HERMANUS ASTRONOMY CENTRE

THE SKY THIS MONTH : OCTOBER 2014

http://www.hermanusastronomy.co.za/

I have made a slight change to the layout for this month and brought the meteor predictions section to the top.

How often has it happened that you have stayed up till late in the hope of seeing that much vaunted meteor shower only to be bitterly disappointed? I have. OFTEN!

Well, this month we should maybe make that supreme effort once more, although it does mean being out of bed at about midnight and after. But then again, by 21st October the nights will be lovely and warm. ...I think ...

The Orionids are predicted to be plentiful and spectacular and well worth the wait. I quote from the Sky Guide:

*"**Orionids**: conditions during 2014 favour the observation of both Comet Halley streams. Where the eta Aquarids are the outbound stream, the Orionids give us the opportunity to observe the inbound portion of the stream. The meteors are similar to the eta Aquarids, yielding fast, often bright meteors with persistent trains, although rates are lower at maximum, seeing that the stream is located at greater distance from Earth's orbit. This stream has, however, also shown a tendency to produce years with unexpected higher activity."*

1. METEOR SHOWERS

Name	*Date & Time of Max*	*Duration*	*Radiant*	*ZHR*	*vel.*	*Observing Prospect*
Orionids	21 Oct 00.00 – 04.00	2 Oct – 7 Nov	Between Betelgeuse and γ Geminorum	30	68	Favourable
Southern Taurids	5 Nov 21.30 – 03.30	1 Oct – 25 Nov	Approx 12º west of Hyades	10	29	unfavourable
Northern Taurids	12 Nov 21.30 – 03.30	1 Oct – 25 Nov	Approx 3º east of Pleiades	5	31	poor

Key to the table above:

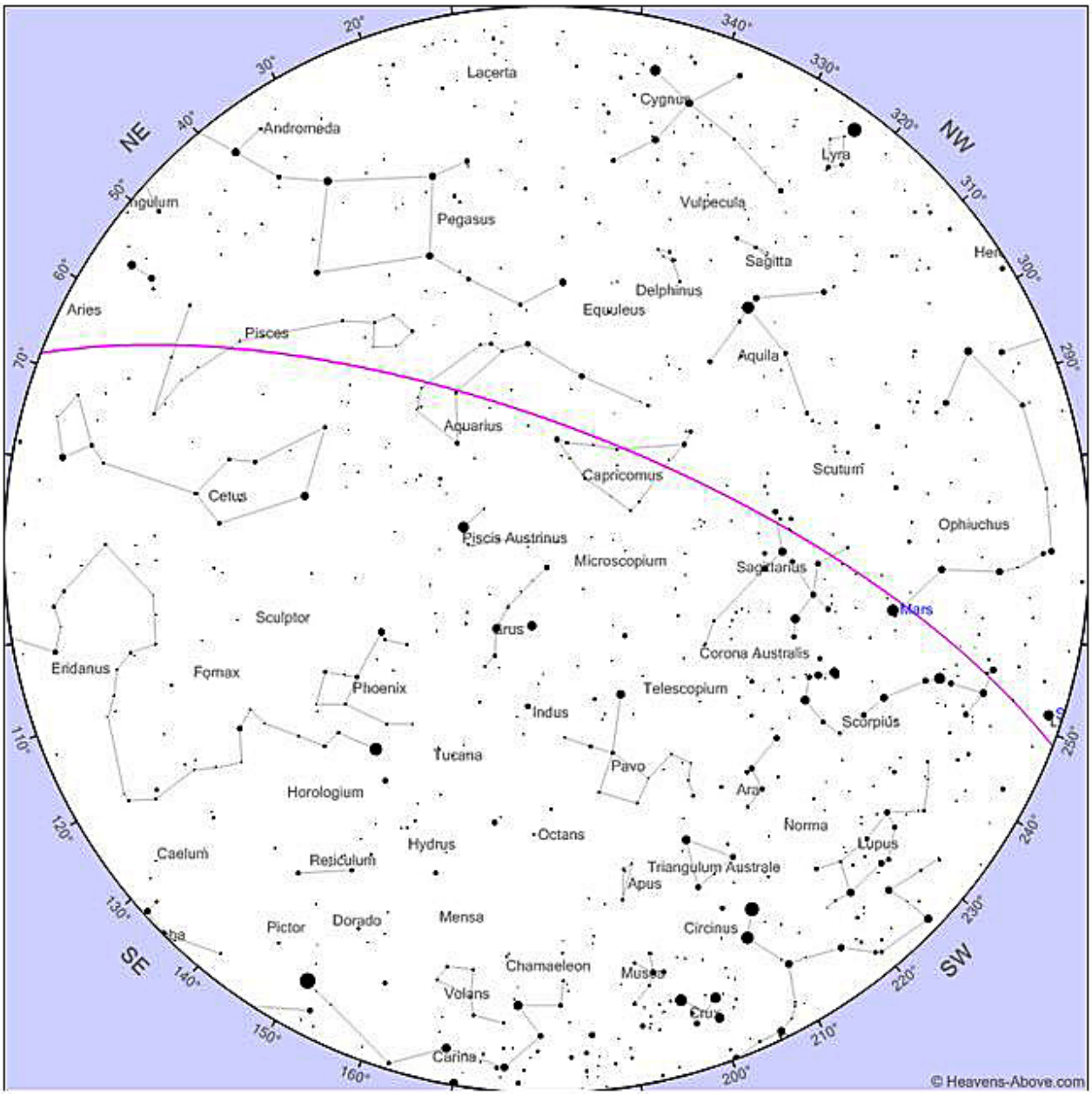
ZHR – zenithal hourly rate

vel. Velocity in km per second

For more details regarding meteor watching, please see the Sky Guide for Africa South (SGAS) pp. 86 - 87

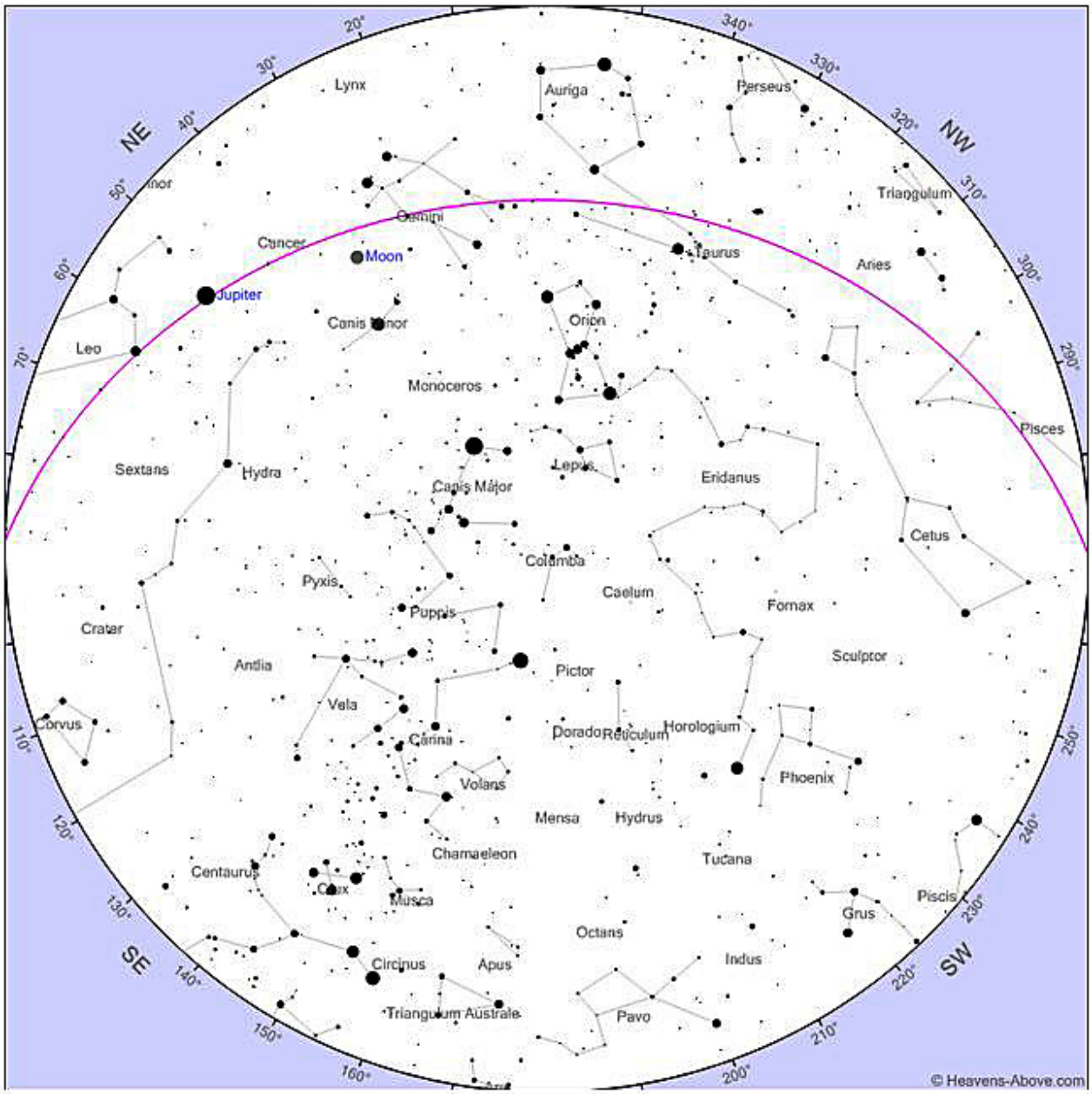
2. SKY MAPS

NOTE: The sky maps for this month are also presented as separate attachments to the covering e-mail. This will give you the ability to view them on screen in a larger format or to print them full page for use outside. Some members have reported difficulty in printing these maps; the best method is to download them, www.heavens-above.com and, from the download directory, highlight them and click on preview; once in the preview menu just press print!



EVENING SKY 15th October at 21h00

(The mauve line denotes the ecliptic)



MORNING SKY 16 October at 05^{h}00

(The mauve line denotes the ecliptic)

3. THE NIGHT SKY

Highlights from the Sky Guide Africa South:

Date	*—Time*	*Item*
1	21h00	1st quarter **Moon**
4	16h00	**Mercury** stationary
5	19h00	**Moon** near **Neptune**
6	11h00	**Moon** at perigee (362 500 km)
7	22h00	**Uranus** at opposition
8	11h00	**Moon** near **Uranus**
	12h00	Full **Moon**
13	15h00	**Moon** furthest north (18.5º)
15	21h00	Last quarter **Moon**
16	23h00	**Mercury** between **Sun** and **Earth**
18	02h00	**Moon** near **Jupiter**
	07h00	**Moon** at apogee (404 900 km)
19	01h00	**Moon** near **Regulus**
23	23h00	New **Moon**
25	09h00	**Venus** at superior conjunction
27	21h00	**Moon** near **Messier 9 Globular cluster** mag. 7.9 (binocular) *
28	02h00	**Moon** furthest south (-18.6º)
29	23h33	**Moon** occults **υ Sagittarii** (4.5 mag. binary) (dark limb event) *
31	04h00	1st quarter **Moon**

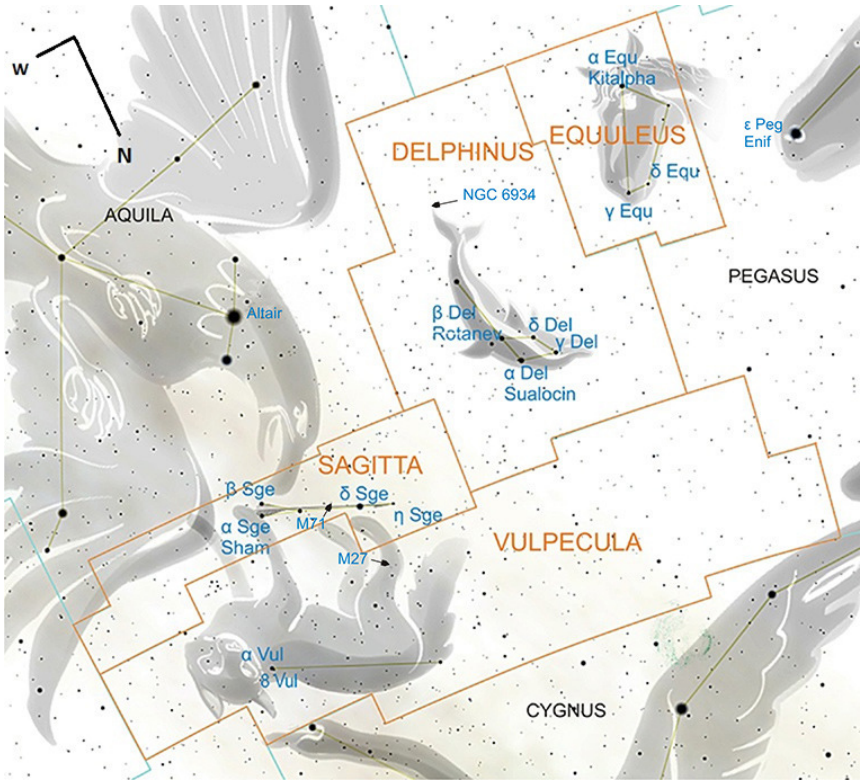
Eclipses – a solar eclipse takes place 23rd October but will not be visible from southern Africa.

THE SOLAR SYSTEM:

At the beginning of October, **Mercury** is low in the west just after sunset. After passing between us and the sun, the little fella appears again in the east in the early morning before month-end. **Venus** is too close to Sol throughout the month to be seen. **Mars** is visible in the evening sky while **Jupiter** is there in the early morning. Beautiful **Saturn** is once again visible in the evening while **Uranus**, **Neptune** and **Pluto** are well placed for viewing for the whole night.

4. CONSTELLATIONS OF THE MONTH

A team of four is the choice of the month for October. Equuleus (the Foal), Delphinus (the Dolphin), Sagitta (the Arrow) and Vulpecula (the Fox) are small constellations surrounded by Pegasus, Aquila and Cygnus.



Easy to find is 0.75 magnitude Altair, the α member of the Aquila constellation. From there, navigate a bit north of east to find Equuleus. In the trapezium (US definition) forming the head of the Little Horse are four stars, two of which are doubles, γ and δ. 4.7 magnitude γ is at the nostril but the fainter 6.05 magnitude 6 Equ, slightly south-east, is NOT its partner, being some 330 light years further away.

Moving north-west, we come to the Dolphin where we find another trapezium in which there are three doubles, α, β and γ. Again, we are deceived by the apparent close proximity of another star to the south-west of 3.85 mag. α Del which is at 241 light years. Its 'companion', HIP 101 909, mag. 5.95, is 1348 LY distant! Just to the south of the Dolphin's tail is NGC 6934, an 8.9 mag. globular cluster.

In Sagitta, we find the globular cluster M71, magnitude 8.5, about half-way down the shaft of the arrow. In the Dumbbell nebula (M27), 8.1 magnitude, is in the off hind heel of Vulpecula.

From Ian Ridpath's ***"Star Tales"***

Equuleus, second-smallest constellation in the sky, first appeared among the 48 constellations listed by the Greek astronomer Ptolemy in the second century AD. It was unknown to Aratus 400 years earlier. The actual inventor is unknown; it may have been Ptolemy himself, or one of his predecessors such as Hipparchus in the second century BC. Equuleus consists merely of a few stars of fourth magnitude and fainter forming the head of a horse, next to the head of the much better-known horse Pegasus. The early mythologists such as Eratosthenes and Hyginus never mentioned this little horse, but perhaps Ptolemy had in mind the story of Hippe and her daughter Melanippe, sometimes told for Pegasus but which seems more appropriate for Equuleus.

Hippe, daughter of Chiron the centaur, one day was seduced by Aeolus, grandson of Deucalion. To hide the secret of her pregnancy from Chiron she fled into the mountains, where she gave birth to Melanippe. When her father came looking for her, Hippe appealed to the gods who changed her into a mare. Artemis placed the image of Hippe among the stars, where she still hides from Chiron (represented by the constellation Centaurus), with only her head showing.

The fourth-magnitude star Alpha Equulei is called Kitalpha from the Arabic meaning 'the section of the horse', in reference to the whole constellation.

Dolphins were a familiar sight to Greek sailors, so it is not surprising to find one of these friendly and intelligent creatures depicted in the sky. Two stories account for the presence of the celestial dolphin. According to Eratosthenes, this jaunty dolphin represents the messenger of the sea god Poseidon.

After Zeus, Poseidon and Hades had overthrown their father Cronus, they divided up the sky, the sea and the underworld between them, with Poseidon inheriting the sea. He built himself a magnificent underwater palace off the island of Euboea. For all its opulence, the palace felt empty without a wife, so Poseidon set out in search of one. He courted Amphitrite, one of the group of sea nymphs called Nereids, but she fled from his rough advances and took refuge among the other Nereids. Poseidon sent messengers after her, including a dolphin, which found her and with soothing gestures brought her back to the sea god, whom she subsequently married. In gratitude, Poseidon placed the image of the dolphin among the stars.

Another story, given by Hyginus and Ovid, says that this is the dolphin that saved the life of Arion, a real-life poet and musician of the seventh century BC. Arion was born on the island of Lesbos, but his reputation spread throughout Greece for he was said to be unequalled in his skill with the lyre. While Arion was returning to Greece by ship from a concert tour of Sicily and southern Italy, the sailors plotted to kill him and steal the small fortune that he had earned.

When the sailors surrounded him with swords drawn, Arion asked to be allowed to sing one last song. His music attracted a school of dolphins which swam alongside the ship, leaping playfully. Placing his faith in the gods, Arion leaped overboard – and one of the dolphins carried him on its back to Greece, where Arion later confronted his attackers and had them sentenced to death. Apollo, god of music and poetry, placed the dolphin among the constellations, along with the lyre of Arion which is represented by the constellation Lyra.

Two stars in **Delphinus** bear the peculiar names Sualocin and Rotanev, which first appeared in the Palermo Catalogue of 1814 compiled by the Italian astronomer Giuseppe Piazzi. Read backwards, these names spell out Nicolaus Venator, the Latinized form of Niccolò Cacciatore, who was Piazzi's assistant and eventual successor at Palermo Observatory. It is usually said that Cacciatore was responsible for the naming, which would make him the only person to have named a star after himself and got away with it. However, it is equally possible that the names were applied by Piazzi to honour his heir apparent, or "dauphin" (dolphin).

The constellation was once popularly called Job's Coffin, presumably from its elongated box-like shape, although sometimes this name is restricted to the diamond formed by the four stars Alpha, Beta, Gamma, and Delta Delphini. Who originated the name Job's Coffin, or when, is not known.

Sagitta is the third-smallest constellation in the sky, with no stars brighter than fourth magnitude, but it was well-known to the Greeks. Aratus described it as 'alone, without a bow' since there is no sign of the archer who might have shot it. The constellation's brightest star is Gamma Sagittae, magnitude 3.5, which Ptolemy described as lying on the arrow-head; the atlases of Flamsteed and Bode extended the shaft to the star Eta Sagittae, a star that Ptolemy did not list.

There are at least three different stories to account for the arrow in the sky. Eratosthenes said it was the projectile with which Apollo killed the Cyclopes because they made the thunderbolts of Zeus that struck down Apollo's son, Asclepius. According to this story, Asclepius was a great healer with the power to raise the dead, but Zeus killed Asclepius when Hades, god of the Underworld, complained that he was losing business. Asclepius is commemorated in the constellation Ophiuchus.

Hyginus said that Sagitta was one of the arrows with which Heracles killed the eagle that ate the liver of Prometheus. It was Prometheus who moulded men out of clay in the likeness of the gods, and gave them fire that he had stolen from Zeus. Prometheus carried the fire triumphantly in a vegetable stalk like a runner bearing the Olympic torch. Zeus cruelly punished him for this theft by chaining him to Mount Caucasus, where a long-winged eagle ate his liver during the day.

But at night the liver grew again for the eagle to resume his feast in the morning. Heracles freed Prometheus from this eternal torture by shooting the eagle with an arrow.

Germanicus Caesar identified Sagitta as the arrow of Eros which kindled in Zeus his passion for the shepherd boy Ganymede, who is commemorated by the constellation Aquarius. Now, according to Germanicus, the arrow is guarded in the sky by the eagle of Zeus – and Sagitta does indeed lie next to the constellation of the eagle, Aquila. None of the stars of Sagitta are named.

Vulpecula was introduced in 1687 by the Polish astronomer Johannes Hevelius, who depicted it as a double figure of a fox, Vulpecula, carrying in its jaws a goose, spelt both as Anser and Ansere. Since then the goose has flown (or been eaten), leaving just the fox. Hevelius placed the fox near two other hunting animals, the eagle (the constellation Aquila) and the vulture (which was an alternative identification for Lyra). He explained that the fox was taking the goose to neighbouring Cerberus, another of his inventions – although this part of the tableau has been spoilt, as Cerberus is now obsolete.

Hevelius himself was somewhat inconsistent in his naming of this constellation. In his star catalogue he named the pair "Vulpecula cum Ansere", the fox with goose, but showed them separately as "Anser" and "Vulpecula" on his Firmamentum Sobiescianum star atlas. Others preferred the slightly amended title fox and goose.

Vulpecula contains no named stars and has no legends. Although its brightest stars are of only fourth magnitude it is notable for the Dumbbell Nebula, reputedly the most conspicuous of the class of so-called planetary nebulae. The Dumbbell Nebula consists of gas thrown off from a dying star; it takes its name from the double-lobed structure, like a bar-bell, as seen on long-exposure photographs.

On the border with Sagitta is an asterism known as Brocchi's Cluster, or more popularly the Coathanger because of its distinctive bar-and-hook shape. It consists of ten stars of 5th magnitude and fainter and was first mentioned by the Arab astronomer al-Sufi in his Book of the Fixed Stars, written in AD 964.

5. THE SUN AND PLANETS

Sun & Planets	*Month:*	*October 2014*	*1st*	*31st*
Sun		Rises:	6:21	5:43
Constellation:	Virgo	Transits:	12:33	12:27
Length of day:	12h26	Sets:	18:46	19:11
Mercury phase	38% - 52%	Rises:	7:11	5:02
Constellation	Virgo	Transits:	13:56	11:20
Magnitude:	+0.5 to -0.4	Sets:	20:42	17:38
Venus phase	99% - 100%	Rises:	6:11	5:53
Constellation:	Virgo to Libra	Transits:	12:13	12:34
Magnitude:	-3.9	Sets:	18:14	19:17
Mars phase	89% - 90%	Rises:	9:31	9:04
Constellation:	Ophiuchus to Sagittarius	Transits:	16:44	16:21
Magnitude	+0.8 to +0.9	Sets:	23:57	23:38
Jupiter		Rises:	4:03	2:18
Constellation:	Cancer	Transits:	9:18	7:37
Magnitude:	-1.9 to -2.0	Sets:	14;33	12:56
Saturn		Rises:	8:30	6:43
Constellation:	Libra	Transits:	15:17	13:32
Magnitude:	+0.6 to +0.5	Sets:	22:04	20:22
Uranus		Rises:	19:09	17:15
Constellation:	Pisces	Transits:	1:01	22:54
Magnitude:	+5.7	Sets:	6:48	4:47
Neptune		Rises:	16:01	14:01
Constellation:	Aquarius	Transits:	22:31	20:32
Magnitude:	+7.8 to +7.9	Sets:	5:05	3:06

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