its Own by Mike Wall



NASA's Mars rover Curiosity fires its ChemCam laser at a rock target in this artist's illustration. ChemCam has fired more than 350,000 shots on Mars as of July 2016. Credit: NASA/JPL-Caltech

Look out, Mars: NASA's Curiosity rover can now fire its onboard laser all by itself.

The car-size Curiosity rover recently began autonomously choosing some of the targets for its ChemCam instrument, which blasts Martian rocks or soil with a laser and analyzes the composition of the resulting vapor. Mission scientists here on Earth still select most Chem-Cam targets, after poring over images captured by the rover, NASA officials said. But Curiosity's increased independence comes in handy. "This autonomy is particularly useful at times when getting the science team in the loop is difficult or impossible — in the middle of a long drive, perhaps, or when the schedules of Earth, Mars and spacecraft activities lead to delays in sharing information between the planets," robotics engineer Tara Estlin, of NASA's Jet Propulsion Laboratory in Pasadena, California, said in a statement. Estlin led the development of the software that allows Curiosity to pull ChemCam's trigger automatically, which is called Autonomous Exploration for Gathering Increased Science (AEGIS). "To select a target autonomously, the software's analysis of images uses adjustable criteria specified by scientists, such as identifying rocks based on their size or brightness," NASA officials wrote in the same statement. "The criteria can be changed depending on the rover's surroundings and the scientific goals of the measurements." ChemCam sits atop Curiosity's head-like mast. The instrument can investigate the composition of a target that is up to 23 feet (7 meters) away from the rover. The $2.5-billion Curiosity mission touched down inside Mars' 96-mile-wide (154 kilometers) Gale Crater in August 2012, tasked with determining if the area had ever been capable of supporting microbial life. Using a suite of different instruments, the rover quickly found evidence that Gale was a potentially habitable lake-and-stream system billions of years ago. During its nearly four years on Mars, Curiosity has used ChemCam to analyze more than 1,400 targets, firing off more than 350,000 laser blasts in the process, NASA officials said.