Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Moderator_Brooke: Welcome to the Venus Transit chat. The first portion of our chat focuses on the Kepler mission and the transit event's significance. Our experts are Karen Kinemuchi and Tom Barclay from Ames Research Center. Thanks for being here, Tom and Karen -- now let's take some questions!

killerkory1: what does this look like because i cannot see it from my house

Tom: When it starts it should see like a very small black dot crossing the surface. Make sure not to look at it directly though.

killerkory1: how big is the spot on the sun because i cannot see the sun at my area

Tom: It covers around 1% of the surface area of the Sun. It will not be visible yet.

Gary: where can i watch live?

Tom: You should be able to see it via a live video from this site. Several other groups are also steaming the transit such as the PlanetHunters group.

Timothyjav: why will Venus seem to be so small?

Tom: It's because relative to the Sun, Venus is really small. It has about 1% of the projected area of the Sun.

Moderator_Brooke: Hello everyone -- we're having a lot of questions about viewing the transit online. This is an excellent link for viewing: http://venustransit.nasa.gov/transitofvenus/

Esra: Can the atmospheric gases of Venus be detected during the transit of Venus?

Tom: Not easily. The Sun is very bright relative to Venus and Venus will look like a dark disk.

UserName: Will it be distinguishable from a spot if you don't watch it move?

Tom: it should be easy to distinguish because Venus is circular whereas the spots will be less regularly shaped

rocke97: Will watching it for a short period of time be damaging?

Tom: YES! Do NOT look at it without special glasses.

Andy: What is the biggest change we will see in history books from the Kepler mission?

Tom: I think the biggest thing we will be able to say is that planets are very common and small rocky planets orbit most stars.

B: can it be seen from anywhere in the U.S?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Tom: It should be visible from everywhere in North America check out http://venustransit.nasa.gov/2012/transit/viewing_locations.php

jeff44663: Since only about 1 percent of the Sun's surface area is covered, that is obviously a very slight reduction in the light from the Sun. How does that compare to the light reduction you see with Kepler when an exoplanet transits its parent star?

Tom: Kepler can see similar dips in brightness on other stars as we will see from Venus today.

Timothyjav: how hot is the temperature on venus?

Tom: About 460 °C.

Gmoney: Can you see the Venus transit in Michigan

Tom: Yes. It should start in the next couple of hours.

Bradc: How many exoplanets has Kepler discovered?

Tom: We have found around 60 confirmed planets and another 2300 candidate planets (around 90% of these are likely to be real planets).

JAYVANBAMAFAN: Venus has always had a "cloudy" way of thinking... Is there anything we can do to stop her from trying to upstage the Sun?

Tom: Drive to California? It's lovely and sunny here.

Gmoney: will i be able to see it in Michigan

Tom: Where ever it is not cloudy. Make sure not to look directly at the Sun though.

Moderator_Brooke: Best online viewing link: http://venustransit.nasa.gov/transitofvenus/ A map of viewing around the world: http://venustransit.nasa.gov/2012/transit/viewing_locations.php

Hopehope: I believe that in the UK venus will be transitting the sun nocturnally. Will it still be possible to observe it?

Tom: Unfortunately you are on the wrong side of the Earth to see the start of the transit but you get to see the end of it after dawn.

Gmoney: How can we safely view the transit

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Karen: Hi, the best way to see the transit is if you have telescope with a solar filter attached. Never look at the sun directly! Another easy way to see the transit is to make a pinhole on a sheet of paper and project the image of the sun.

Bentraverse: How often does Mercury transit the sun?

Tom: Transits of Mercury are much more common and happen around 13 times every 100 years. The next one will occur in 2016.

Gmoney: how long does the transit last

Tom: Around 8 hours. You won't be able to see the entire event from the continental US.

Ishysan: What type of glasses is safe to use?

Karen: The best type of glasses to use to see the Venus transit would be to use eclipse shades. Usually they are made of a thick mylar film. Make sure there are no scratches or holes in the shades before using them!

JAYVANBAMAFAN: I learned from visiting the Marshall Space Flight Center in Huntsville, AL; that NASA always has a back-up plan, so thus, I have my DVR set to "record" the Venus Transit in 2117, just in case I miss it. I fully expect to be around on that day.

Tom: A transit of Venus will be visible in 2030 on Mars. Perhaps you should consider watching it from there.

venus2012: where i can see this

Tom: A map of where it is visible can be found from this link
http://venustransit.nasa.gov/2012/transit/viewing_locations.php

lilladyD76: Could you provide a brief summary of the Kepler Mission and purpose?

Tom: The aim is to determine the frequency of Earth-sized planet orbiting Sun-like stars.

USA: can mercury be seen across the sun since it is much smaller than venus

Tom: It is more difficult to see but if you have good eyes or a small telescope it is not too difficult.

rocke97: Is their a way to make the glasses and/or safety procautions needed at home?

Karen: If you have a pair of eclipse glasses (used to watch solar eclipses), those should be fine. If you don't have glasses, a quick way to view the transit is to make a pinhole camera with a sheet of paper or even a paper plate. Poke a hole and then let the sun shine through. You should project the image of the

sun against the wall or sidewalk, and you will be able to see the transit! Never look through the pinhole at the sun, however!

Moderator_Brooke: Thank you for all of these great questions. Tom and Karen are working on responses -- thanks for your patience, and remember, these go into a queue, so please don't leave if you don't see your answer right away.

Bradc: How optimistic are you that we will find a habitable rocky planet that resembles earth?

Tom: I am very optimistic. We have currently found planets that are the right temperature but are too big and we have found Earth-sized planets but they are too hot. I think in the next 3 years we will have one that is just right in terms of size and temperature.

Leo: where i can see the livecams of venus transit im writing from south carolina

Karen: There are many live web cams for the Venus transit. Through NASA, try http://www.nasa.gov/topics/solarsystem/features/watchtheskies/

etendilla77: how you deterrmine if an object is a exoplanet or not?

Tom: We look for transits across the star. Determining if this is definitely a planet is a long process and this is the reason why we have many more candidates than confirmed planets. It generally takes around a year of work to confirm a planet.

jeff44663: Has Kepler discovered any exoplanets orbiting a binary star system, or have they all been just single stars like our Sun?

Tom: Kepler has discovered 3 planets around binary stars, known as circum-binary planets - Kepler-16b, Kepler-34b and Kepler-35b.

Bo_Radley: If its raining out will I be able to see the transit?

Tom: If you can see the Sun then the transit will be visible. If not then you can watch one of the live streams.

MadRocketScientist: Will I be able to notice Venus using the white piece of paper with a pinhole technique, even though it's so small compared to the sun?

Karen: You should be able to notice a dark spot. Depending on where you project the Sun's image, like a blank wall, you should be able to see it!

USA: what exactly is these keeplar missions?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Tom: The Kepler Mission is a project looking for transits of planets orbiting stars other than our Sun. The goal is to find Earth-like planets.

Federica: This transit will have effects on the earth? I mean like earthquakes or something

Karen: No, Venus is too far away to affect Earth in such a manner.

Andy: Would Kepler detect a transit from something like an asteroid? And if so would this be a detected as a false positive? Thank you.

Tom: It is possible we could detect the transit of an asteroid but all the asteroids we know are small so the star would have to be very bright.

etendilla77: how far is the nearest exoplanet?

Tom: As far as I know Gliese 876 is the nearest at 15 light years away.

Moderator_Brooke: Best online viewing link: http://venustransit.nasa.gov/transitofvenus/ and a map of viewing around the world: http://venustransit.nasa.gov/2012/transit/viewing_locations.php

JBahks: Where can i find your live stream

Tom: http://www.nasa.gov/connect/chat/venus_transit.html

Bradc: I know the plan was to point Kepler at a specific point in the sky for a few years. If that doesn't show what we are looking for then what is the plan?

Tom: The longer we look in the same spot the better. The reason being is that we need to look for a long time to see multiple transits of the same planet. For example, to see 5 transit of an exact copy of Earth we would need to look for 5 years.

Joyce: Has gliese581 G (I think it was) been crossed off for a planet that would be habitable?

Tom: I think it is still debated amongst the scientific community.

Adam: what time wil the transit occur

Karen: If you are on the West Coast (Pacific Daylight time) the transit will be visible this afternoon between 4pm until sunset. The transit is slated to begin at 22:27 UT and ends at 04:49 UT.

JBahks: When was the last time this has happened? Does this only happen every hundred or so years? Does it very?

Tom: It last happened in 2004 but the next time it happens will be 2117. The come in pairs.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

---

gmoney: are regular glasses okay to watch

Karen: No, don't use regular glasses to look at the sun! It is recommended you use eclipse glasses or telescopes fitted with a special solar filter.

USA: do you think mars can substain life?

Tom: I think it unlikely to be able to sustain complex life. Microbial life, possibly.

MichioKaku: what time will venus cross the sun

Tom: It should start in around an hour.

Bentraverse: When was the first recorded transit?

Tom: The first person to record a transit was Jeremiah Horrocks in 1639. Only 2 people saw that transit.

Esra: Is it possible to observe the planets detected by the Kepler mission by using optical telescopes in the near future?

Tom: Kepler is an optical telescope although it has the advantage of being in space. Ground based telescope have observed transit of planets seen by Kepler already. In fact 3 planets in the Kepler field of view were found by ground based astronomers before Kepler was launched.

Trexny: I thought it was earlier and I looked and I saw about 4 spots, sunspots? And will the planet appear much larger than thosde spots?

Tom: The planet will look different to Sun spots. The planet will look like a dark circle whereas the sunspots are more diffuse and not especially round.

addyraina02: If venus orbits every 224 days, how come this wont happen until 2117?

Karen: Good question! The reason why there is such a long wait between transit events is that Venus's orbit is slightly inclined, so usually, it appears to us on Earth that Venus is above or below the sun as it orbits. It is when the orbital plane of Earth and Venus line up, we get to see Venus cross the face of the Sun. Venus transits have been happening in pairs, about 8 years apart (the last on in 2004), and then a wait for over 100 years until the next pair of transits!

Flower: How many transit happen in our life time ?

Tom: Depends how long you plan on living. One happened in 2004 and then the one today. After that you have to wait over 100 years.

Drewpy: you guys have the best jobs in the world :) its my dream job

---

Tom: I agree!

Moderator_Brooke: Thank you for all of these great questions. Tom and Karen are working on responses -- thanks for being patient. These go into a queue, so please don't leave if you don't see your answer right away.

Jkane: Tom, was it a coincidence or did Jeremiah expect it?

Tom: Jeremiah predicted it. No one else believed him so only him and his friend saw it. It is a fascinating story. Wikipedia has a nice shortened version of it.

HackThePanda: How do they know they were the only 2?

Tom: No one else wrote it down. We are assuming that if another person saw it they would have told someone about it.

Godsmack: can i ask you something?

Tom: Fire away!

venus2012: can i use the camera o the ipod?

Tom: The Sun will probably be too bright and saturate the picture. I tried to so this during the eclipse a couple weeks ago and failed.

JBahks: Thats great. Is this the only transist of a planet we can witness? is the only reason this is so special is becuase its venus?

Tom: This event has great historical significance. George III of England (I think!) sent Captain James Cook to Tahiti to observe this event in the 18th century. This enabled us to calculate the distance to the Sun.

Moderator_Brooke: We have about 10 more minutes for Tom and Karen in the chat, before they turn this over to Marshall expert Jonathan Cirtain. So if you have a question for Tom and Karen, now is your chance!

Downhill619: I'm studying the transit for a Science project. Can you tell me why the transit can't be seen at regular intervals?

Karen: The orbital planes of Earth and Venus are not on the same plane -- Venus is slightly inclined relative to us. Due to this, when Venus does get in between us and the Sun, it usually appears to be slightly above or below the Sun. It is when the Earth and Venus are in a special spot in their orbits around the Sun where we can actually see Venus cross over the face of the Sun and we get to see these

transits! Unfortunately, this special spot occurs roughly 100 years apart, and when the transits do occur, they occur in pairs separated by about 8 years.

lilladyD76: Can you provide any more details about Kepler 22-b I read that this is the most promising canidate yet!

Tom: it is one of the few exo-planets with a temperature suitable for life. However, it is likely to be gaseous or a water world and not rocky.

Bradc: How large is the Kepler team?

Tom: The internal team is around 30 people and we work with scientists from all around the world.

Aaron: Why is it that, Mercury's transition occurance, is far more often than Venus's. Are the orbital planes much different between the two inner planets?

Tom: Mercury goes around the Sun 2.5 times as often as Venus.

Synox: what do you/we expect to find from this transit that we did not from the 2004 transit due to new methods and technology available today?

Tom: Personally, I am going to enjoy the event as the last time I'm ever going to see it. I'm not trying to do any science.

Kimmeh: in the uk here.. gutted! is it worth staying up for? :-)

Tom: You don't need to stay up. You should get up at dawn to see it.

USA: is earth ever in a transit to another planet?

Tom: Yes. And potentially aliens with a telescope similar to Kepler looking from distant stars.

Mroxicom: What time I can see in Spain, the live stream of Hawaii?

Tom: If you are in the north east of Spain, get up early tomorrow morning and you should catch the end of it.

FloatingInTime: How excited are you by this and are you looking forward to seeing this? Guess you'll be making an extra effort to see this Transit!

Tom: I am very excited. Very few of us will see the next one.

Crazy_Guitar: Why is the period 105 years, then 8 years, then circa 120 years, then 8 again?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Karen: Good question! Venus has a near circular orbit around the Sun. Combined with the orbital period of Venus (about 224 days), the coincidence of Earth being able see Venus passing in front of the Sun is about 105 years, then 8, and then 120 years. The orbital planes of Venus and Earth are also not quite lined up. When the two planets are in a part of their orbital path that allows us to see Venus against the face of the Sun, we have these transit events. Otherwise, it appears to us that Venus is passing the Sun slightly above it or below it.

Tom: Hi all. I have to leave now. Thanks for all the great question and I'm sorry I only managed to answer a few of them. Enjoy the transit!

Karen: Thanks everyone for posting your great questions! Have a safe viewing of the Venus transit! It's been a pleasure!

Moderator_Brooke: Many, many thanks to Tom and Karen for answering your Kepler and transit questions today! We appreciate it very much. Now stay tuned -- we have a new NASA expert who's just joined our chat. Dr. Jonathan Cirtain from the Marshall Center will be answering your questions as the transit begins and moves into its opening phase. Jonathan, welcome to the chat! (And remember, everyone, we'll be here non-stop until 1 a.m. Eastern.)

Moderator_Brooke: Thank you for all of these great questions. Jonathan is working on responses -- thanks for your patience, and remember, these go into a queue, so please don't leave if you don't see your answer right away.

Moderator_Brooke: Best online viewing link: http://venustransit.nasa.gov/transitofvenus/ and a map of viewing around the world: http://venustransit.nasa.gov/2012/transit/viewing_locations.php

Joe_lp: How come we don't get to see Mars and the outside planets transits?

Jonathan: A transit is when a planet passes between the Earth and the sun. Mars and the outer planets are further from the sun than the Earth and thus never can pass between us and the sun.

Hid: hello

Jonathan: Hello!

Chalax: the ratio of a total solar eclipse when the moon is in front of the sun is 1:1. What is the ratio of venus passing in front of the sun at we are going to see?

Jonathan: That is a good question! Venus is about the diameter as the Earth but 71,000,000 miles from the sun where we are 93,000,000 miles (approximately). So the amount of the sun subtended by Venus is 3.4% of the sun's diameter.

Timothyjav: I feel bad that pluto is no longer a planet, does NASA share this feeling?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Jonathan: NASA is a government agency and has no feelings. I personally am sad for Pluto.

Star: How long will the transit last?

Jonathan: About 7 hours.

Andrar: Where can i see the venus transit in real time?

Jonathan: Either outside using proper protection or at NASA.gov.

Bradc: Hi Jonathan, as someone that is inspiring to work for NASA could you give me any advice?

Jonathan: Study hard. Intern often. Math, physics, engineering.

Moderator_Brooke: Many, many good views of the sun and the transit will happen today. The Marshall Center has a good one going right now: http://www.ustream.tv/channel/nasa-msfc

transit : ny news on when we can stream footage?

Jonathan: It is live now and can be found at www.nasa.gov/connect/chat/venus_transit.html

Chesarei: This question might have already been asked, but I am using a sun funnel on my telescope to project the transit. It is cloudy here where I am at, but I can see kind of see the sun through the clouds. Do you think I will still be able to project the transit even though it is cloudy?

Jonathan: It really just depends on how thick the clouds are, frankly.

Moderator_Brooke: Getting many, many questions about viewing. Best online viewing link: http://venustransit.nasa.gov/transitofvenus/ and a map of viewing around the world: http://venustransit.nasa.gov/2012/transit/viewing_locations.php

Gothika: At what time in east coast is it?

Jonathan: It will start at 6:03 Eastern.

Imogen: can i watch this live anywhere? i'm not in the US

Jonathan: No. The transit can be seen partially in the US/South America and parts of Europe/Africa and the full duration of the transit can be seen from Australia and far eastern Asia as well as Hawaii.

Mrberning: At what time does the live stream from Huntsville begin?

Jonathan: The last stream is up now. The Venus transit does not start in Huntsville, Al. until just after 5:00pm.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Curious: is there any way to see venus using crap from my house?

Jonathan: Try using aluminum foil!

cpb1199: Will you be able to see it with the sun spots?

Jonathan: Yes. With proper equipment like a solar neutral density filter and binoculars, you can see both the Venus disk and the current sun spots.

Eli: hello! in Argentina can we observe the transit ?

Jonathan: Yes. It'll start about 6:00pm local time for you.

Harrier: what to do if I don't wanna get up early to see this irl

Jonathan: You can wait until 2117 and see the next one.

Moderator_Brooke: Best online viewing link: http://venustransit.nasa.gov/transitofvenus/ and a map of viewing around the world: http://venustransit.nasa.gov/2012/transit/viewing_locations.php. Remember -- never look at the sun without eye protection!

Aliennandy: will transit Be Visible to Naked Eye?!

Jonathan: You should not view the sun without proper protective equipment. If you view the sun with your naked eye, you risk permanent damage. Get welders #14 glasses or a neutral density filter or sun viewing glasses.

Ryan: will you guys be streaming it?

Jonathan: Yes. We have posted a link.

Federica: i'm writing from Italy and i really wanted to thank you fotr what you are doing well given the opportunity to any person to follow what is happening. Thanks again

Jonathan: You are welcome. We are public servants.

Moderator_Brooke: Some online viewing links: http://venustransit.nasa.gov/transitofvenus/ (omnibus for online video views); http://www.ustream.tv/channel/nasa-msfc (Marshall Center feed); and a map of viewing around the world: http://venustransit.nasa.gov/2012/transit/viewing_locations.php . Remember -- never look at the sun without eye protection!

Gio: I think that before Jeremiah Horrocks recorder this in 1639 the Mayas taked about it. Was this true?

Jonathan: No.

Moderator_Brooke: Also everyone, I'm sorry, but I can't post live links due to some software parameters. Sorry about that, but hope they help anyway. These links ARE live-linked here on the chat page, in the body text and in the right-side links.

SuperNovaMan: Do you believe there is other life out there that could possibly be watching the transit of Venus as well, or even the transit of Earth (from their perspectives)? Or just other sentient life in general?

Jonathan: I am a scientist and don't speculate about beliefs. I form a hypothesis. About this specific potentiality, I have no opinion. However, it is possible.

MadRocketScientist: will the entire transit be broadcast on the NASA page?

Jonathan: Yes.

Ripuhh: Does anyone know when the transit will occur and how I can view it using the Solar Dynamics Observatory glasses in north carolina?

Jonathan: Go outside now and start watching. It is about to begin. Do use proper protective viewing equipment.

Sinkip: Can you see it with the naked eye for a limited time?

Jonathan: Not without damaging your eyes.

Danny: which parts of the us can it be seen

Jonathan: All of them, with the exception of McMurdo Base on Antarctica.

Agustina: Ei ! In Argenita can we observe the transit Venus?

Jonathan: Yes.

PenusTransit: Will it be visible from Toronto?

Jonathan: Yes.

Moderator_Brooke: Some online viewing links: http://venustransit.nasa.gov/transitofvenus/ omnibus for online video views); http://www.ustream.tv/channel/nasa-msfc (Marshall Center feed); and a map of viewing around the world: http://venustransit.nasa.gov/2012/transit/viewing_locations.php. Remember -- never look at the sun without eye protection! Also everyone, I'm sorry, but I can't post live

---

links due to some software parameters. Hope they help anyway. These links ARE live-linked here on the chat page, in the body text and in the right-side links.

Lucaaah: alluminum foil with a pinhole and image projected on a clear paper sheet?

Jonathan: Either will work.

Ripuhh: can I use the Solar Dynamics Observatory glasses (they're paper with black lenses, you guys made 'em at NASA!) to view the transit? How would I go by doing that?

Jonathan: Yes. Put them on your face and look at the sun.

blindfaith0220: I have a number 8 welding lense. Will that be dark enough to watch the transit?

Jonathan: We recommend a #14.

Flower: Hi In the uk what time is it visble , I know its not till tomorrow morning but what time so i can set my alarm.

Jonathan: It will be happening at sunrise. Get up early and see the final phase of the transit.

Jonathan: It has started! I will be back in a moment to report what I have seen!

Moderator_Brooke: The transit has begun! This will be a once-in-a-lifetime opportunity for the next few hours, so don't miss it! Some online viewing links: http://venustransit.nasa.gov/transitofvenus/ (omnibus for online video views); http://www.ustream.tv/channel/nasa-msfc (Marshall Center feed); and a map of viewing around the world: http://venustransit.nasa.gov/2012/transit/viewing_locations.php. Never look at the sun without protection! Also everyone, I can't post live links due to some software parameters, but they ARE live-linked here on the chat page, in the body text and in the right-side links.

Esra: Why is the rotation of Venus opposite to all other planets in the solar system?

Jonathan: It likely was hit by a very large object early in the formation of the solar system. All the other planets rotate the same direction as the sun because of the conservation of angular momentum.

SuperNovaMan: Will there be any adverse effects on Earth from the transiting of Venus between the Sun and our lovely blue planet?

Jonathan: No.

Moderator_Brooke: http://venustransit.nasa.gov/transitofvenus/ At this link, check out the interactive Google map of available video feeds that will be watching the transit!

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Scedeno: Does Mercury has similar transit as Venus? When it will happen?

Jonathan: Mercury orbits the sun 2.5 times more often than Venus so we do see Mercury transits more often. Its orbit is also less inclined relative to the ecliptic than Venus' and that helps the frequency as well. However, I am not sure of the date of the next Mercury transit.

Jonathan: Mitzi Adams just found out that the next Mercury transit will be May 9, 2016.

Moderator_Brooke: Some online viewing links: http://venustransit.nasa.gov/transitofvenus/ (omnibus for online video views); http://www.ustream.tv/channel/nasa-msfc (Marshall Center feed); and a map of viewing around the world: http://venustransit.nasa.gov/2012/transit/viewing_locations.php. Never look at the sun without eye protection! Also everyone, I'm sorry, but I can't post live links due to some software parameters. Hope they help anyway. These links ARE live-linked here on the chat page, in the body text and in the right-side links.

Renoc: What are the dark spots showing on the images of the sun?

Jonathan: They are called sun spots. They are dark relative to their surroundings because they are cooler. These sun spots are areas of concentrated magnetic field which lowers the gas pressure above the solar surface and thus lowers the temperature.

shane_s.: or can i use a wielders helmet

Jonathan: As long as it is a #14 glass.

anja_pilot: How was the Venus's atmosphere discovered?

Jonathan: When Venus passes in front of the sun, a transit, light that passes through the atmosphere is slightly bent. This change in the light path was the 1st evidence that Venus had an atmosphere.

EPiCJUPITER99: what is the amount of times u can see it in a lifetime

Jonathan: The next transit is in 2117 so this is the last one of your lifetime.

Moderator_Brooke: Many questions about how to make a pinhole camera for viewing -- here's a good link: http://tinyurl.com/8xmnvk6

Rajesh: can i know the timing for USA EST

Jonathan: It started 20 minutes ago and will last for 7 hours.

Jonathan: It will be visible from Iceland.

J: Is watching the transit with sunglasses on ok?

Jonathan: No it is not safe at all!

Star: Will there ever be another transit?

Jonathan: In December 2117.

Michael_S.: Excuse Me but im watching the live stream and i see mustiple dots on the sun. Which one is venus?

Jonathan: The perfect circle!

Choko: is what I'm watching on the nasa website live right now?

Jonathan: Yes.

Hailgman: why cant i see venus in Eastern Tennessee

Jonathan: You should be able to as long as it isn't cloudy.

Alchemy: what if any effect will the sun have on the planet venus during its transit? will the effects be permanant?

Jonathan: There should be no impact on Venus.

Maddie: How big is the sun? How many earths would fit in the sun?

Jonathan: It is 100 earth's diameter in diameter. I think about 1,000,000 earths would fit inside the sun.

REID: I live in South Mississippi. Will I be able to goutside and see Venus tonight?

Jonathan: You can see the Venus transit until sunset

Aprilhaviland: is there Air on venus

Jonathan: Venus has an atmosphere. Instead of being nitrogen and oxygen, like on Earth, it is mostly carbon dioxide and sulfuric acid.

Reji_Toronto: any updates for visibility from Toronto?

Jonathan: It should be visible from Toronto.

Moderator_Brooke: Thanks for your patience as we answer your questions! LOTS of interest on this, so a lot of questions and also a lot of traffic on the feeds. We're glad you're here. Great live viewing here: http://tinyurl.com/c8y7ky5 and here: http://tinyurl.com/2cfqeac

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Jonathan: I just went and looked for myself and the entire Venitian disk is within the solar disk!

Wmvtaylor: As night time falls here in Chicago will we be able to view it with the human eye?

Jonathan: Only with proper protective gear. Please do not look at the sun with only your eyes and no protection.

HannahF: how can you tell when venus will come around next?

Jonathan: Orbital mechanics.

Flutterbyes: The video from 8 years ago shows the transit from left to right. The transit appears to be right to left this time - is that correct?

Jonathan: The planets always move in the same direction. This apparent motion you describe is an optical effect and not reality.

jcampos49: How far is Venus from the sun?

Jonathan: 71,000,000 miles on average or 0.77 astronomical units.

PaulinaSparkles: When will I be able to see the transit I Miami,FL; and will I need to be in a specific place to see it?

Jonathan: It has started. Go outside and view the transit using safe methods as provided in the links within this chat.

Moderator_Brooke: Thanks for your patience as we answer your questions! LOTS of interest on this, so a lot of questions and also a lot of traffic on the feeds. Great live viewing here: http://tinyurl.com/c8y7ky5 (main NASA site) and here: http://tinyurl.com/2cfqeac (Marshall Center feed).

Harry: Is the dimming of the Sun by Venus noticible without a telescope?

Jonathan: Yes but you have to have a very sensitive device to note the approximately 3% reduction in total brightness.

Peter: How large is Venus compard to earth?

Jonathan: 12,050 kilometers for Venus versus 12,700 kilometers for Earth.

Flower: why does venus look so tiny

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Jonathan: Because it is far away. About 22,000,000 miles from us. That is 100 times further from us than the moon.

shoot998: i am in texas, when will i be able to see it?

Jonathan: Now!

Llllll: Is there any way i could see the trasit without protective gear?

Jonathan: Watch it by live stream on the Web.

PaulinaSparkles: Are there any astronuts in space at the moment and will they be able to watch the Venus transit? Would it look different to them?

Jonathan: The International Space Station has personnel aboard. They will be able to see the transit and it will look the same to them as it does to us.

Moderator_Brooke: Hi everyone -- as you've noticed, the live feed embedded on the page is looping the animation. Hopefully we can get that fixed, but here is the direct link to the Ustream feed from Marshall. http://www.ustream.tv/channel/nasa-msfc (there is a BEAUTIFUL view of the transit on there right now...LIVE!)

JVroom: How come venus does not have a magnetosphere? I thought Venus also had a core containing metal?

Jonathan: It is not clear that Venus has no magnetic field but if it does, it is very weak. I do not believe what constitutes the core of Venus is known.

Aliennandy: I have this doubt Long tym! Does Sun Revovle around Itself Just Like Earth?!

Jonathan: It takes the sun 27 Earth days to fully rotate on its own axis.

jodi711: when will venus orbit across the whole sun from where it is now?

Jonathan: A little under 7 hours.

Scedeno: What kind of data does NASA expect to get from this Venus transit? Why is important to common people besides the spectular view?

Jonathan: Great question. Hubble will use this opportunity to test a new technique for viewing exoplanets. Kelper will use this opportunity as a calibration exercise. SDO and Hinode will use the data to assess instrument performance characteristics.

Fabryz: What was the last time that a Venus transit on the Sun occurred?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Jonathan: 2004. The next will be 2117.

Anuar_MX : My question is, we will be able to watch venus during all the transit?

Jonathan: It depends on where you live.

BrianTX: Why does the transit appear either higher or lower than the center of the sun, and are the planets on a level plane with the sun?

Jonathan: Venus does not orbit the sun in the same plane as the Earth. This transit has Venus slightly higher on the sun for sun. Other transits, both past and future, will have the sun lower on the equator.

TCwiek: What is the distance from Earth to Venus?

Jonathan: 22,000,000 miles.

Moderator_Brooke: Jonathan will be leaving the chat in about 5-10 minutes, so please ask him your questions now! Our next expert, Renee Weber, is on the way...

Bob_B: How fast is Venus moving?

Jonathan: 35.02 kilometers per second.

Sloan: Who was the first human to see a transit of Venus?

Jonathan: Jerimiah Horrocks.

Moderator_Brooke: Thanks for your patience as we answer your questions! LOTS of interest on this, so a lot of questions and also a lot of traffic on the feeds. Great live viewing here: http://tinyurl.com/c8y7ky5 (main NASA site) and here: http://tinyurl.com/2cfqeac (Marshall Center feed).

Moderator_Brooke: The changing of the guard...our thanks to Jonathan Cirtain as he leaves our chat, and we'll have Renee Weber joining us in just a moment. Meanwhile, enjoy the live links: http://tinyurl.com/c8y7ky5 (main NASA site) and here: http://tinyurl.com/2cfqeac (Marshall Center feed).

Moderator_Brooke: Our thanks to Jonathan for answering your Venus transit questions today! We appreciate it very much. Now stay tuned -- we have a new NASA expert who's just joined our chat. Dr. Renee Weber from the Marshall Center will be answering your questions as the transit continues its trek across the sun. Renee, welcome to the chat! (And remember, everyone, we'll be here non-stop until 1 a.m. Eastern)

a587789: Are we likely to see any solar flares while watching this?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Renee: Yes, I was just viewing earlier and was able to see 3 sun spots!

Confusedlady: how is it that it happened in 2004, 2012, but then not again until 2117?

Renee: The orbit cycle usually results in 2 transits relatively close together in time, separated by a period of ~100 years.

TCwiek: what is the best estimate of the type of atmosphere on Venus?

Renee: Venus' atmosphere consists of mostly carbon dioxide (CO2).

Josh_M: Brooke, how massive is Venus' atmosphere?

Renee: Venus' atmosphere is approximately 100x more massive than Earth's.

Moderator_Brooke: Looking for viewing tips to watch the transit? This link has great safe viewing information: http://tinyurl.com/75gnhll

Flower: Venus looks like its going really quick but it has to last 7 hours ?

Renee: The entire transit will last ~6.5 hours, and started just over 1 hour ago.

Moustafa: How can I get a good view of the Sun?

Renee: Check the link posted by Brooke!

Moderator_Brooke: Thanks for your patience as we answer your questions! LOTS of interest on this, so a lot of questions and also a lot of traffic on the feeds. Great live viewing here: http://tinyurl.com/c8y7ky5 (main NASA site) and here: http://tinyurl.com/2cfqeac (Marshall Center feed).

PRSALAS: At the bottom of the image (the image where the sun is red/orange), are those eruptions coming from the sun? If not, what are they?

Renee: Yes, it's known as a solar prominence. It could erupt, but is not currently.

Jaha: Does Earth (an other planets) have a range of speed? For example faster or slower during closer proximity with the sun? What is the range?

Renee: Yes, it depends on the eccentricity of the orbit. Planets move faster in their orbits when they are closer to the sun. The amount varies for each planet.

jlbs100: Why are there transits?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Renee: Because of the geometry of each planet's orbit. At certain times, the inner planets cross exactly between the Earth and the Sun, so we see them transit across the solar disk. We are the 3rd planet, so we can see transits of both Mercury and Venus.

Alicia: Do I need to re-ask my questions because the moderator has changed?

Renee: Please do, I would be happy to catch up with all the replies!

nasa_lover: Could it be posible to situate big stuff between the sun and the earth, to prevent some sunrays to reach the planet and help global warming ?

Renee: That is a very interesting idea, but unfortunately I think it is also very technically challenging, and expensive!

Spacemoose: So, people are saying no one alive today will see this ever again, but with medical advances, wouldn't it not be too far-fetched to say someone born recently could live to be over 100 and see it in 2117?

Renee: That's possible, but if they were very young today, they would likely not remember seeing the transit! However, it may be possible to see future transits from spacecraft and missions that are not yet launched.

Kkkk: has it already started?

Renee: Yes, but there is still plenty of time to catch it if the sun is out where you live!

Zephyrus: Is there a time when Mercury and Venus are together making a transit at the same time in different perigee and apogee's?

Renee: I don't think so... that would be an extremely rare occurrence!

NextRockOver: Is venus closer to the sun than normal when it transits? Will it make the earth colder?

Renee: Venus has not moved from its normal orbit, we are just seeing a rare orbital geometry that puts Venus directly between Earth and the Sun. The actual angular distance spanned by Venus is very very small, just a tiny speck, so the amount of solar energy incident on Earth is unchanged.

Chinchilotis: Given the speed of light, the distance from the earth to the Sun and Venus' transit location; how delayed is our view of the Venus Transit

Renee: It takes light 8 minutes to travel from the Sun to Earth, so the delay is a little less than that.

Moderator_Brooke: Looking for viewing tips to watch the transit? This link has great safe viewing information: http://tinyurl.com/75gnhll

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Sloan: What are the small filament like structures on the limb of the sun made of? I can see a few in your tv feed.

Renee: These are essentially magnetic fields that "hold on" to hot plasma.

Jack: i was wondering if lakeland Florida cane see this Transit

Renee: Should be able to, if the sun has not gone down yet!

Calleb: Why Venus has atmosphere, but still be so close to the sun ?

Renee: Venus' gravity is strong enough to overcome the effects of the solar wind that would otherwise strip away the atmosphere.

Johanna: How far away is Venus from the Sun?

Renee: Venus is about 108 million kilometers from the Sun, about 70% of the distance from the Sun to the Earth.

REID: Dr. Weber, what should I be looking at when looking for Venus? Do I look at the Sun? It is before sunset, so I should be seeing it. I live in South Mississippi.

Renee: Yes, if you have safe viewing equipment for viewing, you should be able to see it now. Venus will pass in front of the Sun, and is just barely visible with no magnification.

nasa_lover: can there be non spherical planets ?

Renee: Yes, in fact Earth is slightly non-spherical. It is more like a flattened ball, where the radius at the poles is slightly less than the radius at the equator.

Scienceisawesome: will you be able to see the venus transit in london, united kingdom?

Renee: Yes, June 6 at sunrise.

Flower: If venus passes the sun and a solar flare goes off will venus be ok?

Renee: Solar flares are unlikely to have any effect on Venus.

jodi711: does sun and venus have its own axis and how much is a venus year in earth days

Renee: A Venus year is 224 earth days.

David: Are there any other planets that have transits?

Renee: Yes, Mercury.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

---

alexlarson48: Is venus casting a shadow upon the Earth?

Renee: No, the earth is too far away to be able to detect the shadow.

House: What is the surface temperature of Venus?

Renee: Average is 460 degrees C.

BrianJTDallasTX: What are the darker spots and splotches on the sun, other than Venus, that show up on the CNN live feed?

Renee: Those are known as "sun spots" caused by intense magnetic activity.

EPiCJUPITER99: if an asteroid hit venus during transit would we see it?

Renee: I don't think so, it would have to be a pretty large asteroid, and it would have to intersect the surface of Venus at the exact right angle for it to be observed from Earth.

Patrick: Every webcam I see has Venus in a different location in reference to the sun. Some upper-right. Others upper left. Still another lower left. Which is it?

Renee: it will be different for every telescope. Some are reflectors which show left-right or up-down mirror images (or both!)

Friday: Been searching the site but still ccan't find a live stream. Any help?

Renee: There have been many questions about the live feed. Brooke will post a link momentarily.

Moderator_Brooke: Hi everyone -- as the transit viewing window ends over the Southeast, we've embedded the live transit views from the main NASA Ustream on this page. If you're not seeing it, you'll need to refresh this chat page. This will exit you from the chat, but we've extended our capacity, so you can come right back into the room. Or if you prefer not to exit, you can access the NASA Ustream at: http://www.ustream.tv/nasa

DTime: Did the tranist happen alreay on the west coast?

Renee: The transit is in progress now and will be viewable for a few more hours.

Johanna: Renee, have there ever been any Earth transits from another planet?

Renee: Probably, but unfortunately we don't have any telescopes on other planets to view the transits! It's a neat idea though!

Johanna: Who was the first human to see a Venus transit?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Renee: The first recorded observation was made in 1639 by Jeremiah Horrocks, an English astronomer.

Moderator_Brooke: Thanks for your patience as we answer your questions! LOTS of interest on this, so a lot of questions and also a lot of traffic on the feeds. Great live viewing here: http://tinyurl.com/c8y7ky5 (main NASA site) and here: http://tinyurl.com/2cfqeac (Marshall Center feed).

Kim: What is gravity like on Venus and how does that compare to Earth?

Renee: Venus' surface gravity is close to Earth's because the two planets are of similar size and density. It is about 90% of our gravity.

Veronica: Will there be any alignment of Mercury, Venus, Mars and the Earth with the sun? In other words, will a simultaneous transit of those planets be possible? Your question has been submitted to the moderator.

Renee: I think it is possible, but extremely rare.

Mayetsr: What's the explanation behind the cycle resulting in a tandem a few years apart?

Renee: It is related to the fact that the orbits of Earth and Venus are in rotational proportion (8 to 13)

James: how long has a lander lasted on Venus?

Renee: The Russians landed several spacecraft on Venus in the 1970's. The early landers lasted only ~20 minutes, while later landers lasted up to 2 hours.

NextRockOver: Is venus hotter as it transits? Is it in any danger?

Renee: Venus is not experiencing any differences in its normal orbit; it is just that the Earth is currently uniquely situated to see Venus cross the solar disk from our perspective.

6thgrader: When will the next planet cross the sun so that we can see? Also, how does nasa know ahead of time when a planet is going to cross our view of the sun?

Renee: The next transit of Venus will happen in 2117. We are able to predict them because we have very precise measurements of the orbits of each planet.

Calleb: Why is Venus always the brightest point in the night sky ?

Renee: Venus is relatively much closer to us than the stars, and we see the light reflected off Venus from the sun.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Moderator_Brooke: MANY good live views of the transit at this link: http://venustransit.nasa.gov/transitofvenus/ (Check out the interactive Google map.)

Witek: Is it possible, hypotheticaly, to see Earth transit from Jupiter's surface?

Renee: Jupiter is a gas planet, so if it has a "surface," it is somewhere beneath a deep, dense layer of gas! But yes, Earth does transit the Sun from other planets that are further than us from the Sun.

Jzdnzr: Mercury would appear more tiny than Venus; it would appear nearly indisquinchable. wouldn't it?

Renee: I have not seen a Mercury transit, so I don't know if it is discernable with no magnification. It would be viewable with a telescope, however.

Paz: I'll re-ask too. Here (México City) it's very clouded, I'm watching three streams and the movement is different in each one (L to R, R to L, upper part of Sun, bottom part). How is the shadow moving?

Renee: The view depends on the telescope, some reflect the image left/right, others up/down, and some both!

Moderator_Brooke: Looking for viewing tips to watch the transit? This link has great safe viewing information: http://tinyurl.com/75gnhll

Ilovehpb: Can this be seen with the naked eye?

Renee: If you have safe viewing equipment, it can be observed with no magnification. Eclipse glasses work great. Venus looks like a tiny speck on the Sun.

Brett: does the sun have any effect on venus? for example on earth plants grow, gives us skin cancer if exposed to it a lot unprotected skin etc.

Renee: Venus has an extremely thick and dense atmosphere that is toxic to living things. The sun's energy is trapped because of the greenhouse effect, so it is very hot on the surface of Venus.

Patrick: it may be rare to have venus and mercury transit at the same time. but when will it happen? have you calculated that? it must happen at least once in a billion years!

Renee: Unfortunately I don't have the tools at hand to calculate the actual time of the next simultaneous transit, but it will not occur in our lifetimes.

I_love_renee: could we live on venus?

Renee: Unfortunately, no. The atmosphere is extremely dense and toxic to humans (and human structures, too), and the surface temperature is too hot!

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

NasaSpace: When will this transit happen again?

Renee: The next transit of Venus will occur in 2117.

0ptimusPrime: is this transit being shown on the NASA tv channel right now?

Renee: Yes, should be.

udochi1: So do you think that if Venus was huger it would obstruct the sun and cause the earth to be relatively colder that it is right now leading to a frozen earth

Renee: Even if Venus were bigger, it would not block enough light for a long enough period of time to have any long-term effect on the Earth. This is essentially what happens during a total solar eclipse, and while it gets dark for a period of time during the day, not much else happens.

Vinko: What temperature is on Venus?

Renee: Average surface temperature on Venus is ~460 degrees C.

Jared: were any images taken by Russian landers if so where do you view them

Renee: Yes, search for the mission name "Venera"

Moderator_Brooke: Hi everyone -- as the transit viewing window ends over the Southeast, we've embedded the live transit views from the main NASA Ustream on this page. If you're not seeing it, you'll need to refresh this chat page. This will exit you from the chat, but we've extended our capacity, so you can come right back into the room. Or if you prefer not to exit, you can access the NASA Ustream at: http://www.ustream.tv/nasa

Nona: what other unique rare things like this will happen in our lifetime?

Renee: I believe there will be a total solar eclipse viewable in the Unites States in 2017. Try a search for "eclipse calendar." The next Venus transit will not occur until 2117.

devesh123: can you see venus with a naked eye?

Renee: In the night sky, usually just after sunset, Venus is viewable as the brightest "star" in the sky, and is sometimes called "the evening star." During the transit, Venus appears as a black dot crossing the solar disk. If you have proper viewing equipment, you can see it with no magnification.

Maurice_Moore: Has there been any experiments with trying to grow plant life in soil samples from Venus?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Renee: Unfortunately we do not have any samples from Venus, it is technologically very challenging to land on the surface of another planet, especially Venus, which has very harsh surface conditions.

Dangle: what time central is this going to happen

Renee: It's happening now, until sunset.

NasaSpace: Can you answer my questtions?

Renee: Apologies if I have not answered your question. Please feel free to re-submit if several minutes have passed -- I have many, many questions waiting!

Moderator_Brooke: Some folks want to know about the music on the Ustream feed. That's Third Rock Radio that you're hearing: http://www.nasa.gov/topics/nasalife/features/3rdrock.html

Lhollin: we there ever be an eclipise with mercury and the sun

Renee: The next transit of Mercury will be in 2016.

NextRockOver: How long ago did the light start traveling from the sun before it reached venus to blot that portion from our view?

Renee: Light takes ~8 minutes to travel to Earth from the Sun.

Moderator_Brooke: Thank you for all of these great questions. Renee is working on responses -- thanks for your patience, and remember, these go into a queue, so please don't leave if you don't see your answer right away.

Veronica: What determines the transit plane of a planet? Why does that plane changes at every and other transit?

Renee: It depends on the orbital geometry. The geometry will be slightly different for each transit.

udochi1: How long does it take for Venus to move across the Sun in earth's timing ?

Renee: Tthe entire transit lasts ~6.5 hours

A._Nal: Will the sun ever get so powerful that its flares will destroy Earth's ozone

Renee: Solar flares have been known to interfere with communications satellites in orbit around Earth, but in general, we are protected by our magnetic field from harsh solar energy.

devesh123: will there be a mars transit?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Renee: Mars is outside Earth's orbit, so there will never be a Mars transit viewable from Earth. However if humans ever land on Mars, it may be possible to see an Earth transit from Mars.

udochi1: When did the last Venus transit, before this one, occur ?

Renee: The last Venus transit was in 2004

Moderator_Brooke: Looking for viewing tips to watch the transit? This link has great safe viewing information: http://tinyurl.com/75gnhll

Aasquasar: By using XRAY film can Venus be seen?

Renee: I'm not sure if this is safe. Brooke will post a link with safe viewing tips momentarily. I have seen the transit using approved eclipse glasses, and telescopes equipped with specialized filters.

Nona: how many times does venus pass over the sun each year?

Renee: Venus transits occur in cycles, with 2 transits ~7 years apart, followed by a longer stretch (~100 years) during which no transits occur.

rosebyany1: has it started in Australia yet??

Renee: The transit should be visible at sunrise on June 6 in the western part of Australia, and the entire transit will be viewable from the eastern part.

Nona: How cold does Venus get

Renee: Not very! Venus' atmosphere ensures that the surface temperature is nearly constant, and extremely hot! Around 460 degrees C.

udochi1: How long does it take for Venus to move across the Sun in Earth's timing ?

Renee: About 6.5 hours

udochi1: Will we be able to see Mercury's transit ? And if so will the dot on the Sun be bigger or smaller than that caused by Venus' transit ?

Renee: Yes, we can also see Mercury transits. Mercury is smaller than Venus and farther away from Earth, so it will appear smaller as it crosses the Sun.

Jim_Warren: Are we learning new things on the fly during this Venus Transit or will we have to wait a while for data to be analyzed?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Renee: Yes, the transit of Venus is similar to the occulation of distant stars by exoplanets. We can use info from this transit to calibrate the measurements made by the Kepler mission.

imapizzalova69: when did does this end?

Renee: The transit started about 2.5 hours ago, and will last about 6.5 hours total. So there are about 4 hours left. Hope the sun is still up where you are!

XD: do I need to use sunglasses to look at the sun?

Renee: You need special eclipse glasses to safely view the sun. Regular sunglasses are not safe.

Unwired: is there a live feed of "just" the transit anywhere? it became overcast here right as the transit started.

Renee: The transit feed is on NASA TV, which is also viewable online.

Moderator_Brooke: MANY good live views of the transit at this link: http://venustransit.nasa.gov/transitofvenus/ (Check out the interactive Google map.)

Maddie: Where did you go for university and what did you study? I want to be a geologist/astronomer when I grow up.

Renee: I did my undergraduate degree in physics at UC Berkeley, and my graduate degree in geophysics at UC San Diego. I started working with lunar data in my second year of graduate school, and prior to that was working on ocean-bottom seismology. I would recommend a solid foundation in math and physics. It will lead you to many places!

Abcd: We want to know which other planet can we see similar to Venus transit that we are observing today.

Renee: The only other planet that transits the Sun and is viewable from Earth is Mercury. A lunar transit is technically known as an eclipse, but it's the same idea.

Raven: what is the reason of the color change?

Renee: The feed is showing views of the Sun from different telescopes equipped with different filters.

XD: how come venus hasn't burned up in front of the sun?!!!!

Renee: Venus is not experiencing any different conditions than normal. The only difference is that Earth is uniquely situated to view Venus as it passes between us and the Sun.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Veronica: If the orbital geometry changes does that mean that orbital times change as well? Also, what makes the changes on the orbital geometry? It has to do with the expansion of the universe?

Renee: it just means that as the planets move through their orbits, the relative positions of the planets viewable from Earth changes as well. The orbits themselves are not changing, just the positions of the planets.

Guest914: Why isn't there a transit every time Venus goes around the sun and why are the years it does happen so inconsistent?

Renee: The Earth needs to be situated in the just the right place relative to Venus and the Sun in order for the transits to be viewable. These conditions are relatively rare.

Theova: Renee are you currently in Hawaii veiwing the transit?

Renee: I am currently located at the Marshall Space Flight Center in Huntsville, AL. Some of the video feeds are from Hawaii, however.

Moderator_Brooke: We have about 10 more minutes of Renee's time, so if you have questions for her, now is your chance!

Casymo: what means the big freckles on surface's sun?

Renee: Those are sun spots, which are related to large magnetic disturbances on the Sun.

Moderator_Brooke: MANY good live views of the transit at this link: http://venustransit.nasa.gov/transitofvenus/ (Check out the interactive Google map.)

Marvinswain: How come the live video feed has stop?

Renee: The video feed from Marshall is stopped because the sun is setting here. Brooke will post a new link.

Maddie : Does Venus have earthquakes?

Renee: This is not currently known, because we have never sent seismometers to the surface of Venus. Because of the extremely harsh surface environment, instruments on Venus' surface can only last a matter of hours.

Ramon: Hello Brasil Here. I Can't See The Venus Transit in DayLight Time Today. Why?

Renee: Unfortunately the transit is not viewable from Brazil. Check the link for a live feed.

Michaeline: Is the transit still going on? Someone just told me its over? How long will it last?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Renee: If the sun is still up where you are, you have about 3 hours left.

Moderator_Brooke: Many, many thanks to Renee for answering your Venus transit questions today! We appreciate it very much. Now stay tuned -- we have a new NASA expert who's just joined our chat. Dr. Melissa McGrath from the Marshall Center will be answering your questions as the transit continues its trek across the sun. Melissa, welcome to the chat!

aprd6289: Watching the live feed of Venus' transit across the Sun appears that Venus is moving around a stationary object. Does the Sun have movement of any kind, including but not limited to rotation, or is the Sun a fixed stationary object?

Melissa: Yes, it rotates every 27 days.

Shashank: Why aren't the solar flares visible? Is it because the disk is much brighter?

Melissa: Yes, you would need a lot more magnification.

DJofSD: Renee, have you been on the Kuiper Airborne Observatory?

Melissa: No.

Lorena: thanks Brooke! what are the numbers in red that show on the live feed?

Melissa: It's the local time at the telescope on a twenty-four hour clock.

Moderator_Brooke: MANY good live views of the transit at this link: http://venustransit.nasa.gov/transitofvenus/ (Check out the interactive Google map.)

rosebyany1: in the live feed venus is in the middle on the right hand side on the sun, but when i view it its down the bottom and a little to the left. why is that?

Melissa: If you are looking through a telescope, the image may be flipped due to the optics.

Baggott: Does the transit have any noticeable effect on the solar wind, from Earth's perspective?

Melissa: Very little, if any.

Lissyhead: I'd like to know what direction Venus is travelling in across the sun

Melissa: If you're looking at the solar system from above the north poles, Venus is traveling counter-clockwise.

Michaeline: Does the transit have any visible effects on Earth?

Melissa: Negligible, if any.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

---

rosebyany1: Where is the Live feed coming from?

Melissa: Mostly from Hawaii.

Jackie: why cant i see it with my eyes

Melissa: It's pretty hard to see without binoculars. You can put the filter over the end of binoculars.

Garry: Three hours left you wrote, 3:04am here in Belgium. Sun rises earlier. Will BVenus still be visible?

Melissa: It should be visible near the edge of the Sun.

Kraevan: Does Venus have active or dormant volcanos?

Melissa: Probably dormant.

Moderator_Brooke: MANY good live views of the transit at this link: http://venustransit.nasa.gov/transitofvenus/ (Check out the interactive Google map.) Also, this is a good link to a map showing worldwide viewing: http://eclipse.gsfc.nasa.gov/OH/transit12.html

EPiCJUPITER99: if a comet passes upfront of the sun during the day would we see it?

Melissa: Not without a telescope. A comet is very small compared to the Sun, or even to Venus.

rosebyany1: is it safe to use the binoculars with a filter? i dont want to burn my eyes out

Melissa: Yes, but be careful.

Hkis: Where would you have to be to get the best view of the transit currently?

Melissa: Near the Sun. On Earth, it's good from Hawaii, at the big observatories.

aprd6289: May we contact you by email if we have further questions regarding this event??

Melissa: Yes. melissa.a.mcgrath@nasa.gov

flyboy321: what is the tempreature right now,at the observatory?is it really cold?

Melissa: Guessing in the thirties or forties.

Javier: i can see it whitout binoculars?

Melissa: Yes, but be sure to use some kind of a filter.

Hkis: is it possible to make a filter for binoculars??

Melissa: Yes, but probably not quickly.

terminallyCapricious: would i still be able to see it in the chicagoland area?

Melissa: Probably too late. Can't see it after the Sun has set.

Cesar: Hi...why we need protect our eyes in this kind of phenomenom?

Melissa: If you look directly at the Sun without protection, it will blind you.

Javier: I can´t see nothing whitout binoculars?

Melissa: You should be able to see it just looking through a filter. It's a small black spot near the edge of the Sun.

Karaoke_Jesus: are the dark spots on the sun current active solar storms?

Melissa: They are sunspots, but we don't think they're active right now.

Cesar: Thanks, i know that but this happend always or just in this kind of phenomenom?

Melissa: Always.

Shashank: On events like these, do scientists try to verify any theory/fact immediately? Could you enlighten us.

Melissa: Venus transits have been used to measure the distance between the Earth and Sun. And Mercury transits have been used to measure Einstein's theory of relativity.

Nona: What would Earth be like without the moon?

Melissa: It wouldn't have any tides.

Mo: Hi, why does Venus look somewhat transparent in some of the SDO imagery? For example the "AIA 304 Track" on http://venustransit.gsfc.nasa.gov/ ?

Melissa: We think that might be a video compression artifact. It's not real.

dc2gator: Sorry, my question was not completed: Ref moving in our Galaxy. Is it possible that it could have an effect on our weather.

Melissa: No.

Djwitko: how does the moon control the tides

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Melissa: The gravitational force.

rosebyany1: I have a pair of 10x25 binoculars and some developed Black and white film negatives bluetacked on the front and i'm getting a pretty good view. it blocks out most of the light so venus is very easy to see. the sun is about 2cms across with venus around about 1mm in my viewing

Melissa: Good job!

Moderator_Brooke: Thank you for all of these great questions. Melissa is working on responses -- thanks for your patience, and remember, these go into a queue, so please don't leave if you don't see your answer right away.

Netk: When will the Earth transit across the sun viewed from a Mars perspective?

Melissa: Great question. I don't know, but I'll try to find out for you.

Netk: From what other planet can the next Venus Transit be seen, and when?

Melissa: I don't know off the top of my head, but I'll try to find out.

Moderator_Brooke: Looking for viewing tips to watch the transit? This link has great safe viewing information: http://tinyurl.com/75gnhll

Nimer: Can we view the transit using sunglasses?

Melissa: No, not enough protection.

Kraevan: Does Venus' rotation have a higher rate of procession due to not having moons?

Melissa: No.

fawn001: where are the guys broadcasting from?

Melissa: Hawaii.

Nimer: Can we view the transit using sunglasses?

Melissa: No, not enough protection.

Esra: Why does the transit of Venus last over 6 hours?

Melissa: That's how long it takes Venus to cross the face of the Sun at the speed it travels.

luix_1: How often this fenomenon occurs?? (venus transit?)

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Melissa: The next Venus transit is 2117.

Cooldue : Why does the transit of Venus happen?

Melissa: The planets all orbit in the same plane, so you can see an alignment when it passes in front of the Sun.

Garry: Melissa, in the past due to thez magnetic fields of Venus transits we had later on tsunamis. Will this happen again this time?

Melissa: I'm not aware of that ever happening and don't think it ever will.

fawn001: Why does it look so cold where the guys are in Hawaii? I thought Hawaii was warm.

Melissa: It's in the forties, but the wind is blowing 60 miles an hour.

Nona: Why can the surface of Venus not be photographed from space? How is it mapped?

Melissa: Because the atmosphere is too thick and it's mapped by radar which can penetrate the atmosphere.

Jim_in_KPIT: About ten scopes planned to watch, but that dang low pressure system keeps sweeping clouds down on us from the north. So thanks so much for your coverage!! QUESTION: Can scientists see through portions of Venus' atmosphere and perhaps detect the solid disc of the planet's core? Could they also see the spectrum of the sun through Venus's atmosphere to analyze its composition?

Melissa: Venus' atmosphere is too dense. Radar can penetrate it, but not visible light.

Anakaren: what will happen to me if i tanned today without knowing about venus?

Melissa: Nothing.

h.milanloo: where can I watch this event?

Melissa: Google search "NASA Edge."

aprd6289: Thank You, Brooke & Melissa, for taking our questions and providing accurate and timely responses. ;-)

Melissa: It's a pleasure.

Djwitko: about how fast is venus traveling

Melissa: 35.3 kilometers per second. 79,000 miles per hour.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Ekips: Why do the planets orbit in the same plane?

Melissa: When the solar system forms, it flattens into a disc, which puts the planets in the same plane.

Musiccandy: is it the black dot on the sun?

Melissa: Yes.

Vkothia: why venus have no settelite

Melissa: Nobody really knows.

Leegraves: I know this is not related to the transit, but in which wavelengths do you conduct most of your research?

Melissa: For me, it's ultraviolet.

Nimer: Can trignometric parallax be used to determine the distance to really far away stars?

Melissa: No, they have to be relatively close for parallax to work.

Kraevan: Is Venus' apparent movement across the Sun due to the movement of Venus or the Earth? In other words, is Venus moving relatively faster that the Earth or vice versa?

Melissa: It's almost entirely Venus and Venus is moving somewhat faster than the Earth.

aprd6289: Have we yet or are there plans in the future to explore the surface of Venus in a fashion similar to the method used to explore the surface of the Moon and Mars using unmanned probes and rovers?

Melissa: Yes, we have some, but the plans aren't imminent.

Leegraves: Are you doing any research on searching for exoplanets elsewhere using transits like the one happening today?

Melissa: Yes, absolutely. There is a whole space mission dedicated to that: Kepler. It's also done from Earth with small telescopes.

Klausen: when we can see next mercury transit?

Melissa: May 9th-10th, 2016.

Amy: Why does the color of the sun in the video feed keep changing? It was purple and now it is red

Melissa: They are using different filters.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

---

fawn001: i just checked the weather for Hawaii and it says 71 degrees. There is a wind advisory though. Why is it so cold where the guys are?

Melissa: They're at 14,000 feet elevation and it's in the forties with sixty mile-an-hour winds.

Mayetsr: >< 6 hours viewing time: Earth orbits sun as Venus does, from our perspective right now, does earth's orbit lengthen or shorten the lenght in time we can view venus transit?

Melissa: It shortens it slightly.

Nona: How do we know that the entire surface of Venus is very young geologically? What is the cause?

Melissa: From the radar mapping, we suspect there are volcanoes.

Garry: Melissa, about the tsunami's my source is a video of dr. Chet Snow I'm not sure this info may be seen as correct but his video can be found at YouTube. Can't paste here :)

Melissa: That's really interesting. I didn't know that.

Mo: Hubble is currently looking at the light passing through Venus' atmosphere reflected on the moon. Can it not do this much more frequently and reliably by looking at Earth's atmosphere during a lunar eclipse?

Melissa: Yes, but the point is to measure Venus' atmosphere.

Carlos: why the observation os the venus transit help us to know if there are other planets?

Melissa: It helps us understand that it's a useful technique for discovering planets in other solar systems.

Nona: How do we know that the entire surface of Venus is very young geologically? What is the cause?

Melissa: From the radar mapping, we know it has volcanoes, but we don't know if they're active.

rosebyany1: responce to ekips: is that why pluto was excluded as being a planet now? coz its on a different plane?

Melissa: Yes, that is part of the reason.

Klausen: Is it possible to see venus and mercury transit at the same time? When?

Melissa: It's technically possible, but it would be exceedingly rare. I don't think it's happened in recorded history.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

---

rossross: trig? if you knew the distance from tihiti to London thru the earth and you knew the angles at both locations at the same time you would know a side and two angles and you describe the triangle

Melissa: Yes.

Ekips: What are the other little black dots 'on the sun'?

Melissa: Sunspots .Those are regions with strong magnetic fields.

Ana: Why do you want to measure Venus' atmosphere?

Melissa: Venus has a much denser atmosphere than the Earth and it has a strong greenhouse effect, making Venus very hot. This might help us understand what's in store for the Earth with global warming.

Nona: What happens to water if it reaches the upper layers of any atmosphere?

Melissa: It gets split apart into oxygen and hydrogen and because the hydrogen is so light, it escapes. The Earth is surrounded by a gigantic cloud of hydrogen.

Carlos: ok, then we are testing new technics in planet detection?

Melissa: Yes, that's exactly right.

Vkothia: WHAT IS MAGNETIC FIELD ON VENUES

Melissa: Venus does not have a magnetic field.

Btsunboxed: How is this transit being monitored in the nasa hd window? is it utilizing SDO? and if so, if SDO is monitoring this, is it not monitoring solar flares?

Melissa: Yes, it is monitoring it and it is monitoring solar flares.

gg: How long time take to go through the Venus from now??

Melissa: If we send a spacecraft, I think it's about a year.

Leegraves: Have we used views of Earth transits, or other planets transits, from missions beyond our orbit (Cassini, Voyager, etc) to gather data about Earth, or other planets transits that have been viewed from these missions?

Melissa: Not that I know of.

Jo_in_New_Orleans: how long is a day on Venus?

Melissa: More than two hundred Earth days.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Nona: If it rains on Venus what is the rain made of?

Melissa: Sulfuric acid.

Siddy: Why doesn't Venus have a Magnetic Field though?

Melissa: We don't know.

Vkothia: SUN HAVE ONLY ONE POLE MAGNETIC FIELD IS IT TRUE?

Melissa: No, it's a dipole field.

spork3000: Hypothetically, if Venusians possess "solar sail" technology, would this be a good time for them to launch an attack fleet? :-) (Just kidding - happy Venus transit day!)

Melissa: Yes, actually. Because we're relatively close right now. ☺

Tumor: What direction is Venus moving from our point of view?

Melissa: It's moving from east to west across the Sun.

MoonSpot: Isn't O3 suceptaptable to breaking apart by hydrogen?

Melissa: The moon has regions of enhanced magnetic fields on the surface, not just craters.

Vkothia: THE MOON HAVE MAGNETIC FIELD ON CRATORS ONLY , IS IT TRUE?

Melissa: It has regions of enhanced magnetic fields on the surface, but not just with craters.

Nona: How was Venus Formed?

Melissa: First, it condensed out of a cloud of gas. Then it started solidifying and lots of the small pieces glommed together and kept growing.

Sterster: Siddy asked why venus doesn't have a magnetic field. Isn't the answer to this that the core of the planet is not a rotating moltant metallic matrial ?

Melissa: Yes, that's probably true.

Joe_lp: What would happen if I put a foot on Venus?

Melissa: It would get burned. The surface of Venus is over 800 degrees Fahrenheit.

Btsunboxed: Melissa: do you know if any of astronaut pettit's pictures have been uploaded where the general public can see? I couldnt find a link from homepage.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Melissa: They were just uploaded. Enjoy!

Prike: Last time when venus transit occured, i saw venus changing colors. will this happen this time too ??

Melissa: I've never heard of that happening.

Pdm: If you had solar view glasses is it safe to view the sun with the naked eye; what about with binocular or telescopes?

Melissa: As long as you have protection, like a filter, it's okay.

Joe_lp: Is there any future project with direction to Venus?

Melissa: There are lots of plans, but nothing in the near future.

Ana: What the? Is that little dot Venus?

Melissa: That's it.

Felipe: Why Venus surface is so hot??

Melissa: Greenhouse effect due to the dense atmosphere.

Chasity: This is so amazing. We are very lucky to witness this day.

Melissa: We certainly are.

Kraevan: Due to the relatively close rotational and orbital rates of Venus, is the side facing away from the Sun colder, or does the atmosphere keep it heated to the same temperature as the Sun-facing side?

Melissa: It's sort of like the Earth -- it doesn't vary greatly because of the atmosphere. It's not like Mercury.

Btsunboxed: One last question from me, and i appreciate you answering everyones questions. this is unrelated to venus transit. We are learning about fire , fire supression in zero gravity... how does what boil or can it boil in zero gravity?

Melissa: I do not know. I don't think so.

Vkothia: IS IT POSSIBLE, THE FACE OF SUN INFRONT OF EARTH HAVE ONLY ONE POLE MAGNETIC FIELD?

Melissa: We don't think that's the case.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Kraevan: In response to klausen: According to Wikipedia, "A simultaneous transit of Venus and Mercury will occur on July 26, 69,163AD."

Melissa: Wow. Thanks for providing that info.

LE: Ummmm hello? Who are the experts that I can ask questions to?

Melissa: Melissa McGrath and Mitzi Adams are here at NASA.

alex24: were can i watch the transit live?

Melissa: NASA Edge online.

Prike: What are different phases of venus transit ?

Melissa: They are just like the phases of the moon.

Nona: Would it be possible to live on Venus if the thick cloud cover and sulfuric acid were removed?

Melissa: It's a little hot.

Joe_lp: Why is Venus brightest than stars?

Melissa: It's so close.

Zaq: How long does it take the diameter of Venus to transition across the leading and trailing edge of the sun, and is the time the same?

Melissa: Yes, it's pretty much the same.

LE: Oh OK. I have a question: Does The Venus Transit allways happen every 105 years?

Melissa: It's between 105 and 122 years.

Vkothia: CAN WE SEE VENUES TRANSIT EVERY DAY FROM OTHER PART OF UNIVERSE?

Melissa: From the right vantage point, yes, you should be able to see a transit every day.

Nona: Why is Venus so hot compared to Mercury even though Mercury is closer to the Sun than Venus?

Melissa: Because Venus has a very dense atmosphere, which traps the heat (called a greenhouse effect).

Niko: will the sun ever destroy venus

Melissa: Yes, eventually the sun will expand into a red giant and envelope Venus and the Earth.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Niko: how come we dont see mercury

Melissa: It's not crossing the face of the sun today, so it's nowhere near by.

Prike: What is Black drop effect ?

Melissa: It's an optical effect that happens at first and last contacts (when Venus first reaches the disk of the Sun and when it is just leaving the disk of the Sun) that looks like a little black tail connecting Venus and the Sun.

LE: I'm twelve years old and I'm really interested in Astronomy and this kind of stuff. Why does the Venus Transit ONLY happen every 100 something years?

Melissa: Due to the different orbits of Earth and Venus this is just how long it takes for the right alignment to occur.

Sharmila: what is the distance between venus and the sun during transit ?

Melissa: 68 million miles. Earth is 93 million miles.

Sharmila: why cnt we watch transit through binoculars??

Melissa: You can as long as you have a filter.

Niko: will the sun ever destroy venus?

Melissa: Eventually, the Sun will become a red giant and envelope Venus, yes, destroying it.

Nona: DOes it rain on Venus?

Melissa: Yes, the rain is sulfuric acid.

Joe_lp: Random question: What would happen if the Earth had the same 60+ moons than Jupiter o Saturn?

Melissa: Wow, wouldn't that make for a spectacular night sky.

Jo_in_New_Orleans: On the web shots, regardless of filter, it seems there is a tiny, clear surrounding Venus. Am I hallucinating or is that an optical illusion or what?

Melissa: No, we think it's just a video effect, not real. When they have the guys in Hawaii, their outlines look really bright, too.

Joe_lp: Is there a chance that Venus and Earth were created by the same form?

Melissa: They were created by basically the same process.

Felipe: Is that true: the atmosferic pressure in the surface of Venus is 92 times bigger than Earth ??

Melissa: Yes.

Vkothia: TRANMISION OF HEAT IS ONLY POSSIBLE IN VACCUME ONLY , SO VENUES IS SO HOT, IS IT TRUE?

Melissa: Yes, Venus is very hot because it has a dense atmosphere. It's not true that you can only transmit heat in a vacuum.

Niko: how come this is gonna be the only time in our lifetime to see it

Melissa: It only happens every 105 to 122 years.

Moderator_Brooke: Thank you for all of these great questions. Melissa is working on responses -- thanks for your patience, and remember, these go into a queue, so please don't leave if you don't see your answer right away.

Kraevan: I read that you specialize in the Galilean moons. To sort of correlate to the topic at hand, does the solar wind have any effect on your research of the moons, whether it be related ot Jupiter's magnetosphere or otherwise?

Melissa: It's not the solar wind; it's the plasma trapped in the Jupiter magnetic field that affects the Galilean moons.

Sharmila: we can see venus transit ,in the same way can we see mercury passing across the sun ??

Melissa: Yes, it's exactly the same process.

Sharmila: what is the effect of sun on venus during transit??

Melissa: No different during transit than any other time.

Nona: What materials won't melt on Venus?

Melissa: I don't think there are any we know of that won't melt.

Niko: when do you think the world will just be destroyed and do u think there are other worlds just like earth

Melissa: A few billion years. Yes, I think there are probably.

Nona: Does it rain on Venus?

Melissa: Yes, sulfuric acid.

LE: What kind of information does this Transit give us?

Melissa: It helps us calibrate our instruments, fine tune techniques.

DancingGermanGirl: Why are they so far apart?

Melissa: It's just the length of the Earth and Venus orbits take that long to align properly for a transit.

DancingGermanGirl: Does the sulphuric acid melt Venus?

Melissa: No.

Joe_lp: Can planets like Jupiter, Saturn, Neptune survive without the sun? what would happen with those planets when the sun becomes a white dwarf?

Melissa: Jupiter actually generates more heat than it gets from the Sun, because it's contracting, so it should survive.

WillRob: I want to SEE the transit, please. Where can I SEE it. The Hawaii NASA "Live" Feed is a video of 2 guys TALKING!!!

Melissa: www.events.slooh.com/

Niko: how come venus is known as a she

Melissa: Because Venus is named after a female Roman deity.

Fin: where i can see the video please?

Melissa: www.events.slooh.com/

Sharmila: why is venus so bright in the sky?

Melissa: Because it's so close.

Dseprasen: can i see d transit wth bare eyes?

Melissa: No, you have to have some kind of filter.

Sharmila: when cn we see mercury transit?? and is it as special as venus transit?

Melissa: May 9th-10th, 2016.

nona : hat planets day is longer than it's year?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Melissa: None that we know of.

Dseprasen: can we witness d next transit

Melissa: The next one is in 2117 and we probably aren't going to be alive then.

WillRob: NOW it's 4 people talking but no picture of the TRANSIT. Why can't we SEE it????

Melissa: www.events.slooh.com/

DancingGermanGirl: Why aren't we seeing a live view and we're just watching people talking? WE CAME HERE TO WATCH THE TRANSIT!

Melissa: www.events.slooh.com/

Joe_lp: Is possible to observ auroras in Venus?

Melissa: Yes, Venus has auroras. They have been observed.

Sharmila: y is it harmful to see venus transit with naked eye??

Melissa: Yes.

Moderator_Brooke: Looking for viewing tips to watch the transit? This link has great safe viewing information: http://tinyurl.com/75gnhll

Omarbravo: Hi, will other planets of solar system make transit with in the future?

Melissa: Next Venus transit is 2117. The next Mercury transit is 2016.

Dseprasen: i want live transit m frm india

Melissa: NASA Edge.

Casymo: I'm in central Mexico. is completed the venus transit at this time?

Melissa: You can't see the transit after sunset.

Jo_in_New_Orleans: we will be able to see the Black Drop Effect? Or do we need higher magnification?

Melissa: You need magnification.

Ctyson: where is the video of venus crossing the sun?

Melissa: NASA Edge or www.events.slooh.com/

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

DancingGermanGirl: Is the Mercury transit as special as the venus transit?

Melissa: Yes, it is.

Sharmila: how many hours do venus have as day n night?

Melissa: Venus' day is over 200 Earth days long.

Blaze: how long will venus take to pass over the sun?

Melissa: The transit lasts six hours 40 minutes.

Kim: It took some time for us to get the right angle with our projector and then the sun set. When is the next time we can try our hand at viewing a transit of any kind in North America (Wisconsin)?

Melissa: There's a Mercury transit in 2016, but we're not sure where it's visible in the United States.

Blaze: whos melissa?>

Melissa: She's a NASA planetary scientist.

Fluffy_Muppet: Is there a day known yet for the Mercury transit?

Melissa: May 9th or 10th, 2016, depending what your time zone is.

Ctyson: Is there any comets coming that will go in front of the sun that we can observe in the future?

Melissa: Comets are too small to be seen without a telescope.

Sharmila: y is pluto not considered as a plantet? n which is d new planet in our solar system?

Melissa: The International Astronomical Union says Pluto is no longer a planet.

Joe_lp: Is possible that a Wolff Rayet star can have planets ?

Melissa: It's possible.

DancingGermanGirl: Do any other planets have transits?

Melissa: Mercury.

omarbravo: why other planets don't make transit?? i.e. mars or jupiter?

Melissa: Mars and Jupiter would appear to transit from Saturn, Uranus and Neptune.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Joe_lp: Melissa thank you for responding my questons, im not even a astronomer, just a big fan of the universe. you've helped me a lot :)

Melissa: You're welcome.

Akhtar: are there any impacts of this historical transit of venus?

Melissa: Transits of Venus were used to determine the length of the distance between the Earth and the Sun.

Fluffy_Muppet: How come the next Venus transit is so far away if the last one was in 2004?

Melissa: The Earth's orbital plane and Venus's orbital plane cross in two places and therefore there two opportunities for transit.

DancingGermanGirl: According to slooh.com, it's about to end in about an hour and a half. Is that true?

Melissa: Yes.

Mizgin: When was the last Mercury transit?

Melissa: November 8, 2006.

DancingGermanGirl: Sharmila asked why it wasn't a planet. We need elaboration here... WHY does the International Astronomical Union say it's no longer a planet?

Melissa: It's because it's small and it has a very different orbit than the planets.

Omarbravo: what kind of calibration in instruments you do with this event? and can you explain how this transit can helps to identify planets in other solar systems??

Melissa: They are using it to fine tune the techniques they use to find exoplanets.

Kim: Is it possible that Earth may attract another moon?

Melissa: Possible, but unlikely.

Geraldine: why i got headache to see the moon?

Melissa: Maybe because it's so bright?

Sharmila: i want 2 c live venus transit from india ... where cn i see it??

Melissa: Your best bet is to watch it over the Internet, NASA Edge or www.events.slooh.com/.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Ctyson: what are the other spots we see on the sun?

Melissa: Sunspots.

OMG_I_LUV_VENUS: Hi, are there any current live feeds? Sorry if this has been asked before!

Melissa: NASA Edge or www.events.slooh.com/

rosebyany1: Do the mercury transits go in pairs like venus transits do?

Melissa: Yes.

Akhtar: do we know when was this event witnessed before today? If so, how many times have the humans witnessed this?

Melissa: The last one was in 2004.

Eileen: In the slooh website they are talking about a difraction effect when venus goes out of the sun (moves to the edge) but their live photo makes it look like venus is a long ways off from the edge? has venus already completely crossed?

Melissa: No, it hasn't finished crossing yet.

Jo_in_New_Orleans: Have we lost the Nasa Edge feed? It was "off air" for a while and now some totally unrelated video is showing.

Melissa: The sun is back.

Ctyso: I've heard Venus can get hotter than Mercury, even though its not as close to the sun as Mercury.. is this true?

Melissa: No, Venus doesn't get as hot as Mercury.

aa.apte: how to see the live webcast of venus transit

Melissa: NASA Edge or www.events.slooh.com/

Sharmila: like venus passes d sun n we cn see it, in d same it does happen for planets??

Melissa: Yes.

DancingGermanGirl: BESIDES mercury and venus, do any other planets have transits?

Melissa: Yes.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

---

aa.apte: if you are behind to any planet this kind of transits can be observe

Melissa: Yes.

Kraevan: Would it be possible to see transits of the inner planets from Jupiter or the other outer planets or would they appear too small? It seems like viewing transits from the outer planets would be more beneficial to the research in discovering planets orbiting other stars. Are there any plans to do this?

Melissa: It should be possible to see them, but they would be very small, so it would be good to have a telescope.

Venuswatcher: which speed does the venus have (minus earth rotation)?

Melissa: About 35 km per second.

Moderator_Brooke: Many, many thanks to Melissa for answering your Venus transit questions tonight! We appreciate it very much. Now stay tuned -- we have a new NASA expert who's just joined our chat. Mitzi Adams from the Marshall Center will be answering your questions as the transit wanes to completion. Mitzi, welcome to the chat! Now let's take some questions!

Sameer: why sun is in red color

Mitzi: Different telescopes use different filters. The red color is from the light of hydrogen alpha.

Vkothia: can we see earth transit from mars?

Mitzi: Yes.

Prike: In response to Sharmilla, you can see live transit of Venus in INDIA on almost all news channels like ZEE news, India TV they all are broadcasting live videos.

Mitzi: Thank you.

Dante_North_Carolina: I have been watching the transit from a number of sources, and I am curious. The earth based streams seem to be inverted from the SDO. Which image shows the accurate motion, the SDO, or the earth based telescopes?

Mitzi: Earth-based telescopes have an inverted image; SDO is corrected so the north pole of the Sun is up.

Sharmila: what do u mean by a star ? how is it formed? rather what are stars formed of ??

Mitzi: Stars are made mostly of hydrogen and a star is defined as a body that produces its own light. Stars form by gravitational contractions of large bodies of hydrogen gas.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Akhtar: other than Mars, is it possible to physically reach any other planet like mecury or venus?

Mitzi: We have sent spacecraft to both Mercury and Venus and actually all the planets in the solar system. Pioneers 10 and 11 and Voyagers 1 and 2 are headed out of the solar system.

Ana: Would a compass work at Venus considering its lack of a magenic field?

Mitzi: No.

starguy1: on your image Venus is at 5 o'clock on the sun. From Portland, OR is is at 3 o'clock. where are you viewing from to make such a difference?

Mitzi: Some telescopes are in Hawaii. The SDO images are coming from space and are corrected so that north is up.

Luckybudda89: When will the live feed for Venus crossing the sun begin streaming?

Mitzi: www.events.slooh.com/

Jo_in_New_Orleans: So glad to see NASA work continuing. Didn't know what was becoming of it since space flights discontinued. Thanks to NASA for these lovely images and for the experts who have been so patient with answering our questions.

Mitzi: You're welcome. Space flights have not been discontinued, only Space Shuttle flights.

Chan: what is the best country to see this astronomical phenomenon?

Mitzi: There is no best country. The event is actually best observed from the Pacific Ocean to see the entire transit. So Hawaii is perfect.

Luckybudda89: Aside from Earth, are there any planets that could possibly support life on it?

Mitzi: One that we know of.

Moderator_Brooke: This is a good link to a map showing worldwide viewing: http://eclipse.gsfc.nasa.gov/OH/transit12.html. For some of our friends outside the U.S., your view of the Venus transit will be happening at sunrise…

Chan: how about the philippines?

Mitzi: We're posting a link to the viewability map. I believe that the transit will be over for the Philippines.

Chan: what next astronomical phenomenon by this year/

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Mitzi: The next astronomical phenomenon that is interesting to me is the Perseids meteor shower, which peaks on the night of August 11th and into the morning of August 12th.

Evilshinichi: can we see the transit of mercury from earth?

Mitzi: Yes.

Sterster: What are the filters being used that the stream is rotating through.

Mitzi: I don't know all of them, but SDO filters would include 171 angstroms, 193 angstroms, 304 angstroms and these show different layers of the solar atmosphere.

Kraevan: So since the Shuttle has been discontinued, I've heard that NASA is outsourcing it's space flights using other countries' rockets. Is this true? Are we designing a successor to the Shuttle at all?

Mitzi: Yes, we have been using Russian rockets to get supplies and astronauts to the International Space Station. Just recently, a private company, SpaceX, launched a rocket that took supplies to the station and that's a promising venture. NASA is also looking into the development of a heavy lift vehicle.

Craig: Do any of the other planets pass in front of the sun which can be seen from Earth?

Mitzi: Mercury and Venus are the only two planets that are between the Earth and the Sun.

Numberonevenusfan: Is this a hoax? I heard the sun doesn't actually change colors.

Mitzi: The different colors depend on the filters being used to view it.

Adios: somsone can give me a link to see that ?:)

Mitzi: www.events.slooh.com/

Lis: Why will it take so much for the Venus transit to occur again if the last one took place just 8 years ago?

Mitzi: Due to the relative positions of the orbital planes of Venus and Earth and the fact that Venus moves faster in its orbit than Earth, these events occur at odd times.

Luckybudda89: Has there been any proof that there is life, such as aliens, living on mars or another planet?

Mitzi: No.

Evilshinichi: is the transit of mercury happening anytime soon..??

Mitzi: May 9th, 2016.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

MoonSpot: anylive video feeds from SDO? seeing currents while venus is in transit would be gr8!

Mitzi: No live feeds, but images are on NASA's Facebook and SDO's Flickr gallery.

Mike: Is it fair to say that Venus is especially close to earth right now since the orbits are lining us with the Sun?

Mitzi: No. Venus is not especially close to the Earth. The distance doesn't vary that much.

Evilshinichi: are the images in the feed below inverted because i just saw the black dot which is supposedly venus on the left hand upper part some 15 minutes back...???

Mitzi: I'm not sure which feed you're seeing, but if it is a telescope on the ground, it probably is an inverted image.

Dante_North_Carolina: I hope this has not been previously covered. We are taught that the panets orbit in the same basic oplane, the ecliptic, if I recall properly. Yet the transit of venus is describing an orbit outside of the ecliptic plane. So I am asuming that the idea of a flat plane is really not so accurate?

Mitzi: Yes, they are more or less in the same plane, but there is a slight inclination of one orbital plane with respect to the other, similar to the Earth-Moon system. Since there isn't an inclination of the orbits of the Earth and Moon, there is not a solar eclipse once a month. And similarly there is not a transit of Venus each time Venus moves between the Earth and the Sun.

Mo: What is it that we could learn from a coronal mass ejection occurring directly behind venus?

Mitzi: If a coronal mass ejection occurred while Venus is transiting the Sun, there would be nothing new to learn about the coronal mass ejection. But it would be an interesting phenomenon to observe.

SUD_Piwi: Where can I see pics from the 2004 transit?

Mitzi: We're posting a link to a website from 2004 where you can find some information.

Moderator_Brooke: Here's the link to the Sun-Earth Day Venus transit images from 2004: http://sunearth.gsfc.nasa.gov/sunearthday/2004/index_vthome.htm

Fireball4ever: This question does not really concern Venus. I was just wondering about the Orion Space craft and its mission to go beyond LEO. Does it (the Orion) have any similarities, other than the name, to the Original Orion Space craft that was to be powered via controlled nuclear bursts?

Mitzi: If I remember correctly, the original Orion was proposed in the Sixties and *possibly* was to use a NERVA engine, but as far as I know, the new Orion is not similar in any way to the original proposed Orion. It will be very difficult to use a nuclear-powered engine.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

---

miles102: can somebody see something, in holland you cant see it

Mitzi: www.events.slooh.com/

Vidyadhar: How do you predict, when the next transit will happen ?

Mitzi: With a lot of complicated mathematics! Kepler did it in 1627.

newsjunkie60: Is there a chance Jupiter would transit the Sun in the near future

Mitzi: No. However, if you were at Saturn, you could see a transit of Jupiter.

Craig: On a little bit different topic..I know they have found particles that travel faster than light. Do you think man will ever achieve that ability?

Mitzi: No, there aren't any particles that travel faster than light and, according to the mathematics, it is not possible for humans to travel faster than light.

Moderator_Brooke: Thank you for all of these great questions. Mitzi is working on responses -- thanks for your patience, and remember, these go into a queue, so please don't leave if you don't see your answer right away.

Perkunas687: What is the significance of the hydrogen-alpha filter and the calcium filter?

Mitzi: The hydrogen alpha filter allows us to see a layer of the solar atmosphere called the chromosphere. The calcium filter allows us to see a different layer of the solar atmosphere. These layers are at different temperatures.

Vkothia: CAN WE FIND ACCURATE RATIO OF PHOTO OF SUN VERSES VENUS?

Mitzi: Assuming you're interested in the relative sizes, yes, it is quite easy to determine a ratio of the size of the Sun versus Venus. To do it, you could actually measure the diameter of the Sun and the diameter of Venus from an image with a ruler.

HipBo: Mitzi, thank you for your time answering questions. Wondering: media coverage understandably concentrates on visible images of the transit in progress, and from what I've read the filters facilitate a variety of studies meant to assist, for example, with improving our ability to detect more distant planets. I've not heard reference, however, to radio astronomers' interest in this event, so I'm curious what goals they might be pursuing this evening, if any.

Mitzi: You're quite welcome. I'm glad you're enjoying the chat and the images. As far as I know, radio astronomers are not doing anything special for this event. Radio astronomers do observe the Sun, which produces characteristic energy during solar flares.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

---

aprd6289: If I were at Saturn, and witnessed a transit of Jupiter across the Sun, would it appear similar to what we see here with Venus or, considering the distance from the sun and the size of Jupiter, would Jupiter totally obscure the Sun much like an eclipse?

Mitzi: Without doing some calculations, I don't know how large the image of Jupiter would be against the disk of the Sun, but it would be quite small relative to the Sun.

Merk: Are Keplers formulas online by a certain name or just Keplers planetary formulas?

Mitzi: Kepler's formulae can be found on the Internet by searching for "Kepler's Laws."

Sterster: When Venus is in transit are the Sun's rays powerful enough to penetrate the atmosphere of venus. Thus leaving us with a silhouette of the solid core and a hazy atmospher ? Given a powerful enough optics.

Mitzi: When Venus is in transit, there is no difference in the solar radiation that it receives. Solar radiation always penetrates the clouds in the same way that solar radiation penetrates Earth's clouds. But you will not see a silhouette of the solid core. It sounds to me as if you're thinking that solar x-rays will penetrate the clouds and they will not.

Adrian: i reckon that if like humans can get heaps of rockets we can go faster then the sun light

Mitzi: Nope.

Kraevan: Does the solar wind effect each of the inner planets differently at all? (E.g. is the solar wind responsible for Mercury not having an atmosphere?) Also, do magnetic fluxuations due to sun spots and such affect the inner planets at all or are the magnetic fluxuations from sun spots not large enough?

Mitzi: Interesting question. Mercury doesn't have an atmosphere primarily because of its small mass, but the solar wind does bombard the surface and so affects Mercury differently than Venus, because the solar wind cannot penetrate the clouds of Venus. Magnetic fluctuations due to sunspots do not have any effects; however magnetic reconnection or solar flares or coronal mass ejections can have an effect on Mercury.

Kraevan: Also, how close to the outer corona is Mercury?

Mitzi: Essentially, Mercury is in the outer corona, depending on how you want to define it.

Robin: What is the reason of seeing the Venus transit differently from differnt places on earth? so the earth size is not neglible?

Mitzi: The orientation of the Sun as seen on Earth depends on your lattitude and time of day, so the Sun at midday, close to the Equator, would be seen with the north pole pointed up. As the Sun sets in

---

Huntsville, for example, the north pole of the sun tilts over and so appears different than an image of the Sun from Hawaii. In addition, if solar images are viewed through telescopes, there can be an inversion of the image because of optics.

Tffg: what kind of magnification is needed?

Mitzi: No magnification is needed, but correct filtering is, like Number 14 Welders Glass.

Mictko: Why is it cloudy in Dublin!!!!

Mitzi: Sorry about that! ☹

Mo: In response to aprd6289, the sun is only 10 times the diameter of Jupiter, so without even taking into account how much closer it is to Saturn, it would be much bigger than Venus relative to the sun as seen in the live stream. Consider Jupiter is roughly half way between the sun and Saturn, it would probably appear as a black spot a bit larger than 1/5th the height of the sun

Mitzi: Yeah, that's true.

Allen: Saw in earlier question that you indicated Venus is not really closer to Earth right now. Isn't it true that Earth and Venus are currently at their closest proximity to one another?

Mitzi: When there is a transit, Venus is at its closest to Earth since it is between Earth and Sun, but there is nothing special about this particular transit.

Kraevan: Has a reason for the 11 year activity cycle of sun spots been found?

Mitzi: No.

Pdm: Are the sunspots that appear smaller than venus much larger than venus in reality?

Mitzi: Some sunspots are smaller than Venus and some sunspots are larger than Venus. Actually, the largest sunspot on the Sun now is a medium-sized spot.

Manto: Hey Mitzi, a historical question - did any of the ancient civilizations record any of the transit of venus, or did this phenomenon not come into light until Kepler's time?

Mitzi: As far as I know, transits of Venus were not mentioned until Kepler's time.

Moderator_Brooke: We're getting into the last 45 minutes of the transit. Did you take a great image of it? Check out the transit Flickr group: http://www.flickr.com/groups/venustransit/ and be sure to add your images!

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Frode: How close can the Hubble Telescope get video or/and pictures up-close and personal with venus and the sun. I know there is footage that is absolutelly amazing of the sun like a fireball...

Mitzi: Hubble was not designed to look at the Sun; it was designed to look at fainter objects. The premier solar observatory today in space is SDO. To look at images and probably movies from SDO's observations of the transit, go to the SDO web page: sdo.gsfc.nasa.gov

Mksimpson: Mitzi, someone earlier said the Earth will transit the sun on Mars in about 84 years from now. Do you think mankind will be there to see it?

Mitzi: I honestly don't know, but I hope so.

Eragon: Is venus visible when seen using Solar Goggles?

Mitzi: Yes. You'll see a black dot.

Marvinswain: did thay have filters the last time this happen?

Mitzi: Yes.

Manto: I love how the community gathers and gains awareness for astronomy and science for global observations like the transit of Venus today and the solar eclipse several weeks ago. What's the next high profile observable phenomenon on the calendar?

Mitzi: I like that, too. The next high-profile astronomical event will be the Perseid meteor shower in August.

Mo: What is the primary mission of the SDO when it's not watching Venus?

Mitzi: To study the Sun from photosphere to corona.

sanjeev_p_j: why venus appears as small black spot when it it moving on sun?

Mitzi: Venus appears small because it is so much smaller than the Sun.

Mksimpson: Gotta wonder how the folks on the mission to Tahiti all those years ago protected their eyes when looking at the transit?

Mitzi: That's a good question. I don't really know what kind of filtering they had available, but the technique of projection is most likely what they used.

NATASHA: Thank you for this. I had an awesome night here in Greece wathcing it.

Mitzi: You're quite welcome. Glad you enjoy it.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Cliff: The transit of venus takes the diameter of the sun or just some chord?

Mitzi: You're right, it's not a full diameter; it's a chord.

Moderator_Brooke: Thanks for hanging in here with us on the last half hour of the transit! If you have questions, this would be a good time to ask -- if you're all still awake. ☺

Sterster: In response to frode they used the Moon as a mirror, check it out – www.news.discovery.com/space/hubble-will-use-the-moon-to-view-the-transit-of-venus-120507.html

Mitzi: Thanks for posting this.

Mksimpson: Wonder if the media recording today will be viewable or work a 105 years from now?

Mitzi: That's a good point. Surely some record will be kept in a medium that will be viewable.

Perkunas687 Thank you for taking the time to answer all these questions. I live on Long Island, in New York, and frequently cloud cover will ruin any night or solar event (like today). Is there a list somewhere of the best regional viewing locations, state by state or geographical region, based on average atmospheric conditions? Frequently meteor showers are blocked out at their peak by clouds, and my night beach pass did nothing for me, to my regret. And, if such a listing does not exist, do you think it is plausible for a gathering of average people to create it for others?

Mitzi: Try this web site: www.cleardarksky.com

Bleedblue: I was just reading that the SDO is in geosyncronous orbit. Is there any special reason why it doesn't orbit the sun instead of the Earth? Say, near the orbit of Mercury, to get a significantly closer look at things?

Mitzi: The farther away a satellite is from Earth, the harder it is to transmit data. In addition, in an orbit closer to the Sun, the satellite is subjected to more damaging radiation. For these two main reasons, SDO is close to Earth.

Aj: i am 15 years old and I truly hope other young people enjoyed this once in a life time event as much as i did.

Mitzi: I'm really glad you were able to experience this event and hope that you take part in other astronomical events throughout your life.

Moderator_Brooke: We have about 20 minutes left in our marathon chat session. If you have any questions for Mitzi, this is a great time to get those into the queue.

Merk: Thanks for doing great work. Is there a link to SDO live video or are there only recorded images?

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Mitzi: As far as I know, SDO is not producing live feed, but will probably have movies tomorrow. Also, Hinode should have movies tomorrow.

Marvinswain: thankyou so munch, i liked this a lot.

Mitzi: You're welcome.

Mksimpson: A marvelous event. Thank you for the coverage.

Mitzi: You're welcome.

Satishneeta: Thanks a lot for guidance on this site.

Mitzi: You're welcome.

Pdm: Is Venus visible in the night sky all the time or only during certain seasons?

Mitzi: Venus is visible sometimes in the night sky (before sunset) and sometimes in the morning sky (before sunrise).

Daniel: thanks a lot for time here

Mitzi: You're welcome.

Parthpathak: What is an astrolabe?

Mitzi: It's an instrument that can be used to locate astronomical objects in the sky.

Frode: Thanks Mitzi, that is a great tip. I saw a documentary on SDO. It is fantastic what they are doing with it. This transit event is quite unique but most of all it is forcing humans to be in closer contact with a solar system, which has often been forgotten.

Mitzi: You're welcome.

Moderator_Brooke: We have just a few more moments to take your questions...

Stimpy: Thanks to all you guys and gals allowing those living under perpetual rain and cloud to see this event :)

Mitzi: You're welcome.

Aj: so after this, what is the next big solar event that i can look forward to seeing?

Mitzi: The next big astronomical event will be the Perseid meteor shower in August. The next big solar event will be the total eclipse November 13th, visible in Australia, New Zealand and South America.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Moira1313: Still wondering about the wobble measurements from the Sun being made use of for measuring wobble on other stars for indicators of planetary orbits- asked about earlier, but no response yet...

Mitzi: The Kepler mission is using a technique for finding exoplanets that measures changes in light intensity as a planet passes in front of a star. Kepler scientists have been looking at the transit to fine tune their technique, essentially calibrating with a known quantity. There is another technique that looks at wobble, but that technique will only find large planets.

Ealdanah: I'm not an expert on this topic, but I'm interested in, and my question is: what's the reason of this movement? and why it's going to be seen until 2017?

Mitzi: The reason is that Venus is in an orbit between Earth and Sun. The length of time between transits has to do with the relative speeds of Earth and Venus and the inclination of their orbits with respect to the ecliptic.

Parthpathak: anyway thanks for the guidance

Mitzi: You're welcome.

Moira1313: Thank You

Mitzi: You're welcome.

Yanaargentina: thank you!! thank you!! thank you!!!!!!!

Mitzi: You're welcome.

Frode: Thanks to NASA and for the effort...

Mitzi: You're welcome.

Parthpathak: So how do i use the astrolabe

Mitzi: It's not an easy answer for a chat, but there are web sites that describe how to use and even how to make one.

Manto: Thanks for answering all the questions and hosting this marvelous event!

Mitzi: You're welcome.

Allison: does venus orbit the sun at a diffrent agle depending on what country you live in?

Mitzi: No.

Venus Transit Live on June 5
Experts, Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, Melissa McGrath and Mitzi Adams
June 5, 2012

Knight: will the next transit occur along the same orbit in which earth and moon are there currently or will it occur at the opposite side which should also be closest point.

Mitzi: The next transit occurs in December 2117, on the opposite side of our orbit.

Moderator_Brooke: Many, many thanks to expert Mitzi Adams for answering your Venus transit questions tonight. Another round of appreciation for our earlier experts: Karen Kinemuchi, Tom Barclay, Jonathan Cirtain, Renee Weber, and Melissa McGrath. And thank all of you for being here -- your questions and conversations have made this a wonderful Venus transit chat -- a once-in-a-lifetime event. Check back on this page at the end of the week for a full chat transcript. Thank you, and have a good evening.

Aj: I watched the whole thing . dear NASA, thanks for being awesome and awensering my questions! i hope to work for you some time in the future!

Moderator_Brooke: Hi aj -- we appreciate you being here. Thanks very much!