

Episode 5
The Aquarius Region

**Find the Sculptor Galaxy, The Helix Nebula, and
the Globular Cluster Messier 30**



[YouTube Link to this Episode](#)

Leader

In this episode of Star Hopping with Kissimmee Park Observatory, we'll look at the Aquarius region, and show you how to find these beautiful deep sky objects:

- The Sculptor Galaxy
- The Helix Nebula
- And the Globular Cluster Messier 30

Alright, Let's Go Star Hopping!

<Intro Theme>

Main Content

Hey Hello Hi and welcome to Episode 5 of Star Hopping with Kissimmee Park Observatory! I'm Dave Hearn, and I'm positively thrilled to be your host. In this series of programs we'll show you the most beautiful sights in the night sky, and explain exactly how to find them with your binoculars or telescope.

In this installment of Star Hopping, we are focusing on the "water" region of the Autumn sky, containing the constellations of Aquarius the Water Bearer, Pisces Austrinus the Southern Fish, and Cetus the Whale. The set of deep sky objects that we're finding tonight are definitely fainter and will require a telescope to locate them, although you could potentially pick them up in your binoculars if you have a dark sky. These targets will appear about midway up in the south and southeastern skies, around 10 PM, at the end of October.

The center constellation of this watery group is the ancient constellation of Aquarius, initially documented in the second century by the Greek astronomer Ptolemy. It's an extremely large constellation, covering nearly 1000 square degrees, making it the 10th largest constellation in the sky. There are really no especially bright stars in Aquarius, which makes it somewhat difficult to pick out, particularly if you are dealing with some light pollution in your location. It's always best to try to get away from city lights for your astronomical viewing activities.

In Aquarius, there is one easily recognized pattern of stars, known as the "Water Jar", two curves of stars that represent the opening of the water carrying vessel that Aquarius is toting. The water jar lies near the border of the constellation of Pisces Austrinus, with its bright star Fomalhaut.



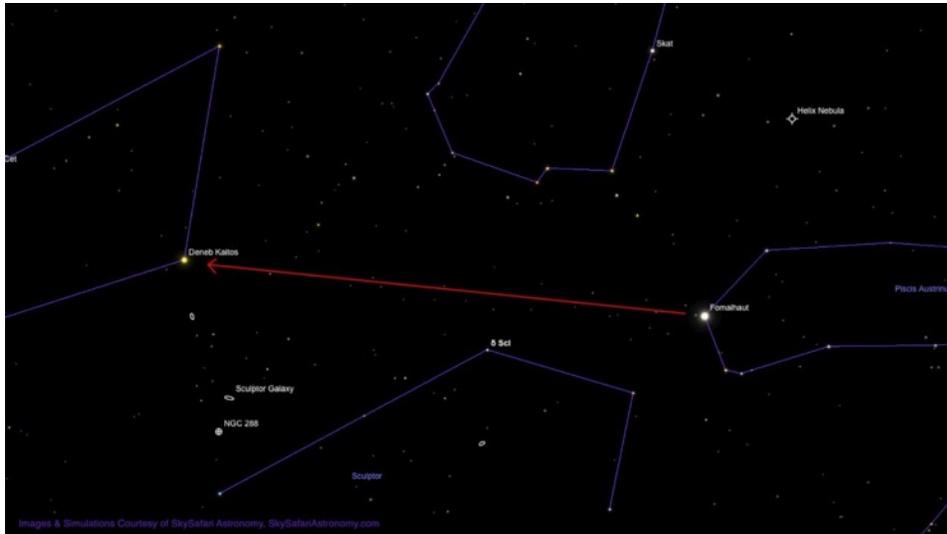
To the left of the Water Jar lies the constellation of Cetus, which is where we'll be starting our search for our first target, NGC 253, better known as the Sculptor Spiral, or the Silver Dollar Galaxy. This is a very large spiral galaxy, nearly a half degree on its long axis, just as big as the full moon. In the eyepiece it appears large and

ghostly pale, but in astrophotos, like this one taken with the KPO Reflector, it reveals beautiful detail in its core. Ready for a Galaxy hunt? Let's get started.

The first star you will see when you look into the south is bright Fomalhaut in Pisces Austrinus. Looking to the left about 30 degrees, much more into the

southeast, you will spy another fairly bright 2nd magnitude star, named Deneb Kaitos, in the constellation of Cetus. This will be our starting point in our search for the Sculptor Galaxy. Make sure you have a fairly wide field eyepiece in your

scope, as our target is pretty large. Here we go.

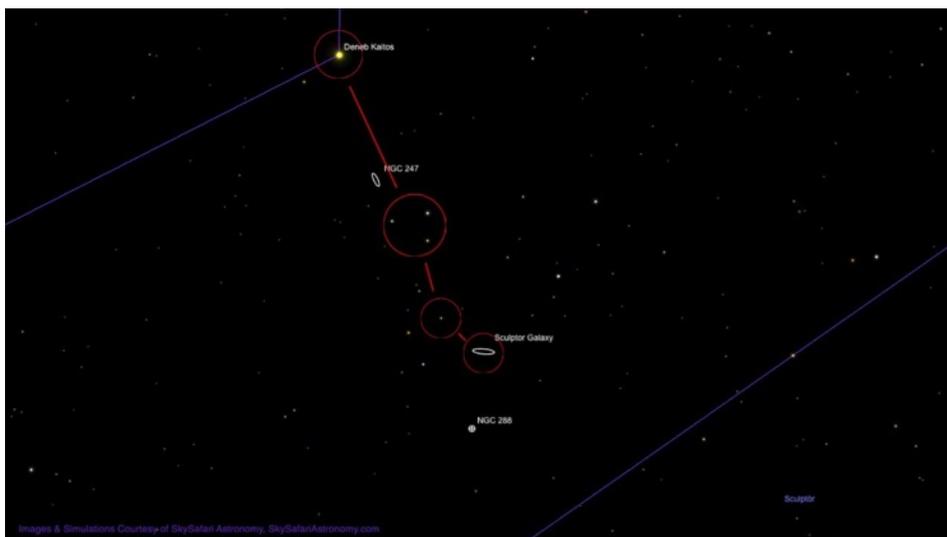


About 5 degrees down and slightly right of Deneb Kaitos, you will see a triangle of stars. As you head down there you will be passing nearby to

another large Galaxy, NGC 247, an 8th magnitude object. If you find it, take note of its brightness in the eyepiece - the Sculptor Galaxy is a full magnitude brighter, so if you see this one, it's a good sign! Most of the stars in this Hop are between 5th and 6th magnitude.

So, now we are sitting on our little triangle of stars. About 2 degrees below this group you will see another single 5th magnitude star. You'll pass a couple fainter stars on the way to it. So now move down and slightly to the right about a

degree, and you should see the large ghostly image of the Sculptor Spiral.



Once you have found this monster with your scope, try and see it in your binoculars. The Sculptor Spiral is one of

the largest galaxies in the sky, and it is is a fairly dark area, so you should be able to pick it up in your binocs.

Great! Now on to our second object, which is another big one, so you should keep the wide field eyepiece in your scope. We're going to locate the largest and



closest planetary nebula in the sky, the famous Helix Nebula. We located a couple other famous planetaries in Star Hopping a couple weeks ago; the Dumbbell Nebula and the Ring Nebula. You can check them out by clicking on the [link](#) down there.

Neither of these two even come close to the size of the Helix, which is literally twice the size of the Dumbbell, at about a quarter of a degree. That's half the size of the full moon.



To find the Helix, we will be starting at Alpha Piscis Austrini, much better known as Fomalhaut, a first magnitude star, so it stands out like a flare in the southern sky, pretty hard

to miss. In this star hop we'll be using 4th and 5th magnitude stars, all reasonably bright so it won't be too difficult. From Fomalhaut, move to the upper right to 4th magnitude Epsilon Piscis Austrini. Now move about the same distance across the border of Aquarius and find the 5th magnitude star 49 Aquarii. The next move is another 5 degrees, slightly upward to the 5th magnitude star 47 Aquarii. Now, if you make a hard left, about 5 degrees away is another 5th magnitude star named Upsilon Aquarii. As you move to it, about half way there you will run into a very large hazy ring of light in your eyepiece - you have just located the Helix Nebula.

Remember our discussion in the last episode about using Averted Vision? That visual trick will help a lot in studying the Helix in the eyepiece. If you need a reminder, check out [last week's episode](#) down there.

The Helix has been called "The Eye of God" because it consists of a red outer area and a brighter center that looks somewhat like the iris of an eye. In other pictures it looks a bit like a corkscrew, similar to what was captured in this image taken at KPO.



Okay, our last target for this week is the globular cluster Messier 30, in the constellation of Capricornus, the Sea Goat, yet another watery constellation. Our starting point is to the right of the Helix, on the star Deneb Algeidi, which is a star of magnitude 2.8. Moving about 5 degrees downward, you'll pass the star Kappa Capricorni - that's kinda fun to say. Then shortly you'll see the 5th

magnitude star Epsilon Capricorni. Continue another 5 degrees downward and you see the pair b Capricorni and Zeta Capricorni, of magnitudes 4.5 and 3.8 respectively. From Zeta, make a hard left and slightly upward, about 5 degrees out, heading for the 5th magnitude star 41 Capricorni. Just before you get there, you will see the fuzzy star which is M30. Put in a high power eyepiece to resolve this globular into stars. The cluster collectively shines at about 7th magnitude, but



is comprised primarily of 12th magnitude stars. Look closely; you're viewing about 200,000 stars in your eyepiece!

So that's our three targets for this episode. We looked first at the beautiful

NGC 253: the famous Sculptor Galaxy, then we checked out the largest and closest planetary nebula in the sky: the Helix Nebula in Aquarius. Finally we tracked down Messier 30, a globular cluster in Capricornus. These three were definitely not as bright as the objects we have been finding in previous episodes, but it's a great way to exercise your star hopping and object recognition skills! All in all pretty fun!

Trailer

I hope you've enjoyed star hopping around the Milky Way. We'll continue to bring you these video astronomy tutorials every week on Thursday, and in their podcast format on Fridays. They will be designed to help you find deep sky objects that are up in the sky at the time we post them on the Internet.

The reason we create these videos and podcasts is to help beginning amateur astronomers learn the sky and get more enjoyment out of their telescopes and astronomy in general. If you have any requests or suggestions of potential targets in the night sky that you would like to see us present, just let us know down in the comment section below, or on our website blog.

Don't miss our [Field Notes](#) for this episode, basically the script of the show, with all the images and star charts we use for our star hopping activities. You can get a free copy for the current episode when you sign up for our [Newsletter](#).

If this is the first time you're checking out Star Hopping, and if you found this video useful, please consider [Subscribing to our Channel](#) by clicking the Big

Yellow Button down there, click the Thumbs Up on the video, and please share this tutorial out to your friends who like looking at stars. Also, as I just mentioned, please feel free to leave any question or comment below, and we will be sure to respond quickly.

Also, please follow KPO on [Facebook](#), where we post all of our astrophotos and keep everyone informed about upcoming astronomical events. We'd love to hear from you to discuss all this great stuff up in the sky.

All the links to these places including our website [StarHopping.org](#), can be found below in the Episode Notes as well.

And finally, if you feel this video provides you value, and if you'd like to see more, please consider supporting us on [Patreon](#), where for a small amount per video, you can support our efforts and let us make even more great astronomy tutorials like this one.

Well thanks again for watching, and we'll see you next time on Star Hopping.