

**MORNING SKY 16 December at 04<sup>h</sup>00**

(The mauve line denotes the ecliptic)

**2. METEOR SHOWERS**

<i>Name</i>	<i>Date &amp; Time of Max</i>	<i>Duration</i>	<i>Radiant</i>	<i>ZHR vel.</i>		<i>Observing Prospect</i>
Geminids	14 Dec	4 Dec to	Near Castor in Gemini	50	36	Poor
	23.30 to 03.00	16 Dec				
Puppis-Velids	29 Dec	5 Dec to 7 Jan	3° NW of Southern Cross in Vela	5	40	Good

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*

### 3. THE NIGHT SKY

Highlights from the Sky Guide Africa South (SGAS):

<i>Date</i>	<i>Time</i>	<i>Item</i>
2	01h00	<b>Moon</b> near <b>Uranus</b> (no occultation at this latitude)
3		<b>Mars</b> near M75 (see Sky Guide and 'Solar System' below)
6	14h27	<b>Full Moon</b> ( $\varnothing$ 30.45')
7	11h00	<b>Moon</b> furthest north (+18.7°)
9	08h00	<b>Jupiter</b> stationary
12	02h00	<b>Moon</b> near <b>Jupiter</b>
13	00h00	Moon at apogee (404 600 km)
14	14h00	<b>Moon</b> last quarter
17	05h00	<b>Moon</b> near <b>Spica</b>
19	23h00	<b>Moon</b> near <b>Saturn</b>
20	23h00	<b>Venus</b> near <b>Pluto</b>
21	20h00	<b>Moon</b> furthest south (-18.7°)
22	00h00	<b>Summer solstice</b>
	03h00	<b>New Moon</b>
	08h00	<b>Uranus</b> stationary
23	00h00	<b>Moon</b> near <b>Pluto</b>
24	19h00	<b>Moon</b> at perigee (364 800 km)
25	06h00	<b>Moon</b> near <b>Mars</b>
	08h00	<b>Mercury</b> near <b>Pluto</b>
26	14h00	<b>Moon</b> near <b>Neptune</b>
28	20h00	<b>Moon</b> first quarter
29	06h00	<b>Moon</b> near <b>Uranus</b> (no occultation at this latitude)

### 4. THE SOLAR SYSTEM

At the beginning of December **Mercury** and **Venus** are visible low in the west after sunset. **Mars**, setting earlier in the evening as the month progresses, is close to the 8.6 magnitude globular cluster M75. **Uranus** and **Neptune** are up for viewing in the evening sky. In early December, **Jupiter** is rising shortly after midnight and, as the month progresses, rises in the late evening. **Saturn** remains an early morning object throughout the month. **Pluto** appears after sunset for a short while but later in the month moves too close to the sun for viewing.



In October, the news was abuzz with reports of sunspots. Pasted (left) is a photo I took with my very humble camera (not even an SLR!) with a Mylar sun filter held in front of it!

(I know you've seen the warning a zillion times but please bear with me: *never look at the sun without appropriate filtration, be it through telescope, binocular, camera or even the naked eye!*)

For the technically-minded: 1/750 at f/8. Lens length 450mm (35mm equivalent).

## The Sun and Planets

<i>Sun &amp; Planets</i>	<i>Month:</i>	<i>December 2014</i>	<i>1<sup>st</sup></i>	<i>31<sup>st</sup></i>
Sun Constellation: Ophiuchus to Sagittarius Length of day: 14h 16m to 14h 25m	Rises:		05h24	05h34
	Transits:		12h32	12h46
	Sets:		19h41	19h41
Mercury phase 100% - 91% $\phi$ 5" Constellation Scorpius to Sagittarius Magnitude: -1.0 to -0.8	Rises:		05h10	06h30
	Transits:		12h16	13h44
	Sets:		19h22	20h58
Venus phase 99% to 96% Constellation: Ophiuchus to Sagittarius Magnitude: -3.9	Rises:		06h00	06h49
	Transits:		13h12	13h58
	Sets:		20h24	21h06
Mars phase 92% - 94% $\phi$ 5" Constellation: Sagittarius to Capricornus Magnitude +1.0 to +1.1	Rises:		08h54	08h51
	Transits:		16h01	15h38
	Sets:		23h08	22h24
Jupiter diameter 40" - 43" Constellation: Leo Magnitude: -2.3 to -2.4	Rises:		00h24	22h20
	Transits:		05h44	03h44
	Sets:		11h05	09h03
Saturn diameter 15" Constellation: Libra Magnitude: +0.5 to +0.6	Rises:		04h53	03h06
	Transits:		11h45	10h01
	Sets:		18h38	16h56
Uranus diameter 4" Constellation: Pisces Magnitude: +5.8	Sets:		02h43	00h44
	Rises:		15h00	13h01
	Transits:		20h49	18h51
Neptune diameter 2" Constellation: Aquarius Magnitude: +7.9	Sets:		01h04	23h04
	Rises:		11h59	10h03
	Transits:		18h30	16h34
Pluto Constellation: Sagittarius Magnitude: +14.2	Rises:		07h53	05h59
	Transits:		14h54	13h01
	Sets:		21h56	20h02

**Eclipses:** No eclipses, solar or lunar, are predicted for this month.

## The Moon

*Greek mythology* - Selene is the goddess of the moon. She is the daughter of the Titans Hyperion and Theia, and sister of the sun-gods Helios and Eos, goddess of the dawn. She drives her moon chariot across the heavens. Several lovers are attributed to her in various myths, including Zeus, Pan and the mortal Endymion. In classical times, Selene was often identified with Artemis, much as her brother, Helios, was identified with Apollo. Both Selene and Artemis were also associated with Hecate, all three being regarded as lunar goddesses, although only Selene was regarded as the personification of the moon itself. Her Roman equivalent is Luna.

*African lore* – (extract from the Sky Guide) A bushman myth explains the phases of the moon. The moon was once a man who incurred the wrath of the Sun who attacked him with his bright light, cutting him up by degrees until all but a little piece remained. The Moon implored him to spare him for his children and the

Sun agreed. The Moon then began to increase again until he reached his original size and the process repeated.

So often an object to avoid, we tend to plan our sky-gazing evenings so that dear old Selene is out of the way. For a change, let's have a look at the opportunities offered.

**Observation:** Avoiding the over-illuminated full moon period, centred this month on Saturday the 6<sup>th</sup>, my preferences are the 1<sup>st</sup> and 2<sup>nd</sup> (just past 1<sup>st</sup> quarter and setting after midnight) and then, after the full moon, the 9<sup>th</sup> onwards (rising after 22.00) depending on how late we want to stay up. The last quarter is on the 14<sup>th</sup> when she rises after midnight. How often do we see the eastern half other than when too brightly lit?

The Sky Guide's highlight for the month is **Gassendi**, a crater on the northern edge of **Mare Humorem**. Its situation well east, not far from the limb, means that best illumination would be about the 1<sup>st</sup> and 2<sup>nd</sup> and then the 18<sup>th</sup> and 19<sup>th</sup> (rising time after 03.20, oh dear!).

## 5. CONSTELLATIONS OF THE MONTH

From Ian Ridpath's *Star Tales*:

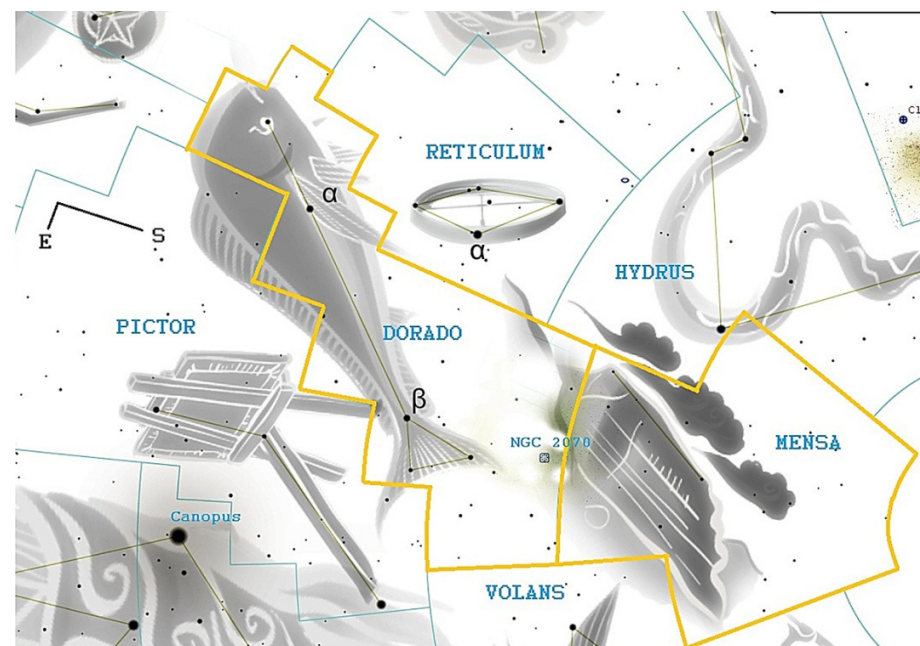
### DORADO (the Dolphinfish)

A small southern constellation introduced at the end of the 16th century by the Dutch navigators Pieter Dirkszoon Keyser and Frederick de Houtman. Dorado was first depicted on a star globe of 1598 by the Dutchman Petrus Plancius and first appeared in print in 1603 on the Uranometria atlas of Johann Bayer.

The constellation represents the colourful dolphinfish (*Coryphaena hippurus*, also known as Mahi-mahi) found in tropical waters, not the goldfish commonly found in ponds and aquaria. Dutch explorers observed these large predatory fish chasing flying fish and so Dorado was placed in the sky following the constellation of the flying fish, Volans. The constellation has also been known as Xiphias, the Swordfish, a name which

first appeared as an alternative to Dorado in the Rudolphine Tables of Johannes Kepler published in 1627. Johann Bode depicted it as Xiphias on his Uranographia star atlas of 1801, as illustrated below.

Dorado's main claim to fame is that it contains most of the Large Magellanic Cloud, a small neighbour galaxy of our own Milky Way, about 170,000 light years away; this, like the Small Magellanic Cloud in Tucana, was first described by the Italian explorer Amerigo Vespucci in an account published in 1503 or 1504. (R. H. Allen, in his book



*Star Names, Their Lore and Meaning*, credits the Arabs with prior knowledge of the Large Magellanic Cloud, but this is a misunderstanding of a reference to some stars in Carina and Vela.)

Within the Large Magellanic Cloud lies the huge nebula NGC 2070, popularly called the Tarantula. It is also known as 30 Doradus or the 30 Doradus Nebula; this is its number in Bode's catalogue called *Allgemeine Beschreibung und Nachweisung der Gestirne*, published in 1801 to accompany his *Uranographia* star atlas.

### MENSA (the Table Mountain)

A small, faint constellation of the far southern sky invented by the French astronomer Nicolas Louis de Lacaille to commemorate Table Mountain near Cape Town, South Africa, from where he catalogued the southern stars in 1751–52. Lacaille originally gave it the French name *Montagne de la Table* on the first version of his planisphere published in 1756 but this was Latinized to *Mons Mensae* in the second edition of 1763. In 1844 the English astronomer John Herschel proposed shortening it to *Mensa*. Francis Baily adopted this suggestion in his *British Association Catalogue* of 1845, and it has been known as *Mensa* ever since.

*Mensa* contains part of the Large Magellanic Cloud, a neighbour galaxy to our Milky Way, which gives *Mensa* the appearance of being capped by a white cloud, like the so-called “tablecloth” cloud sometimes seen over the real Table Mountain “when the violent south-easter blows”, as Lacaille put it. *Mensa*'s brightest stars are of only fifth magnitude.

## 6. DEEP SKY OBJECTS

<i>Designation</i>	<i>Object type and constellation</i>	<i>Magnitude</i>
NGC 246	Planetary nebula in Cetus (6° north of magnitude 2 Diphda ( $\beta$ Cet))	8.0
NGC 247	Galaxy in Cetus (3° south of Diphda)	8.9
M77	Galaxy in Cetus (0.9° east-north-east of Diphda)	8.8
M33	Triangulum galaxy (4.3° west north-west of $\alpha$ Tri (Mothala))	5.7
NBC1097	Galaxy in Fornax (2.3° north of $\beta$ Fornacis)	9.3
NGC1365	Galaxy in Fornax (28° north-east of Achernar, 34° north-west of Canopus)	9.5
$\alpha$ Doradis	Rotating variable, double star in Dorado	3.6

PLEASE NOTE: *If you have suggestions regarding the layout or content of this night sky guide or if you should spot any errors, please do not hesitate to let me know.*

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