

NASA Chat: 2013 Eta Aquarid Meteor Shower
Expert Dr. Bill Cooke
May 5, 2013

Moderator_Brooke: Welcome, everyone! Bill is ready to take your questions about the Eta Aquarids. Just a note, there's no Ustream view tonight because it's raining in Huntsville, so the telescope is clouded out. Wishing you clear skies for local viewing...now let's talk meteors!

Deb: not seeing anything here in connecticut....

Bill_Cooke : If it's cloudy, you won't see anything. And the meteor shower won't start until 2:30 a.m. local time.

Moderator_Brooke: This is the live sky-view over Huntsville right now...it's white because of cloud cover, but a lot of people are asking about this: <http://www.ustream.tv/channel/nasa-msfc>

Deb: not cloudy...and that's a shame that it won't be until later. why did the article state that it would peak at 9 p.m. if it isn't going to start until 2:30 a.m.?

Bill_Cooke: The peak of the shower is at 9 p.m. eastern time, but you won't be able to see Eta Aquarids until Aquarius rises at 2:30 a.m. This is five and a half hours after the peak time, but you should still be able to see a decent amount of meteors.

Wizelriss: Hi. I just want to know the other comets that leave a debris trail that could result to meteor showers.

Bill_Cooke Some others are Comet Swift-Tuttle, which is responsible for the Perseid meteor shower, Comet Tempel-Tuttle is responsible for the Leonids, Halley produces the Eta Aquarids and the Orionids and Comet Giacobini-Zinner cause the Draconids.

Zexxy: in Canada... what is the best time for view the meteor shower...i'm from Quebec...

Bill_Cooke: After 2:30 a.m. local to just before dawn. Best rates just before dawn.

Higorf: in brazil i read article , and starts at 10:00 p;m. but i dont see nothing..

Bill_Cooke: You have to wait until Aquarius rises around 2:30 a.m. local time.

cs1bart: Why is it that the Earth can still be passing through the debris from Halley's comet if it left the inner solar system decades ago?

Bill_Cooke: Because the debris from Halley spreads out along the comet's orbit, creating a ring of material that is continuously resupplied every time the comet passes around the Sun.

JCelia: Hi, I 'm in Brazil, what time we will be able to see from here ?

Bill_Cooke: After 2:30 a.m. local time.

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Higorf: eta aquarids are on west or east ?

Bill_Cooke: Look straight up.

kb12998: How about Florida, when can I view and what direction should I look

Bill_Cooke: After 2:30 a.m. Look straight up.

Maczen: Is the meteor shower happen right now?

Bill_Cooke: Yes, somewhere in the world it's happening now.

Loosemonstermonkey: Should I just take my lawn chair out along with some snacks?

Bill_Cooke: Not a bad idea.

Brinn13: Good evening Mr. Cooke. Pleasure to talk to you. Thanks for being available to answer questions. What exactly will I be seeing around 2:30am in the Orange County, NY sky if it's not cloudy, of course?

Bill_Cooke: Starting at 2:30 a.m., you will see meteors in the sky that will appear to originate from the constellation Aquarius. Just before dawn, you can see anywhere between ten and thirty meteors per hour, depending on your sky conditions.

kb12998: what country is it visible in now

Bill_Cooke: Western Europe.

Pixel: Bill, I am in CST time Texas. So I should check it out at 1:30 am my time?

Bill_Cooke: No, 2:30 a.m. local time. That's when Aquarius will rise from your location.

JCelia: How the meteor showers are formed ?

Bill_Cooke: Meteor showers are caused when Earth passes through streams of debris left behind by comets or more rarely asteroids.

Moderator_Brooke: Thanks for the great questions. We aren't embedding the Ustream feed on this page because the skies over Huntsville are clouded over -- but if you want to watch the stream anyway, this is the link: <http://www.ustream.tv/channel/nasa-msfc>.

Maczen: Is it possible to see in a sky with light pollution? And how is the better hour to see it in Brazil?

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Bill_Cooke: Just before dawn is the best hour. And how many you will see depends on how bright your sky is. City dwellers will see very few.

Loosemonstermonkey: Okay. If Halley's comet left meteors for us to see now then what can we expect out of ISON?

Bill_Cooke: Not much. ISON is a first time comet whereas Halley has been around the sun a lot of times. As a result, there is debris all along Halley's orbit, whereas ISON's debris is very close to the comet itself.

cs1bart: Would other planets in the inner solar system experience meteor showers like this? I know Venus has too thick of an atmosphere to see meteors, but how about Mars? Could the Opportunity or Curiosity rovers potentially see such events?

Bill_Cooke: Mars should experience meteor showers, but we have not seen any to date. It is very possible that Curiosity could see meteors if it was decided to look for them.

montana_views: just got here, when does this peak?

Bill_Cooke: After 2:30 a.m. local to just before dawn. Best rates just before dawn.

Wizelriss: Why did the debris from the Halley's comet cause a meteor shower just this time if the comet had already passed a long time ago?

Bill_Cooke: Because the debris circles the sun in orbits like Halleys, creating a ring of particles that the Earth encounters every year.

Franchise: whats the best time to view it in Miami

Bill_Cooke: After 2:30 a.m. local to just before dawn. Best rates just before dawn.

Franchise: thank you

Bill_Cooke: You're welcome.

Nkjlk: is the webcam canceled?

Bill_Cooke: Yes. It is raining here in Huntsville.

Asdasd: When are they going to change the lens to infrared?

Bill_Cooke: It won't help in the rain.

Loosemonstermonkey: a meteor wouldn't have heat.

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Bill_Cooke: Actually, they do as they burn up. They reach temperatures of about 3000 degrees.

cs1bart: What causes fireballs as opposed to the average shooting star?

Bill_Cooke: Fireballs are produced by centimeter or larger particles whereas your average meteor is smaller.

Alberto: Can i see in Brazil?

Bill_Cooke: If it is clear.

Wizelriss: How long is the duration of this meteor shower? And thanks for answering the questions.

Bill_Cooke: We saw our first fireball April 25th and it should last another couple of days, but the rates will be low.

JCelia: when will we be able to see a comet ?

Bill_Cooke: You can see comet Panstarrs right now with a telescope. If Comet ISON survives its close approach to the Sun, it could be very bright in December of this year.

Alberto: Thank you Mr Cooke for answering the questions...

Bill_Cooke: You're welcome.

Rigdent: is it visible in minnesota?

Bill_Cooke: If it is clear. After 2:30 a.m. local to just before dawn. Best rates just before dawn. Look straight up.

Loosemonstermonkey: Do you expect ISON to survive?

Bill_Cooke: No. I expect it to break into pieces. Have no idea how bright these will be.

cs1bart: Will gravitational interactions with the gas giants disrupt the orbit of Halley's comet in the near future?

Bill_Cooke: No. Its orbit is stable for the foreseeable future.

Loosemonstermonkey: If ISON doesn't survive then will the earth still be in it' tail at all??

Bill_Cooke: If ISON breaks apart, it will produce little comets, each with a tail, and the Earth will probably pass through the tail of one or more of these. It's hard to predict.

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Jhklhgvfjh: when will the meteor shower be visible in Maryland.

Bill_Cooke: If it is clear. After 2:30 a.m. local to just before dawn. Best rates just before dawn. Look straight up.

Moderator_Brooke: Thanks for your patience as Bill works on your questions. Hope everyone is having better weather for viewing than we are here in Huntsville tonight!

castr360: What other notable meteor showers are there this year apart from the Perseids?

Bill_Cooke: The Orionids in October and the Geminids in December.

Jhklhgvfjh: Ok, I had been reading that 9 pm and on would be the best times but i have yet to see anything

Bill_Cooke: That is the peak time, but you will not be able to see meteors until Aquarius rises at 2:30 local time.

Jhklhgvfjh: Ok, so i should wait to keep looking until around then?

Bill_Cooke: If you want to see Eta Aquarids, you need to wait. However, you may be able to catch a sporadic or background meteor in the meantime.

cs1bart: How often do comets such as Shoemaker-Levy 9 get caught by the gravity of the gas planets?

Bill_Cooke: Tough question. I don't have a feel for rate, but we have recently observed in the past few years a couple more impacts on Jupiter. These could be due to comets, or they could be asteroids.

Ubuntu17: What is the peak time?

Bill_Cooke After 2:30 a.m. local to just before dawn. Best rates just before dawn. Look straight up.

cs1bart: This is my last question: With comets and asteroids always impacting the larger planets, will the solar system eventually become essentially empty of these rogue objects? Thanks for answering!

Bill_Cooke: Good question! The answer is no, because many asteroids and comets that will never take them close to a planet. These will always be there.

Biged: how much does a meter fetch for in USD?

Bill_Cooke: Depends on the type of meteorite. Anywhere from ten to a few hundred dollars per gram.

MaczenI: just can se Vega and Altair on east side of sky because of sky pollution, can I see any meteor?

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Bill_Cooke: Yes, you will be able to see the brighter Eta Aquarids.

Brinn13: How long will each meteor be visible, on average? What will they look like?

Bill_Cooke: They will appear as streaks of light in the night sky and last anywhere from one to two seconds. Very bright ones can last longer.

JLab: is thr live video feed ?

Bill_Cooke: No, sorry, it was called because of rain.

DouglasHi: When is the next eta aquarid meteor shower

Bill_Cooke: This time next year, around May 5/6.

Douglas: when is the next one?

Bill_Cooke: The next good meteor shower is the Perseids in mid-August. Hopefully, the weather will cooperate.

Brad: Mr. Cooke can the astronauts on the iss see the straks from orbit?

Bill_Cooke: Yes. We even have pictures taken from ISS showing meteors.

Brad: how much mass does the typical meteor require to make it all the way to Earth's surface w/o incenerating?

Bill_Cooke: It needs to be about a kilogram (2.2 pounds) or larger.

castr360: How can I find Aquarius in the sky after it rises at 2:30?

Bill_Cooke: It will be low on the southeastern horizon.

AMMARKHAN: Can i see that from Los Angeles, CA

Bill_Cooke: After 2:30 a.m. local to just before dawn. Best rates just before dawn. Look straight up. Weather permitting.

000: I love you guys

Bill_Cooke: Thank you!

Dracarys: I'm from Asia. It's May 6th. I've seen the meteors 2 nights straight :D It's amazing, Will it still be visible on May 7 onwards? When will it last?

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Bill_Cooke: Yes, but rates will be very small and the shower will be over in a few days.

Maczen: How can three zeros love someone? Whatever, the meteor shower will be well seen in South America?

Bill_Cooke: Yes. After 2:30 a.m. local to just before dawn. Best rates just before dawn. Look straight up.

long_island_ny: HI! Im in Long Island and i always seem to see a few "shooting stars" every few months from my backyard, but never anywhere else. I went to the park before and couldn't see any. While disappointing, im now watching from my roof, and i have seen three so far! is there any reason why i can usually see activity from my yard but not from less than a few miles away?

Bill_Cooke: Is the sky darker from your apartment? That may be the reason. Street lights often interfere with viewing.

Joey: is it safe to say that if I can see the majority of the stars that I will be able to see a meteor? I always try to watch but then after about 30 minutes or so I may not see anything and assume that it isn't dark enough where I live to see them.

Bill_Cooke: Yes, if you can see stars, you can see meteors, but you may have to wait longer than thirty minutes because it takes that long for your eyes to dark-adapt. You should plan on spending at least an hour outside.

Brad: when meteors burn-up entering our atmosphere, does the color of the streak indicate what elements are contained in the meteor itself?

Bill_Cooke: Mostly the color is determined by the individual looking at it. I have seen meteors that I thought were white, but others considered them green. So I would say the color of a meteor is more determined by a person's perspective.

long_island_ny: My house is in a suburban area so it is "darker" than in a city area. Though I was on the water at the park with much more dark, open sky. Could it be that the concentrated area behind my house has more activity?

Bill_Cooke: No, not more activity, so there must be some other reason.

Joey: Ok great! Thanks for the help Dr. Cooke, I really appreciate it!

Bill_Cooke: You're welcome!

Hamm: Can astronauts in the ISS see the meteor shower?

Bill_Cooke: If they are looking down at the Earth, they will probably see a few meteors from the shower.

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long_island_ny: Thanks for answering! One last question, well two, is there a way to calculate the speed of each passing comet? Do they travel at an average speed or does the speed vary?

Bill_Cooke: The speed varies with distance to the Sun. A comet moves faster closer to the Sun and slower farther from the Sun.

Hamm: Any chance for pictures from their point of view?

Bill_Cooke: Don't know. We can check when they send down their images to see if they took any.

Brad: will earth ever travel through comet ison's current path? if so, how likely are we to gain a new annual meteor shower?

Bill_Cooke: The Earth will pass close to ISON's orbit on January 16th of next year, but there will be no meteor shower because there is no debris at that point in ISON's orbit.

AMMARKHAN: can we access nasa live cams to view shower?

Bill_Cooke: The NASA live cam is clouded out.

Brad: Thank you for answering questions Mr. Cooke! I am most grateful to you guys for taking the time to do these chats. It's not everyday you get to actually interact with your heros! :-)

Bill_Cooke: You're welcome!

AMMARKHAN: Dr. Cooke do you where should i look for the shower before the dawn?

Bill_Cooke: After 2:30 a.m. local to just before dawn. Best rates just before dawn. Look straight up.

AMMARKHAN: Awesome... Thank you very much Dr. Cooke...

Bill_Cooke: You're welcome!

KIMORA: is the shower still viewable in the central time zone?

Bill_Cooke: Yes, weather permitting.

KIMORA: like right now?

Bill_Cooke: Yes, but best time would be after 2:30 a.m. local to just before dawn. Best rates just before dawn. Look straight up.

Brad: Mr Cooke, do you have a favorite meteor shower?

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Bill_Cooke: Yes, the Geminid,. because they come from an asteroid and because there are lots of them.

Moderator_Brooke: Great questions, everyone. Just a quick note that we're going to end this chat in about 20 minutes, or 1 a.m. EDT. Please be sure to go ahead and send your questions in to Bill!

Telestar: hello i'm in NJ. Have I missed Halley's dust?

Bill_Cooke: Nope. After 2:30 a.m. local to just before dawn. Best rates just before dawn. Look straight up.

Ashley: hay i live in souther GA do tou think that we wont see it due to all the rain fall and the partly cloudy skies?

Bill_Cooke: If you can't see stars, you can't see meteors.

Valosia: What are the charatersitics of a comet trail?

Bill_Cooke: Comet debris are tiny pieces of ice and rock anywhere from sub-millimeter to centimeter in size. This debris spreads out along the comet orbit due to gravity from the other planets and also pressure from sunlight. Some comet trails are several hundred thousand miles across. Others are only about a hundred miles across.

Ashley: i can see the stars i live in the country part i just don't know what im pose to tell my daughter so be lookin for since she is only 6

Bill_Cooke: After 2:30 a.m. local to just before dawn. Best rates just before dawn. Look straight up.

Dracarys: An earthgrazer enters Earth's atmosphere, right? Is it possible that those earthgrazers will break up in the atmosphere and the fragments willl impact Earth?

Bill_Cooke: Not from Eta Aquarids --- they move too fast at 66 kilometers per second. A meteor must move slower than twenty-five kilometers per second in order to have fragments make it to the ground.

Ashley: thank you i will let her go to sleep then and wake her for it thanks very much

Bill_Cooke: You're welcome.

Valosia: Is there radiation in a comet trail? Or, do we even really know. I would assume there would be.

Bill_Cooke: No radiation in a comet trail other than what's out there in space.

Moderator_Brooke: We have about 10 more minutes for Bill to take your questions...

Dracarys: Thanks for the answer Mr. Cooke.

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Bill_Cooke: You're welcome.

Brinn13: Just wanted to take a moment to thank Mr. Cooke, as well as moderator Brooke for answering all of these questions. I am indeed pedestrian minded regarding these topics, but was very interested in this particular meteor shower. Now I'm extremely interested and can't wait to learn more, and have better questions for you during the next shower. Honestly, thank you. You are both rock stars in your own right!!!!

Bill_Cooke: You are welcome!

Moderator_Brooke: Thank you so much, Brinn!

AlessandraGallon: Hello! I'm from Brazil, would like to thank you for answer our questions! We learn a lot. I stayed outside for about 1 hour and saw just one meteor, but I'm satisfied :). Thank you!

Bill_Cooke: Glad you saw a meteor, congratulations!

Moderator_Brooke: Thanks for all of your questions, and thanks to our chat expert, Dr. Bill Cooke. Too bad the weather didn't cooperate for us here at Marshall Space Flight Center, but wishing you clear skies tonight for viewing. Check back here in a few days for a transcript of all the questions from the chat. Have a great week.

Valosia: Thank you for helping everyone.. we all love you for taking your time and answering all of our questions. We deeply appreciate it!!! <3

Bill_Cooke: You are welcome!

Moderator_Brooke: You are very welcome -- thanks for being here!