Stars and other things inside Constellations

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The “Hubble Deep field”.

Part of the sky with nothing previously visible.

2.5-10 billion lt years away.

We’ll return to this at the end..

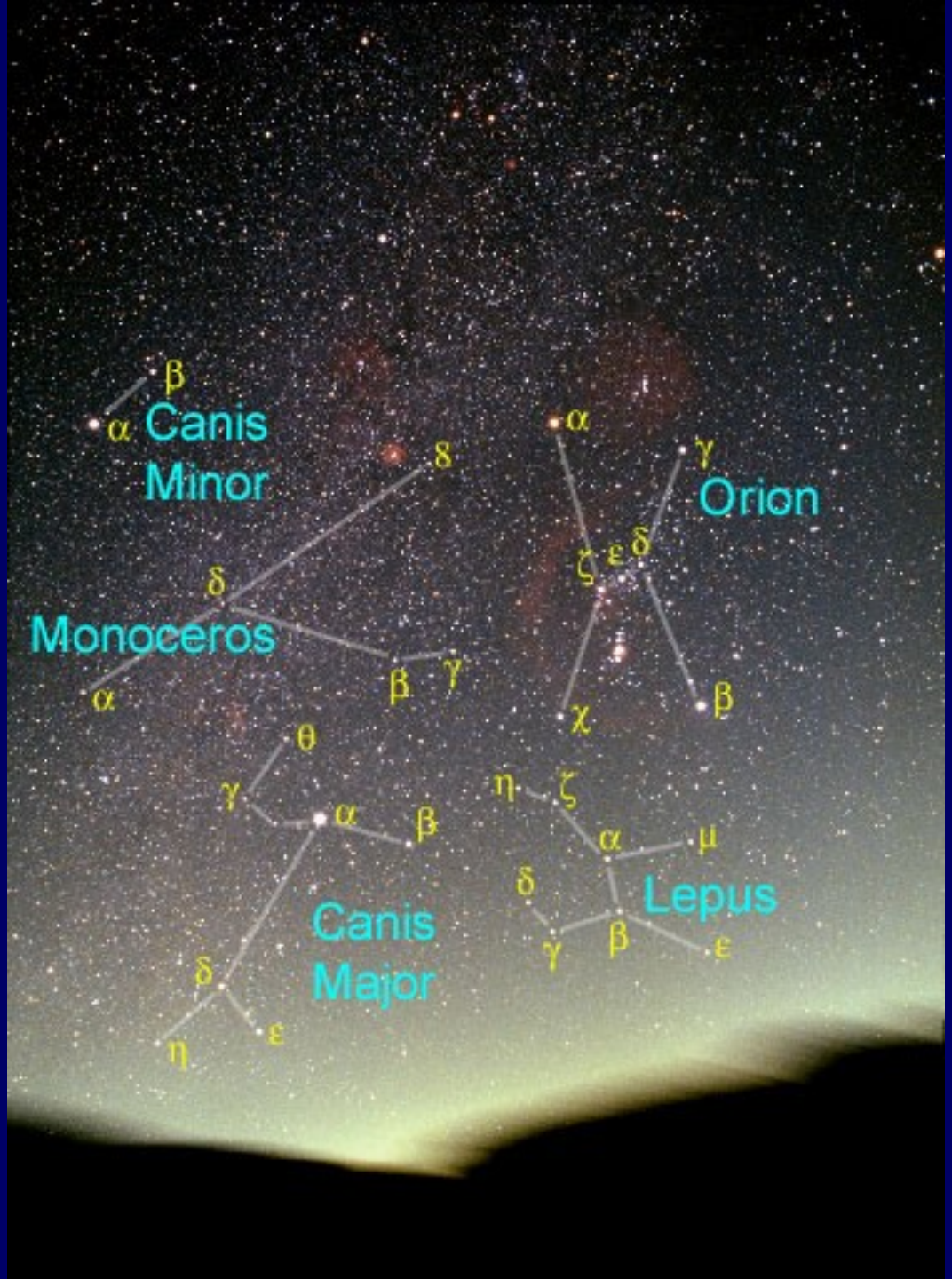
Winter constellations

(constellation is a star pattern with a name, like “Leo”)

(look in the West right now before midnight)

I took this photo with an ordinary digital camera on a tripod, in my front yard. You can easily do the same! The camera "click" was 15 seconds long.

Do you know the constellation?



See the red-pink haze in Orion?

It's a supernova remnant- what is left after an old, heavy star exploded, filling space with the guts of a star.

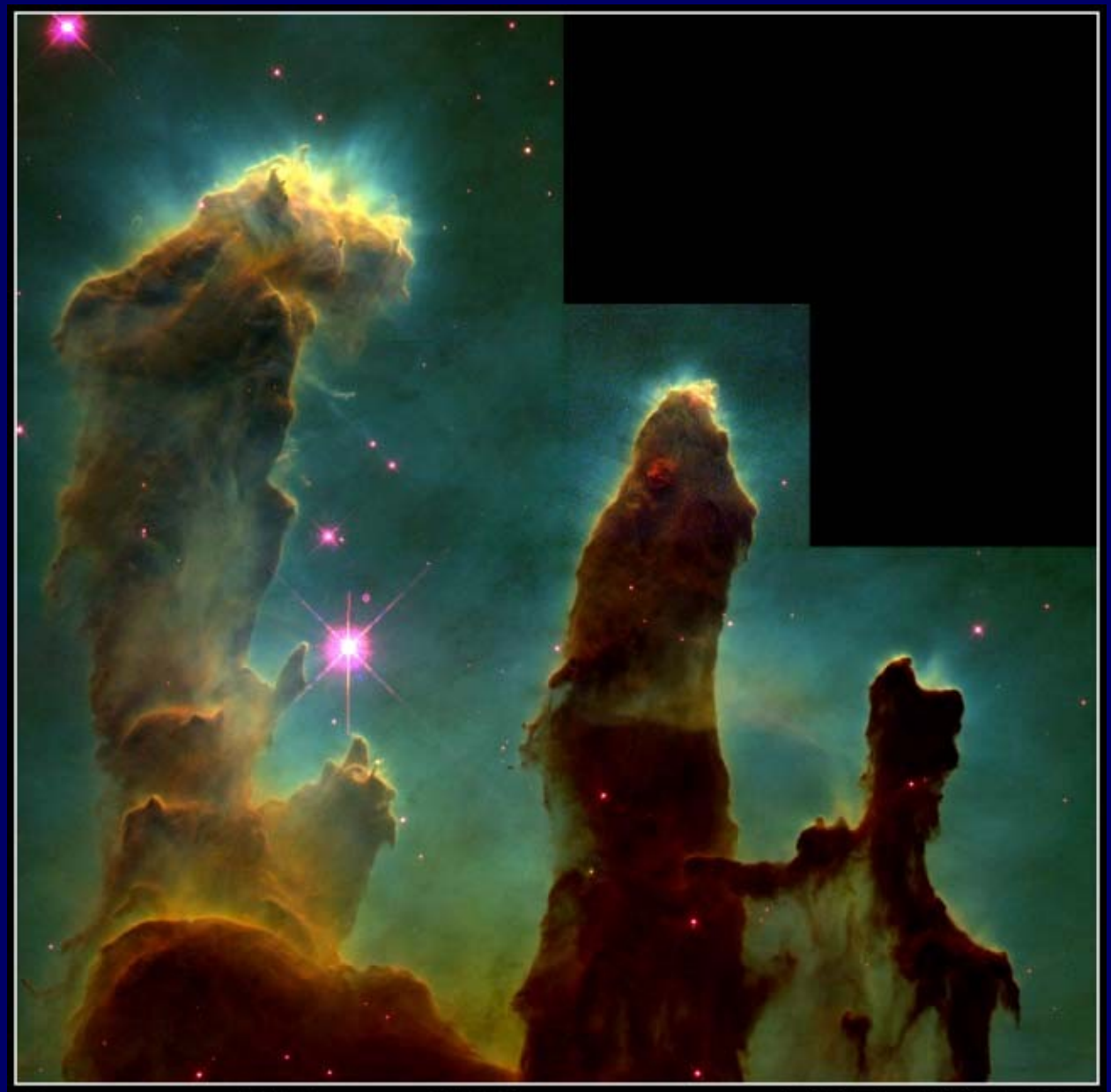
This “nebula” is in Orion, near his belt

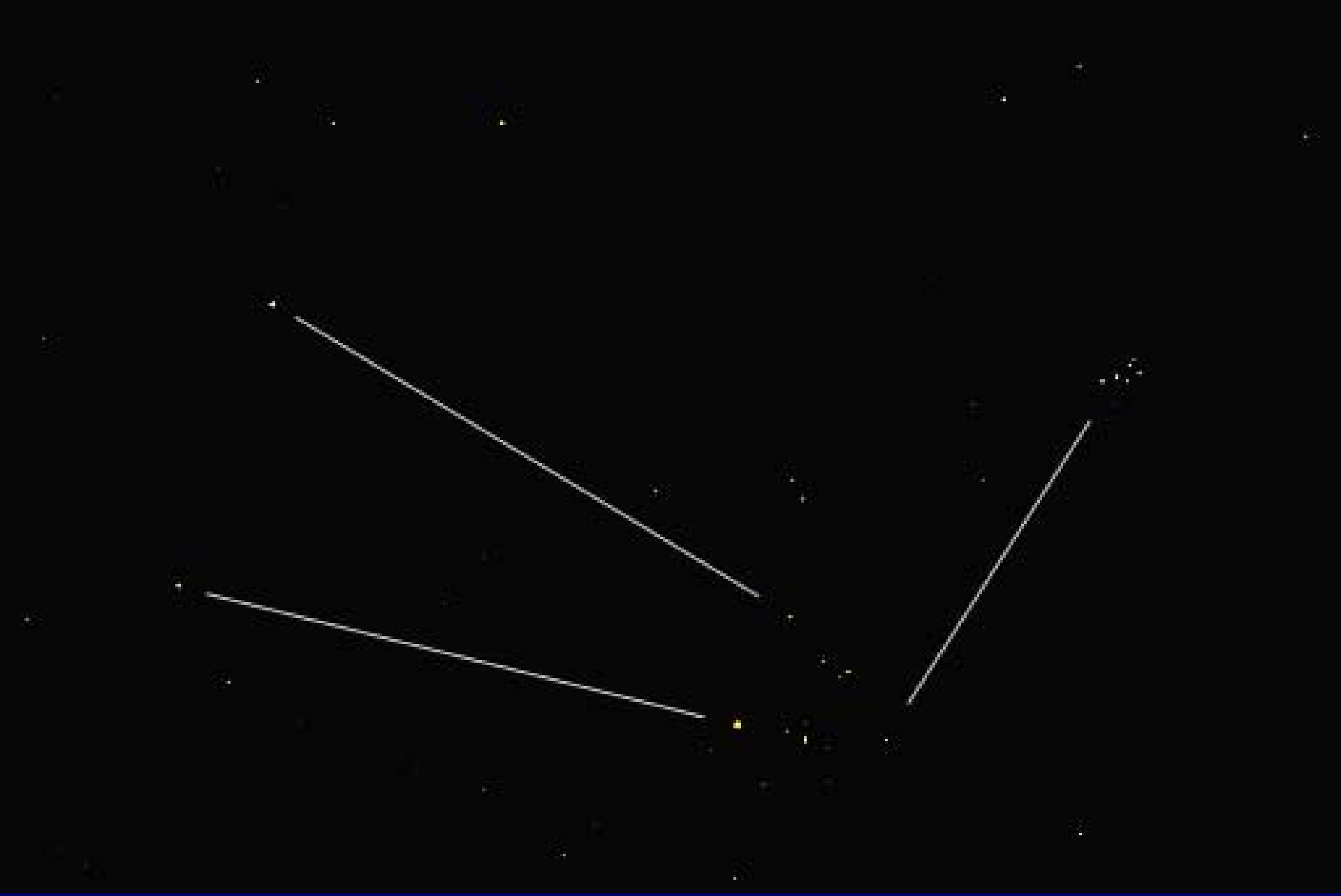
Stars are being born in here!

This stuff comes from old supernova remnants – old dead stars!

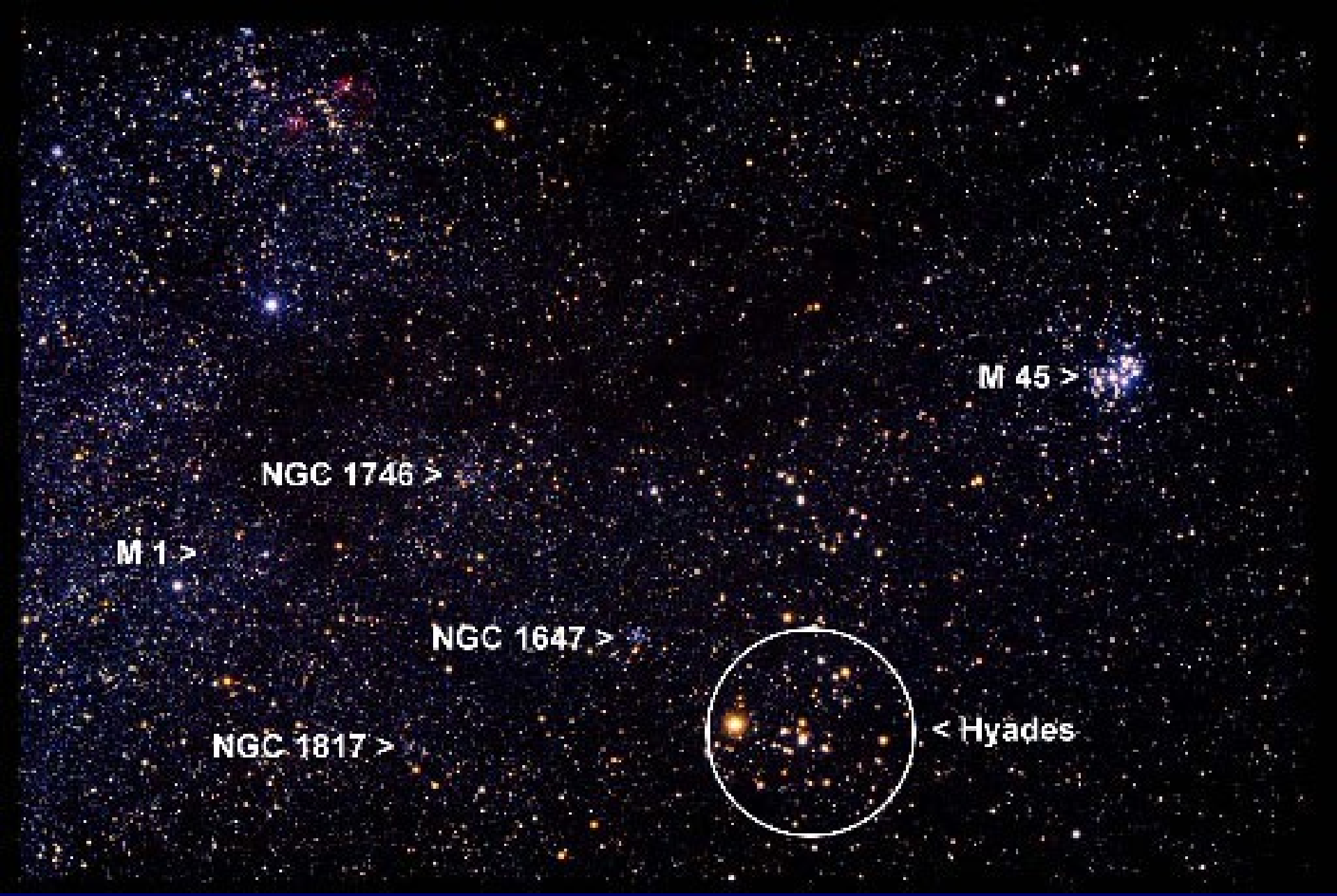
Not in Orion but

Stars are also being born in here too.





Taurus (= the Bull)


M 45 >
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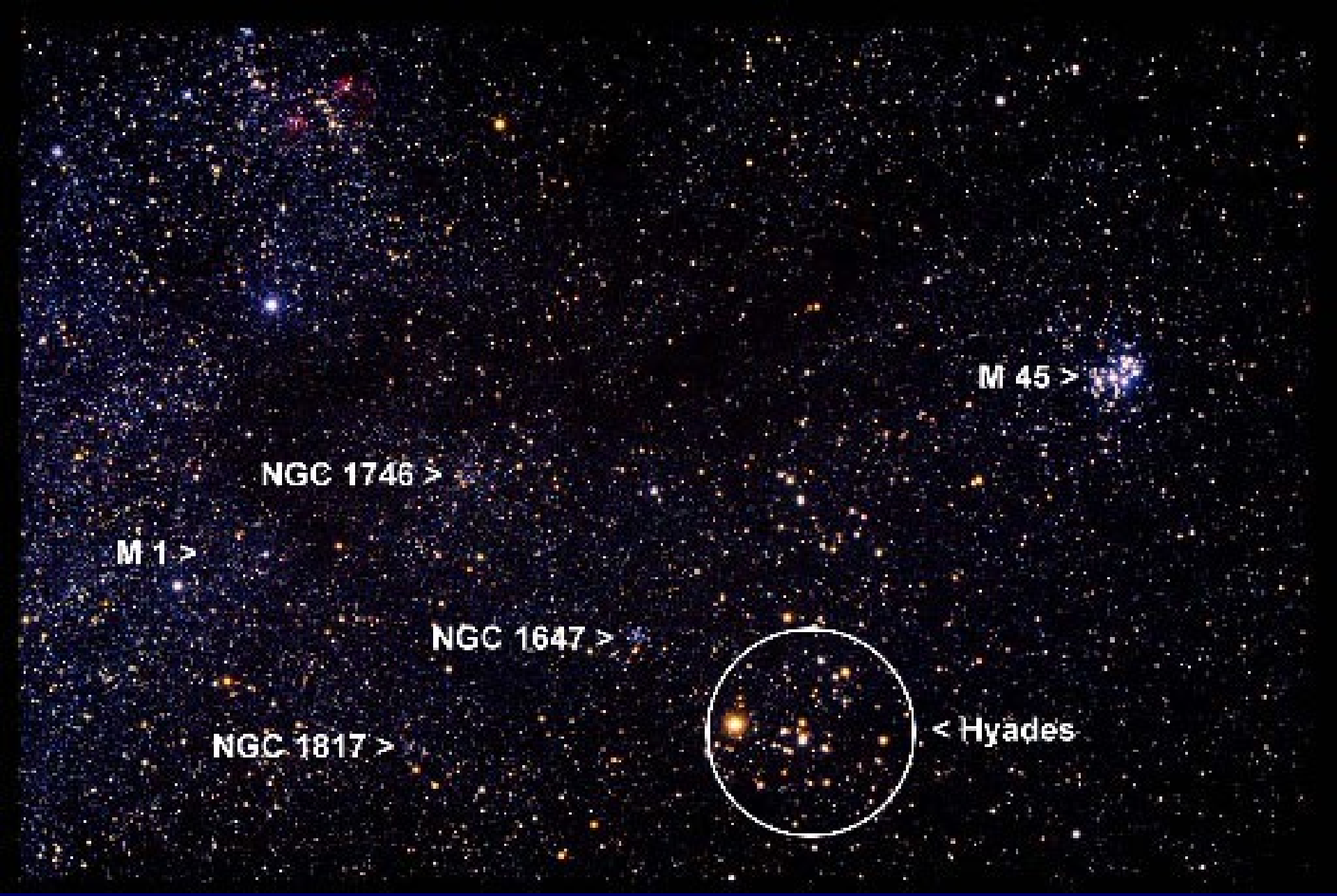


Red star = Aldebaran = red giant = Sun in 4 billion years!

The Crab Nebula in Taurus (VLT KUEYEN + FORS2)

ESO PR Photo 40f/99 (17 November 1999)

Th “Crab nebula” in Taurus.

A recent `supernova remnant'.

The Crab Nebula was a supernova actually recorded by Chinese 1000 years ago.

It came from a star heavier than the Sun. We are made of this kind of dead-star stuff!

The following pictures give you an idea of what happens at the end of the Sun's life...

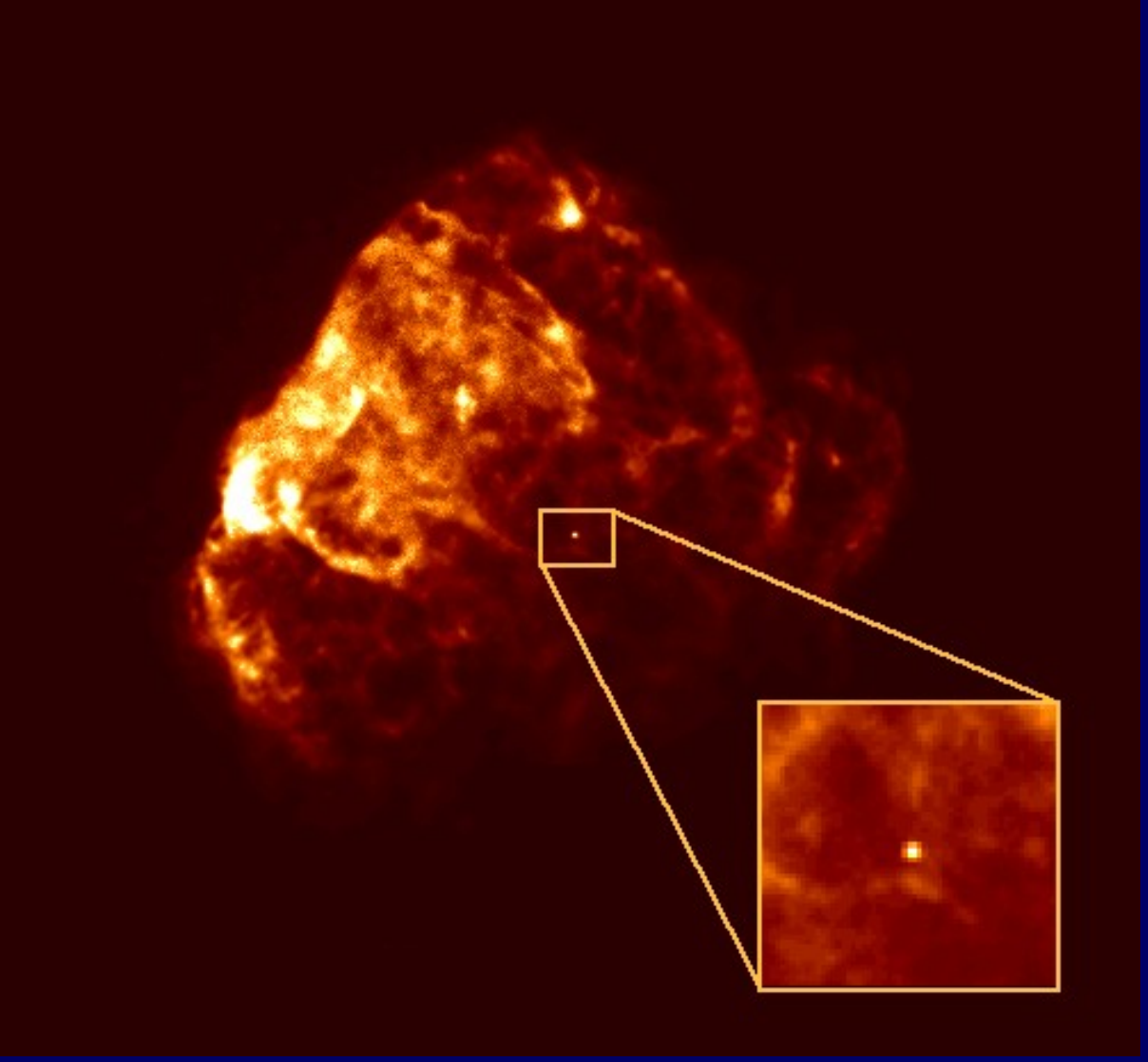
The next pictures are not in Taurus or Orion, but they also show what happens at the end of most stars' lives.

Planetary nebula

The Sun will do this after it becomes a red giant star.

A white dwarf star is left in the middle of a pile of debris (= junk).

The debris returns to the Galaxy from which the star was born.

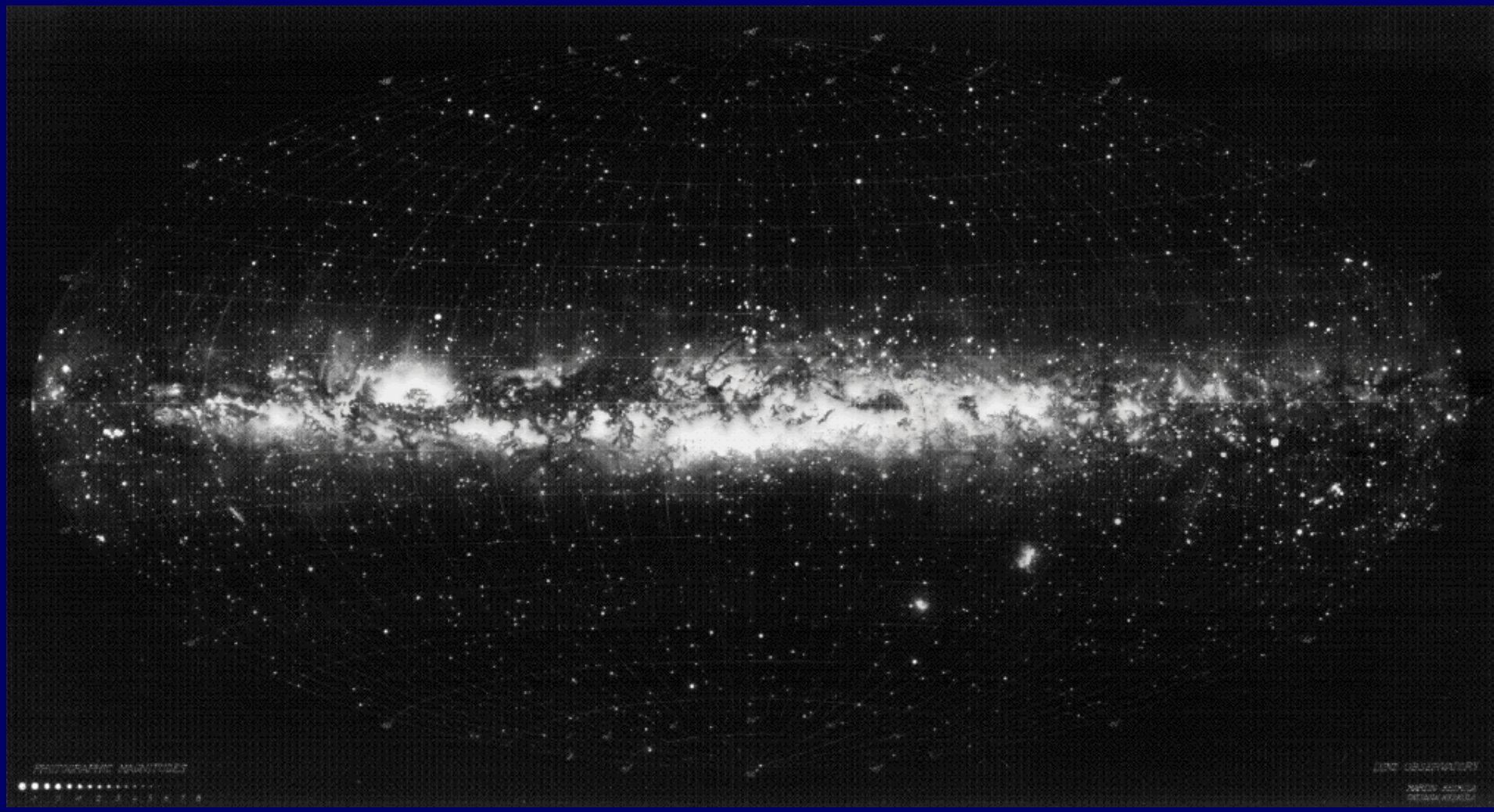


Another supernova remnant-

Lots of garbage is returned to the galaxy in spectacular explosion that leaves a neutron star (shown here)or even black hole.

The Sun, planets, and (of course) you and I are made of the debris from earlier generations of stars!

Stars are (of course) not alone. Like us they live in families..

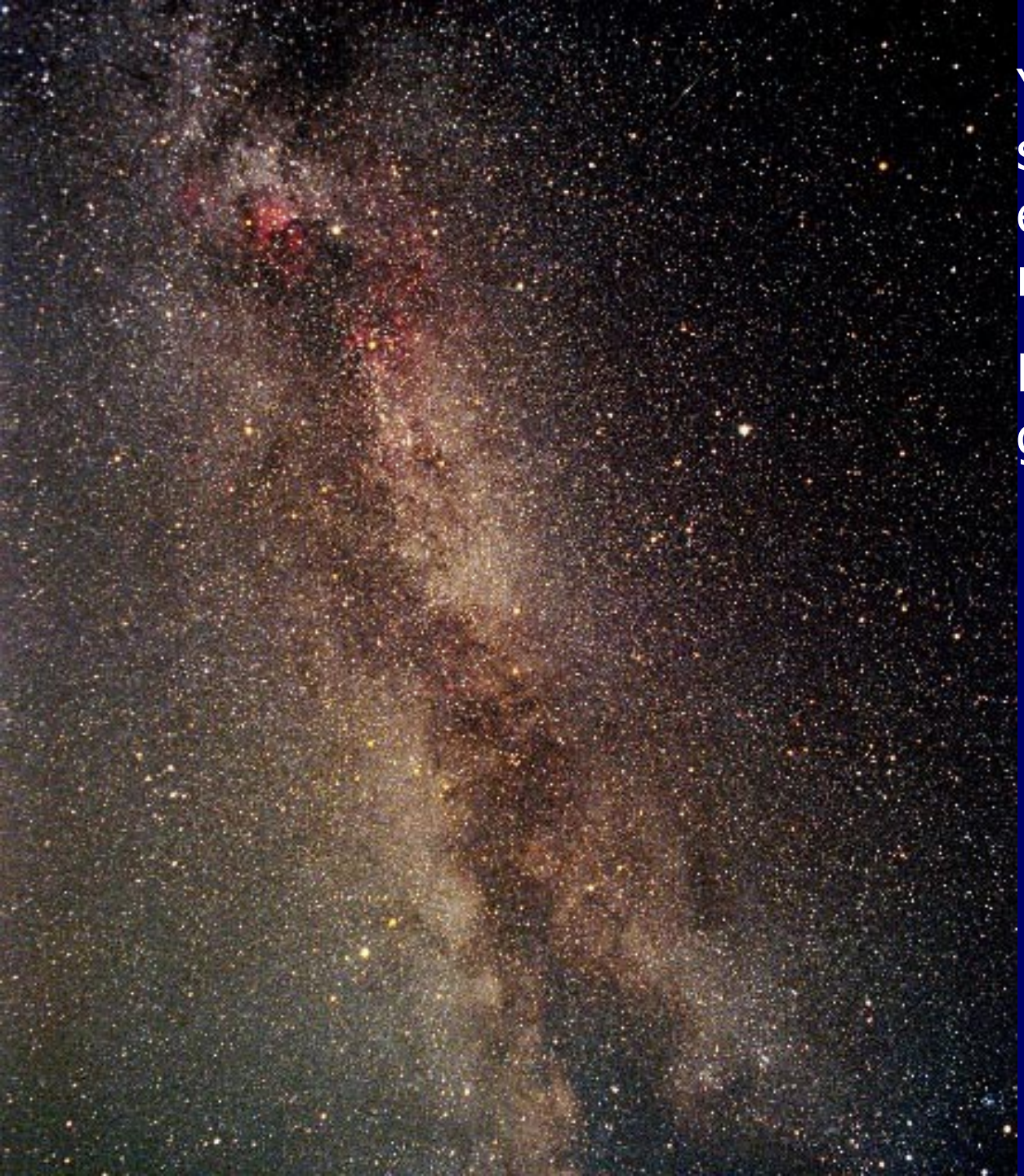


Milky Way seen from earth

Which brings us to..

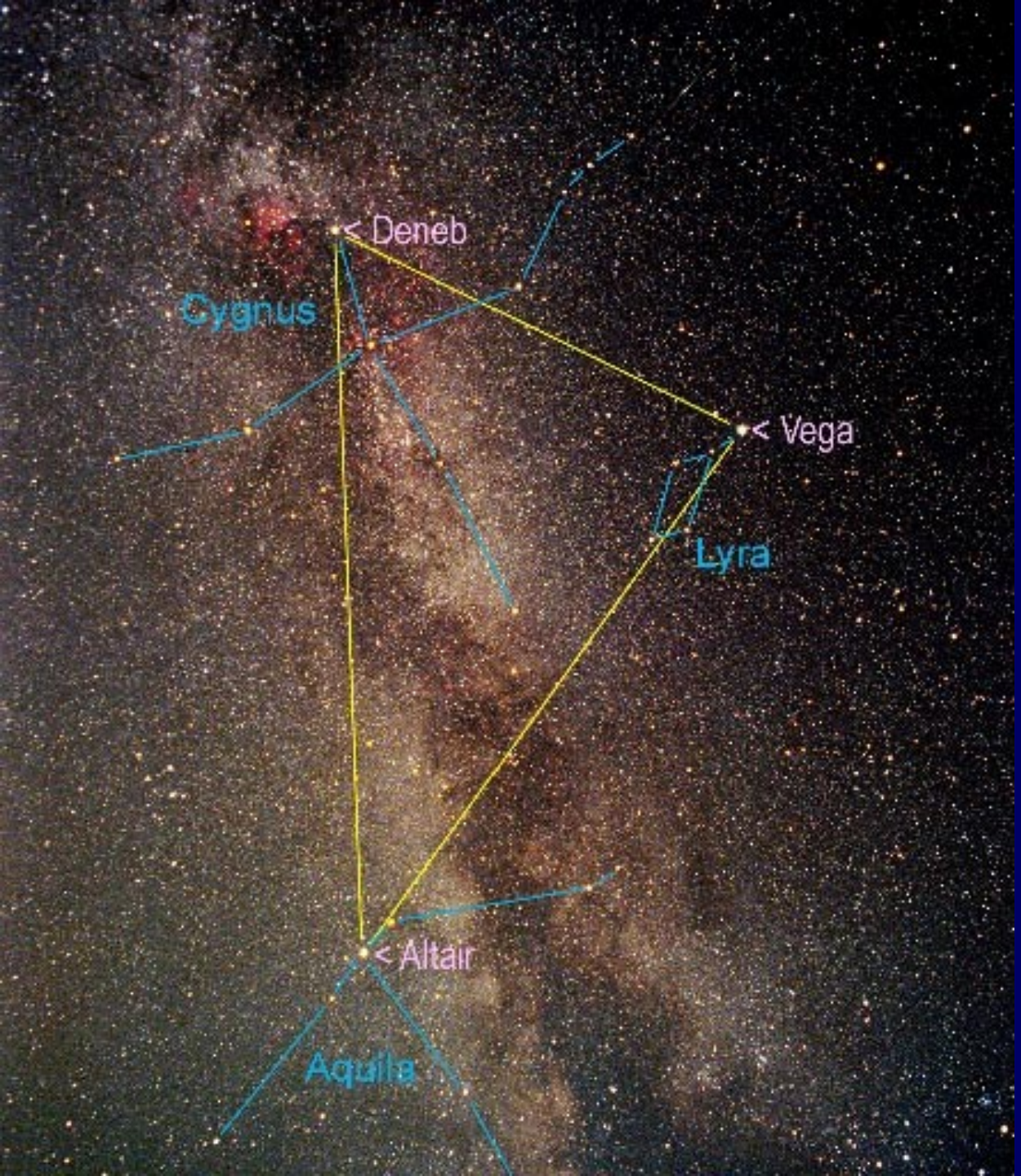
Summer constellations

(look in the East right now before midnight)



You can see this in summertime with your eyes (binoculars are really cool).

Lots of stars in our galaxy


Deneb
Cygnus
Vega
Lyra
Altair
Aquila


Copyright Dominique Dierick

Constellations which can be seen all year!

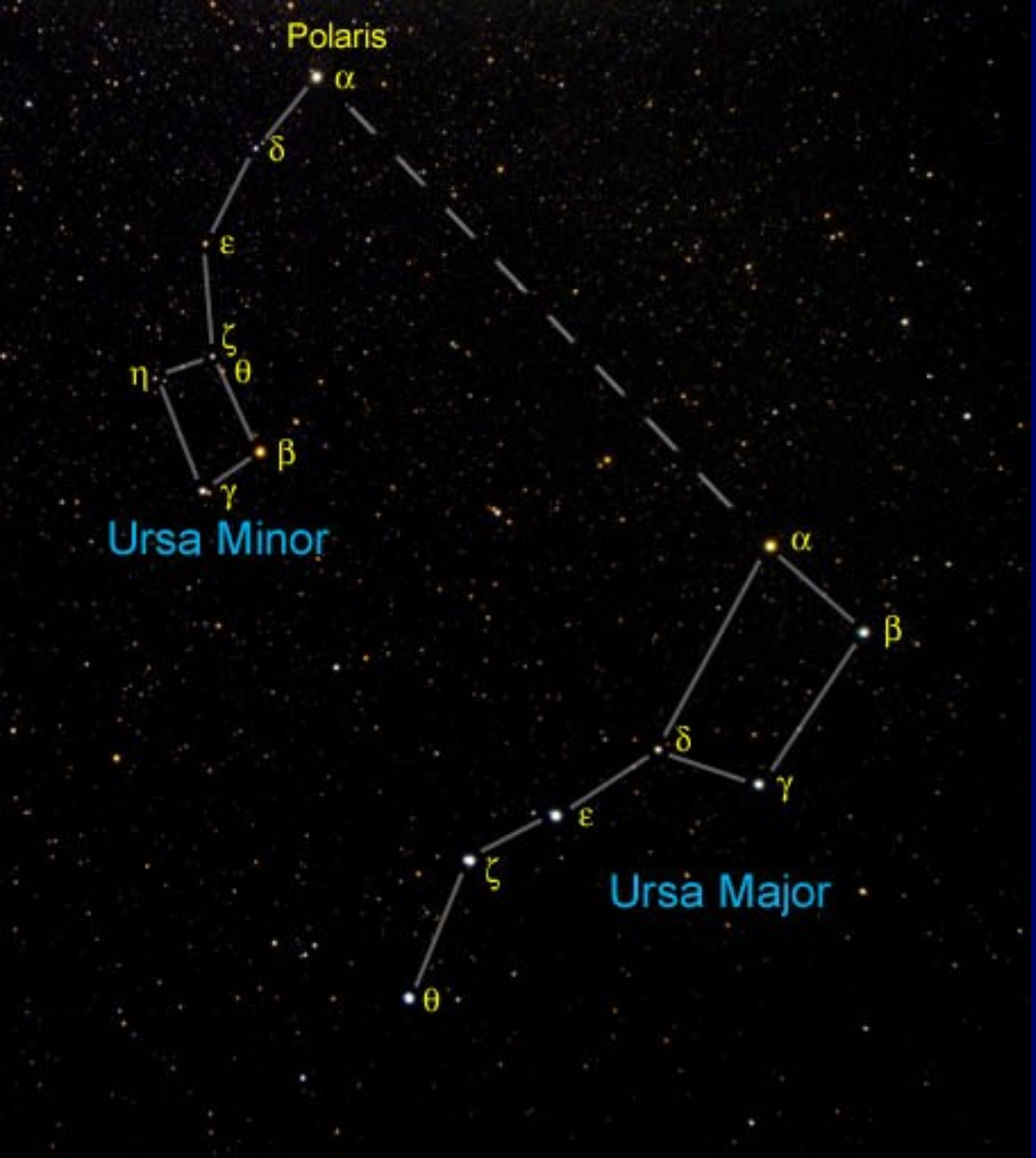
“circumpolar”

(look in the North after dark)

Some constellations can be seen all year long!

This is one

Do you know this constellation?


Polaris
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Ursa Minor
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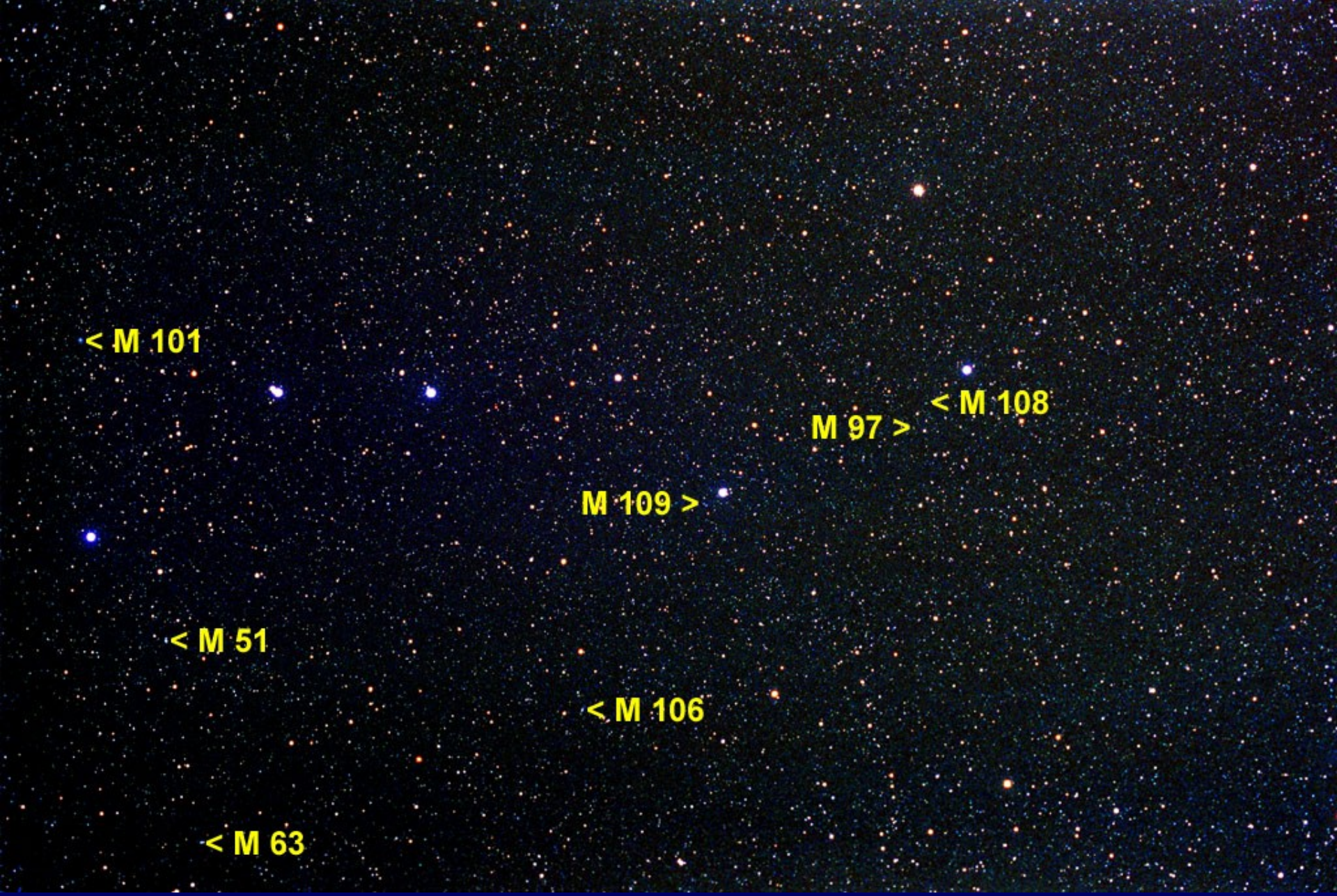
Ursa Major



Ursa Major has a famous multiple star and is Full of galaxies

Polaris

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Ursa Minor

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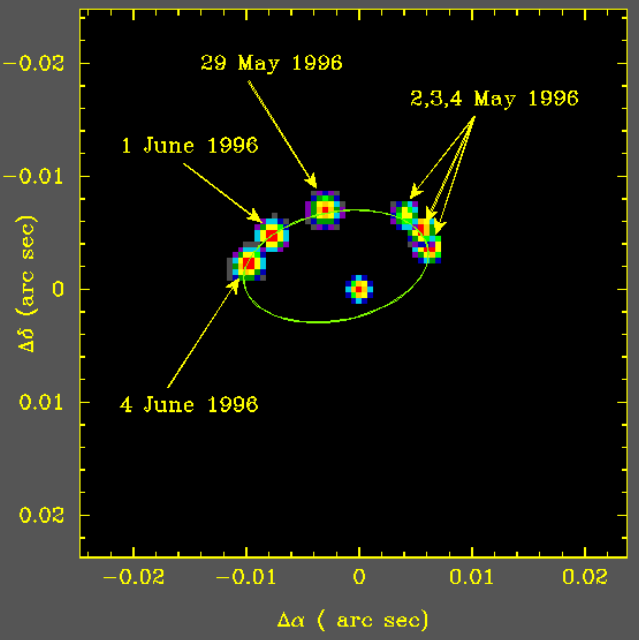
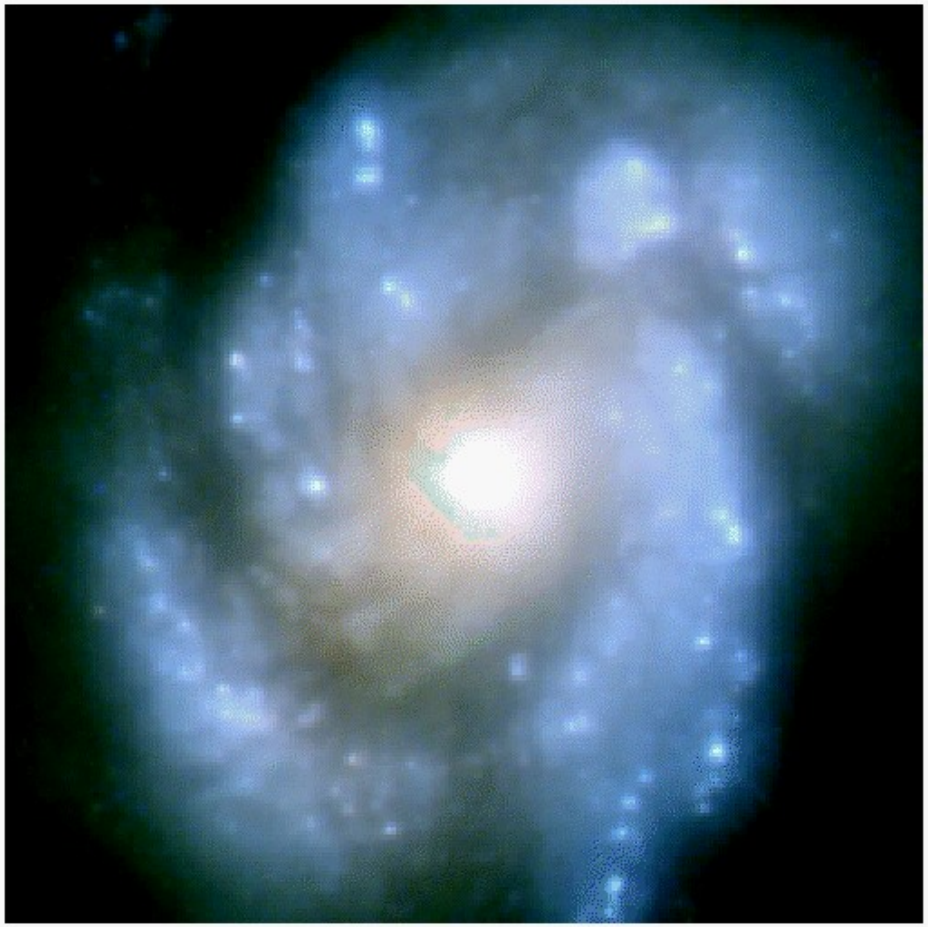
Ursa Major

ζ^1 Ursae Majoris



M100 Galactic Nucleus

Hubble Space Telescope
Wide Field Planetary Camera 2



Wide Field Planetary Camera 1

Wide Field Planetary Camera 2

This is the “Andromeda Nebula” – a galaxy belonging to the “local group”, it looks like the Milky Way and you can see it!

This Giant elliptical Galaxy is in the middle of the Virgo cluster and has a huge Black hole in the middle.

It is much further away than The Andromeda nebula

You need a telescope to see it.

Titanic collision of galaxies in “Stephan’s Quintet”!

Virgo cluster.

Each galaxy has about 10-100 billion stars.

I wonder if anyone “out there” is looking at us right now?

What do you think?

The “Hubble Deep field”.

We’re looking back in time to ¼ age of the universe, when early stars are making the stuff from which we are made…

There are lots of interesting things inside constellations.

In the sky we can see

- Stars live in groups (groups, clusters, galaxies, ...)

- Junk left from exploded stars (supernova remnants)

-Stars forming out of them, stars living and dying

Stars, like us, have a circle of life – stars give back their material to their galaxies by expanding and exploding, from which new stars are born.

Amazingly, we are all made of stuff from the big bang, but what enables life itself is the rich garbage expelled by exploding stars.

THE END