

# Eridanus Optics CC

February 2008

## Dwarfs in the River

The celestial river Eridanus is the sixth largest constellation in the sky. It winds its way from Rigel ('foot' of Orion) through mostly inconspicuous stars and ends at Achernar ('End of the river'). It is one of the original 48 constellations recognised by Ptolemy. Achernar was unknown to Ptolemy who took Acamar as the end of the 'river' as it was the brightest star visible from Greece. At magnitude 0.5, Achernar is the ninth brightest star in the night sky. In Greek legends, Phaethon fell into the river Eridanus at the end of his disastrous attempts to drive the chariot of his father Helios (the Sun God). Eridanus was also associated with Rivers such as the Nile, Po (Italy) and the Euphrates.

Some of the bright(ish) stars in Eridanus have interesting names associated with rivers. The Arabic name for Gamma Eri is Zaurak (boat) and Delta Eri is Rana (frog). Another interesting star name is 'Cursa', the Arabic name for Beta Eri which means footstool. This clearly refers to its proximity to Rigel, one of Orion's feet. Eridanus also has some close stars (Epsilon Eri is only 10.6 light years away and has a Jupiter sized planet).

In early February Eridanus is near the zenith shortly after sunset and about 60° above the Western horizon at the end of February.

## Naked eye targets:

Eridanus offers very little for the naked eye, especially from light polluted sites. You may attempt to trace the flow of the river with the river source near Rigel and the river mouth at Achernar. Both stars are very bright and should be ideal to work from. Some of the brighter stars should be visible to the naked eye. (See map 1)

## Binocular Targets:

Scan the area with binoculars and see if you can trace the complete constellation. Most gaps between stars should be small enough to ensure that you have one star in view while searching the next one. In my 7x50/7° binoculars I could trace most of the constellation this way with only a few jumps larger than the binocular field of view. If you are interested in the telescopic targets, it is a good idea to use binoculars to familiarise yourself with the first few stars near Rigel.

## Telescope Targets:

**Rigel:** Although Rigel is not part of Eridanus, I selected it as the starting point for the other objects that are in the constellation. Find Rigel and get the best focus you can achieve. See if you can split the faint companion. Try larger magnifications if you fail at first. Rigel is about 500 times brighter than the companion and may present a challenge. Larger magnification gives the following advantages:

- It darkens the background because the background is now spread over a larger area. This is especially helpful in light polluted areas.
- It increases the separation between the two stars and makes it easier to spot the second component.

**Keid** (Omikron-2 Eri or 40 Eridani) is one of those feint, unimpressive stars of the constellation. However, looks can be deceiving as this 'star' is actually a triple star containing an ordinary dwarf (magnitude 4.5), a white dwarf (magnitude 9.5) and a red dwarf (magnitude 11.2). The white dwarf was the first one ever to be discovered (by William Herschel in 1783) and is the easiest white dwarf to view with small telescopes. Keid B lies a little over a minute of arc from Keid A and should be easy to split. The orbital period of Keid A/Keid B is about 8000 years.

Keid C is separated by about 8 arc seconds from Keid B (orbital period of these two companions is about 250 years). Due to its dimness, it will be difficult to split these two stars with small telescopes, especially from light polluted sites. To locate Keid (Arabic for egg shells), follow these instructions (see Map 2):

- Start at Rigel. The origin of the river Eridanus is the two stars of Lambda Eri.
- Cursa is situated towards the North of Lambda Eri. You'll find Omega Eri towards the West of Cursa. Note that Psi Eri lies about halfway between Lambda Eri and Omega Eri.
- Along the line Lambda Eri; Psi Eri and Omega Eri, you will also find Mu Eri and then to the West of Mu Eri, Nu Eri.
- Beid (Arabic for eggs) and Keid is South West of Nu Eri. Note that you should see 37 Eri close to Beid.

**NGC 1535** is a 9<sup>th</sup> magnitude planetary nebula with a bluish disc in small telescopes. Start at Keid and follow the instructions below to locate NGC 1535 (see Map 2):

- Locate 39 Eri South of Keid. Note that HIP19511 should be about halfway between Keid and 39 Eri and slightly out of line.
- Extend the line Keid/39 Eri about the same distance to find NGC 1535.
- NGC 1535 will look like a bluish star that is out of focus. The rest of the stars in the field will be in focus however.

A last bit of interesting, but useless information – Keid A was the supposed site of Vulcan, the home world of Mr. Spock of Star Trek fame. It is 16.5 lightyears from earth.

Happy hunting!

Andrie

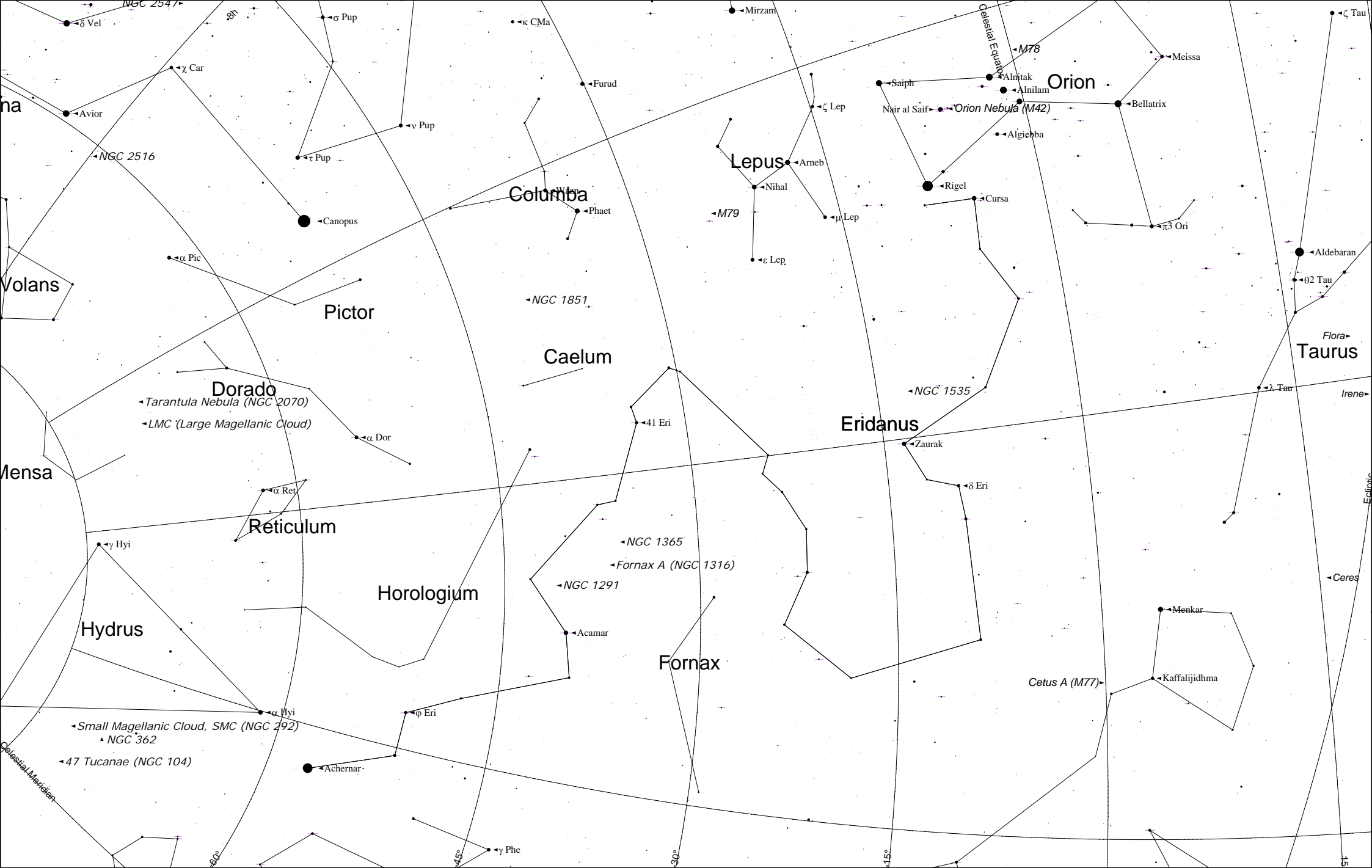
Bibliography:

Collins Gem: STARS by Ian Ridpath with illustrations by Wil Tirion

November 2007 Newsletter of the Astronomy Club of Tulsa

Wikipedia

Maps generated with Starry Night - Orion Special Edition



Viewing from Pretoria, South Africa Long: 28° 13' 24" Lat: -25° 43' 29"

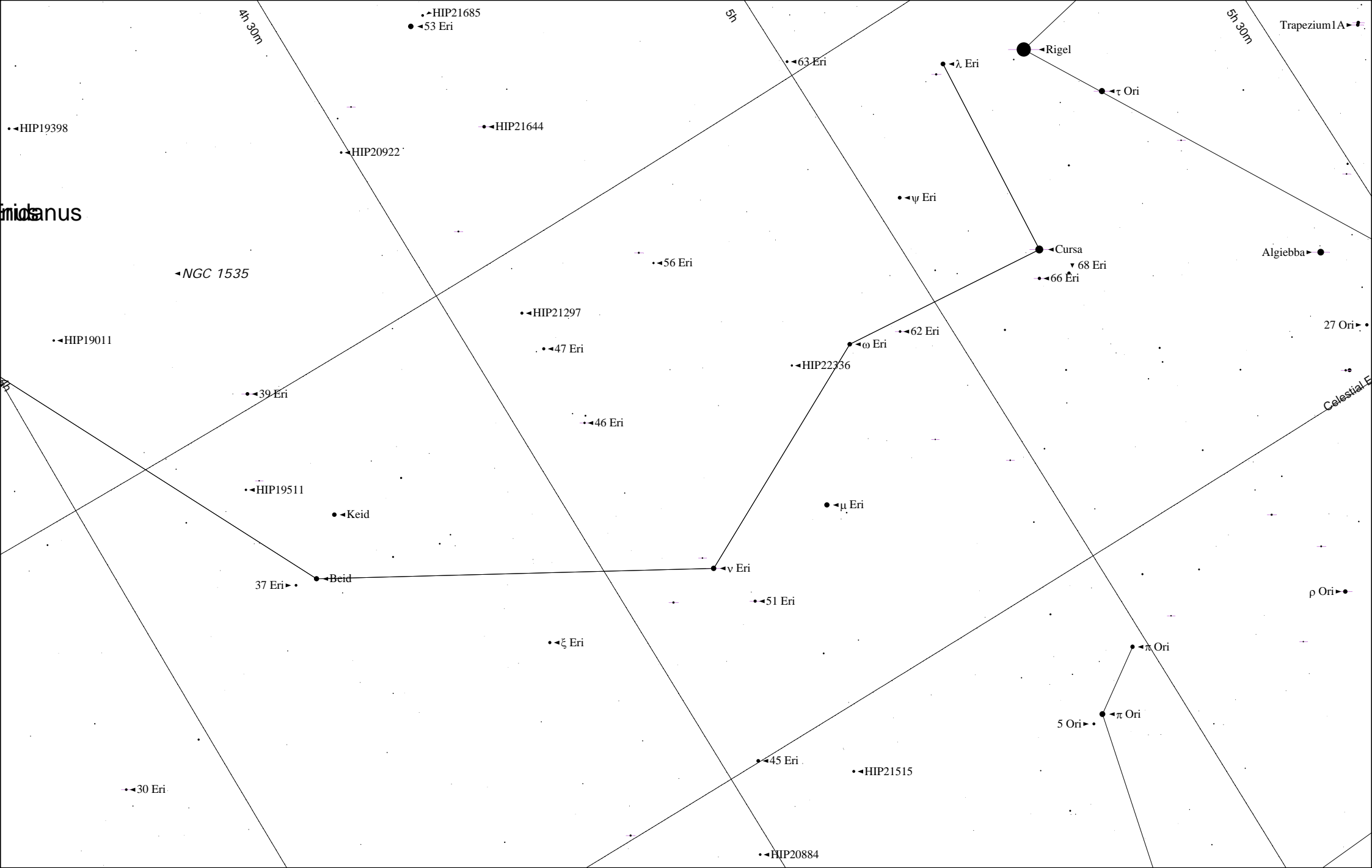
2008/2/23 7:30:00 PM (Local)

Chart centre (J2000): RA: 4h 11.002m Dec: -30° 7.836'

Looking: west (71° above horizon)

FOV: 100°

Limiting Magnitude: 6.4



Viewing from Pretoria, South Africa Long: 28° 13' 24" Lat: -25° 43' 29"

2008/2/23 7:30:00 PM (Local)

Chart centre (J2000): RA: 4h 39.645m Dec: -5° 37.949'

Looking: north west (65° above horizon)

FOV: 24°

Limiting Magnitude: 7.9