

Marvel at the Milky Way (28 October to 3 November 2024)

Chris: Hello and welcome to Star Diary, the podcast from the makers of BBC Sky at Night Magazine. You can subscribe to the digital edition of the magazine by visiting iTunes, Google Play or Apple News, or to the print edition by visiting skyatnightmagazine.com.

Ezzy: Greetings listeners. And welcome to Star Diary, a weekly guide to the best things to see in the Northern Hemisphere's night sky. As we are based in the UK, all times are in GMT.

And remember, the clocks went back on 27 October, which is the day that this podcast comes out, so do be cautious about that. And if you are listening in the US, also bear in mind that your own clocks don't change until 3 November, so there might be some little quirks about time. So any times that you're looking, just double check them. In this episode, we'll be covering the coming week from 28 to 3 November.

I'm Ezzy Pearson, the magazine's Features Editor, and I'm joined on the podcast today by Mary McIntyre. Hello Mary.

Mary: Hi Ezzy.

Ezzy: So Mary, what do we have to look forward to in this week's Night Sky?

Mary: So our planets are going to continue to give us a good show and hopefully we'll still have a comet that's visible with binoculars, a couple of galaxies to look for. And I think we all should give the autumn Milky Way a bit of some love as well.

So starting with the planets, Venus is moving through Scorpius and towards Ophiuchus setting around 6:10PM. So that's 1 hour and 40 minutes after the Sun now, so we're going to have more chance of actually spotting it. It's not going to be its usual blazing view that we get of it when it's in a darker sky, but it should start to be getting visible to the naked eye now, and in the coming weeks it's going to start getting much higher and much brighter, but you should be able to spot Venus after sunset now.

Saturn is an Aquarius, and that is visible as soon as it gets dark, about 20° above the Sun. Southeastern horizon and that's going to be visible until it sets at about 1:45AM in the morning.

From 21 to 24 October, it's going to lie really close to a star that's mag +6.8.

So you'll see that below the planet through binoculars. So you'll see that for three nights this week. So keep an eye out for that and don't mistake it for one of Saturn's moons, which you could also see with binoculars.

Neptune lies to the left of Saturn in the evening sky and it sits below Pisces about 20° above the east southeastern horizon when it gets dark.

Through the night it's going to move towards the upper left of Saturn and then it sets about an hour and a half after Saturn does, so you've got a bit longer to observe it through the morning hours. It's about mag +7.8 so you will need optical aids in order to see that.

It's moon Triton is still visible orbiting around the planet this week that is at mag +13.4 so if you have a big telescope or an imaging rig you should be able to spot Triton on its journey orbiting the planet Neptune.

Okay Jupiter is the brightest planet on show this week it's at mag -2.3, and it lies in Taurus, so that is rising at about 6:40PM and is then visible all night. So you've got plenty of hours of the night to look at Jupiter.

The star N Tauri is still very close to Jupiter, so it will look like an extra moon through binoculars, and Jupiter is heading towards opposition in December, so we're going to have plenty of opportunity to look at it over the coming weeks. But that doesn't mean put it off, just go out and have a look at it whenever we have clear skies, because there's always something going on around Jupiter.

On 28 October, from 10:00PM till 1:15AM, we have a Great Red Spot transiting, and then overnight on 1 and 2 November, from midnight through to 2:10AM, there is a shadow transit by Io, but at 12:50AM, Io itself will transit the planet. And then we mentioned previously, and I think last week, that Io can be very difficult to see against the planet.

But this particular transit, Io is actually transiting along one of the darker cloud bands. So it's an opportunity to not just see the shadow of Io, but to possibly just be able to make out Io itself. Usually that's something that I think is probably better done imaging rather than visual. But you can usually just see a slightly brighter spot when you do have Io along with the darker band.

So it's a good opportunity to test your equipment to see if you are able to pick that up. It will be a challenge, but it's a more chance to see it this time than other times with transits. So yeah, that should be really good.

Mars lies below Gemini this week. It's in line with Castor and Pollux, and it's rising in the north at about 9:20PM and then remains visible all night. It's mag +0.4, so very easy to see with the naked eye. It will look like a reddish coloured star, so yeah, look out for that in Gemini.

Uranus is heading towards opposition on 17 November, so that's pretty much visible all night at the moment. As we've said before, just because a planet's at opposition doesn't mean you only get to see it that night. In the weeks before and after, it tends to be visible most of the night as well. So that's the case for Uranus, it's about 6° to the right of the Pleiades, so you should be able to spot that with binoculars.

It's visible in the evening twilight and then remains visible all night. But at mag +5.7 you will need optical aids to see it. But it'd be really fun to actually see if you can see it lying just to the side of the Pleiades, it's a good chance to try to spot that conjunction.

More challenging is Pluto. It's at mag +14.5 and that lies between Capricornus and Sagittarius. It's now only reached its highest point at 5:30PM in the evening when it's about 15° above the southern horizon.

It's getting earlier and earlier that it culminates, so we are going to start losing Pluto in the evening twilight, so take this opportunity to observe it while you still can. Mercury is still going to be lost in the evening twilight this week, but it will be back soon.

Ezzy: We'll see you again soon, Mercury. We promise.

Mary: We will.

And the Moon this week is moving from a waning crescent through to a waxing crescent with a new Moon on the first of November, so that's a good time to look at all those faint objects that we can't see when the moon's around. On 28 October at 4:15AM in the morning, the Moon is going to be half a degree to the right of Sigma Leonis. So that would be a nice conjunction to look out for.

I don't know why I really love a crescent Moon conjunction with planets. It's just something about the crescent and Earthshine and then a star or planet nearby. I just think it's more aesthetically pretty than a full Moon next to one. But ...

it's also easier to photograph.

Ezzy: There's a reason whenever you sort of see the Moon In, you know, like popular art and things, it always tends to be a crescent rather than a full Moon or

a crescent Moon, unless that's what they're going for, but it's just a bit more aesthetically pleasing.

Mary: And I am a big fan of Earthshine as well, so I love photographing that.

Ezzy: Yeah, that always blows my mind that you can see the sunlight reflected off Earth reflected off of the moon and then back again.

Mary: It's so pretty. So, so pretty. It's good to sketch as well. So, you know, have a look through binoculars and draw it because it's really good fun to do that.

Comet A3 Tsuchinshan-ATLAS is going to be moving past Ophiuchus this week.

By now, it's almost certainly faded to a binocular object. We have had a treat over the past couple of weeks, but it should now be a binocular object as it moves further away from the Sun, but it's also getting higher in the sky and therefore in darker skies, so it can in some ways be easier to image because you're not affected by twilight.

It's going to be moving towards the dense star clouds around the Milky Way, and that's kind of a blessing and a curse. On photographs, having those lovely star clouds and gas and dust around a comet look absolutely beautiful. But those gas and dust clouds also make it harder to see the comet visually, so...

Ezzy: It's hard to see, you know, something that's long and cloud like against a cloud.

Mary: Yeah, but in images they are very distinctly different, so they do tend to show up on photographs, so It's always difficult when you are looking at the Milky Way through binoculars. It's just difficult to know what you're looking at. There are so many clusters and deep sky objects and sometimes you need a star map with you to know what you're looking at.

So there will be plenty of things around the comet that will be very pretty to observe alongside it. So yeah, hopefully we will still see that comet and it will be a binocular object.

We still have the Northern and Southern Taurids meteor showers active and the northern branch of that meteor shower is heading for its peak around 12 November.

It's not particularly high zenithal hourly rate but these meteors are quite slow moving at 28 km/s so when you see them they're a bit easier to see because they're not moving quite so fast as some others.

Just a note again that the radiance of these two showers are no longer in Taurus, they've drifted away over the years but they are still called the Northern and Southern Taurids because that's where it was when the showers were first discovered.

While the Moon is out of the way it's a really good time to look for some nice deep sky objects and Andromeda Galaxy is always a firm favourite. If you're in a very dark location it is visible to see this with the naked eye, with averted vision, I can see it from our garden. We live in Bortle 4 skies, which is kind of middle of the range, kind of semi rural, so we can see that.

Ezzy: For those of you that don't know, the Bortle scale is a nine point scale of how dark your skies are, so a 1 Bortle sky is the best dark sky site in the world, whereas a 9 Bortle sky is going to be, you know, the middle of a massive city where you can't see hardly anything except for the Moon. So, Mary's would be somewhere in the middle.

Mary: Yeah, and it's interesting, actually, that the difference between one level of that scale can make a huge difference to how you see. So, it's not really a particularly good linear scale, the way that it's measured's not really perfect. So

going from 4 to 5, for example, will make a huge difference that you don't have to find the absolute darkest sky to be able to see some of these objects.

But the Andromeda Galaxy is usually quite easy to spot because the right hand kind of point of the W shape points at it, but you can also look at the stars within Andromeda and the square of Pegasus to kind of find it.

So Mirak is the second brightest star within Andromeda and that is a really good pointer star and it's a useful one because if you find that star and scan upwards you'll see the Andromeda Galaxy.

After a little dog legged row of three stars, the same distance below Mirak is where you'll find a fainter galaxy, the Triangulum Galaxy, M33. M33 has a lower surface brightness, so when you look at the magnitude of a galaxy, the hard figure is not necessarily how easy something is to see, because it may technically be mag +3.0, but if that's spread out over a bigger area, it's going to appear way dimmer than that.

So having a look at the Triangulum Galaxy as well is more of a challenge, but you can use Andromeda and the Star of Mirak to actually find it as a pointer. So yeah, 10:30PM, M31 is now nearly 80° high, so it's up above all of the light pollution and the fog and all the horrible stuff and is super super high in the sky so it's a really good time to observe it.

It's technically visible all year round from the UK but there are a chunk of the year where it's terrible to see. It's so low down. We're at that point now where it's getting really high so it's a great opportunity to have a look at that.

And the autumn Milky Way as well, the summer Milky Way seems to get all the love, but I was on holiday in Wales in September, and it was a truly dark sky place we were staying in North Wales, and the northern Milky Way looked spectacular.

I've never seen it look so good, and it looks very different from the southern Milky Way, which has that orangey red dust clouds. The northern Milky Way just has loads of bluish coloured dust. Dust and stars. And it's absolutely beautiful. But there are still portions of the southern Milky Way visible through the autumn.

And you can actually see the Milky Way arching at the moment about 50° above the southwest horizon. So it's actually really pretty. It kind of goes from Perseus one side through to Cygnus the other and still forms a beautiful full arch of the Milky Way.

But nobody ever photographs it at this time of year. Everyone ever does it in July. And it's a shame because it still looks absolutely spectacular, so definitely worth having a look for that. And it's littered with open clusters as well. So there's so much to see binocular wise, if you do have a scan around.

And the other thing to look for at this time of year as well is the zodiacal light.

This is interplanetary dust reflecting in this cone of light perpendicular to the galactic plane, and that is really pretty. And at this time of year it's visible before dawn in the east, so if you look to the eastern sky an hour and a half or so before dawn, you may just with averted vision see this very faint cone of light sloping up from the horizon. And I think it's been named as a false dawn before now because it looks like the dawn glow if you're somewhere dark so you'll definitely need no Moon around to observe that but when we get to spring you'll see this in the western sky after sunset but at this time of year it's a dawn object.

Ezzy: I do know that the zodiacal light is faint enough that it is one of the things that some astronomers have to actively track down and hunt. It's a bit of a bucket list item sometimes for some people because you have to be in the right sort of dark sky area under the right conditions to be able to see it.

So if that is something that you've been looking for, then maybe this week is a great opportunity to try and find yourself a dark sky site to look for it.

Mary: Very exciting the first time you do see it. And you may have seen it before and not realised. You may have just thought it was a dome of light pollution, or because once you know what you're looking for, like all of these things, same with aurora, when you've never seen aurora naked eye before, you realize you may have seen it previously and not realized.

It's knowing what to look for. And it's very beautiful on photographs. So like with a wide angle lens, digital SLR, great to photograph that.

So finally, the International Space Station has some lovely high and bright passes in our pre dawn sky this week.

So that's everything for this week.

Ezzy: So yes, it definitely sounds like there's a lot of really interesting things to see in this week's night sky.

If you want to keep up to date with all of the latest goings on in the night sky, do subscribe to the Star Diary Podcast and we'll be back here next week.

But for now, let's summarise this week again.

All of the planets are going to be on show except for Mercury this week. Neptune's Moon Triton will be visible in big telescopes or imaging setups, orbiting clockwise around the planet, so try and see that.

Jupiter is still the best of the planets, it's the biggest and the brightest, and you can find that in Taurus at the moment. On the first and the second, it's also a good chance to catch Io's transit across the planet, because the moon will be passing through a darker band, so it should be able to stand out a bit more.

The Moon will be moving from a waning to a waxing crescent, with a new Moon on 1 November. So it's a great opportunity to take the fact that the Moon is going to be out of the way to look at some deep sky objects this week.

Comet Tsuchinshan-ATLAS will be moving through the Milky Way, there's hopefully great photo opportunities because there'll be lots of things going on around the comet.

It might take you a bit of time to work out exactly what's going on, so you might want to take a guide or an atlas with you just to try and make sure that you don't get lost there.

The Northern and Southern Taurid meteor showers are also set to continue.

And if you want to take advantage of the new Moon, why not take a look at the Andromeda and Triangulum Galaxies, which should be putting on a good show with the Moon out of the way.

It's also a great opportunity to look at the Northern Milky Way. It's not as colourful as the Summer Milky Way, but it is littered with a whole bunch of open clusters as well. And also, you might even be lucky enough to see the zodiacal light in the pre dawn sky in the east.

Plus the ISS is also making several high and bright passes this week.

So lots of things to be getting on with and we'll hopefully see you all here back next week for even more stargazing tips. Goodbye!

If you want to find out even more spectacular sights that will be gracing the night sky this month, be sure to pick up a copy of BBC Sky at Night magazine, where we have a 16 page pull out sky guide with a full overview of everything worth looking up for throughout the month.

Whether you like to look at the Moon, the planets, or the deep-sky. Whether you use binoculars, telescopes, or neither, our Sky Guide has got you covered. With detailed star charts to help you track your way across the night sky. From all of us here at BBC Sky at Night Magazine, goodbye.

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