



***Reticulum:
The Celestial
Crosshairs***

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It is only appropriate to conclude the IYA2009 by considering one of the most vital parts of the telescope – the reticle – immortalised by the constellation Reticulum. Reticulum is Latin for ‘net’. One can imagine astronomers fishing out the discoveries from among the southern stars. But the name translates more simply as an eyepiece reticle instead of a fishing net.

This constellation was defined by the French astronomer Nicolas-Louis de Lacaille (1713-62), who adopted Reticulum to honour the eyepiece with

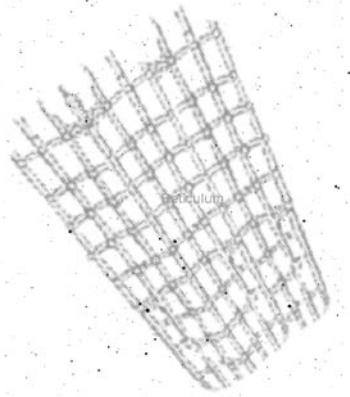
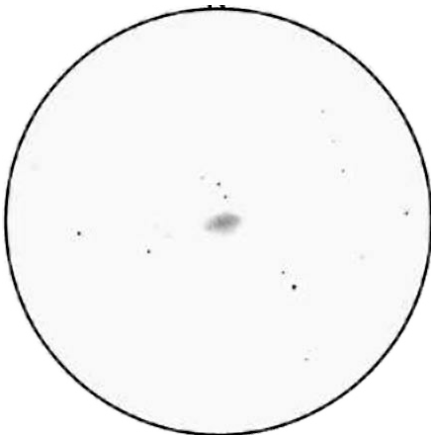


Image source: Starry Night Pro

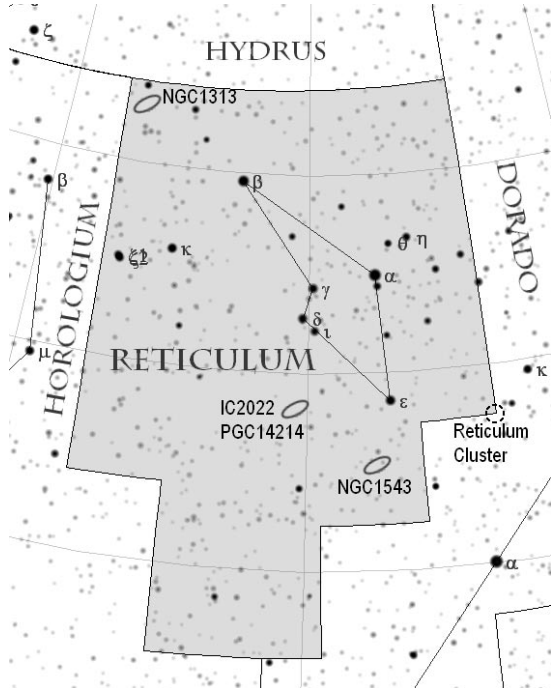
rhomboidal crosshairs which he used to measure star positions while at the Cape of Good Hope in 1752. The constellation’s geometric shape had however already been noted and mapped as early as 1621 in German records by Isaak Habrecht as a constellation he called Rhombus. Reticulum is conveniently located in the north-west between the two Magellanic Clouds. It displays a somewhat crooked diamond shape, 7 degrees long and 2 degrees wide, and is ranked 82nd in size. The constellation houses a wealth of galaxies with few other deep sky objects.

The northern part of Reticulum is strewn with galaxies. The first one I’ve chosen is located 1.5 degrees north of magnitude 4.4 epsilon Reticuli. **NGC 1543** is but a small oval hazy glow in an east-west direction. It has a high surface brightness and very compact bright nucleus. Deep images show this galaxy possessing an extended outer halo.

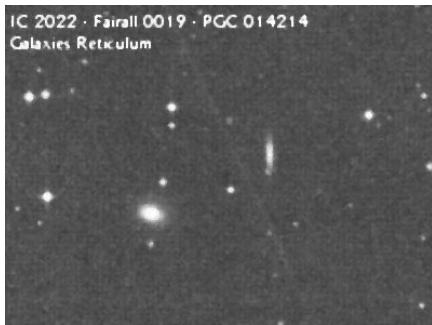


Sketch of galaxy NGC 1543 with north to the top and east to the left.

The constellation boasts a remote globular cluster that was discovered in 1973 with the 24-inch Maksutov telescope at Chile's Cerro Calan Observatory. Known as the **Reticulum cluster**, it is situated in the far north-east, very close to the border with Dorado. The globular is located only about 10 degrees from the centre of the Large Magellanic Cloud and most probably belongs to it. It has recently been studied with the 4-meter reflector at Cerro Tololo Inter-American Observatory, and is estimated it to be 157 000 light years distant. The system also has a few pulsating variable stars with periods of less than one day. (*Sky and Telescope*, April 1976).



Skymap produced using Cartes du Ciel



An image of IC 2022 taken during the deep-sky survey. Credit: Webb DSO and Deep Sky Survey

Traversing the starry skies about 4 degree eastwards, we arrive at a controversial galaxy known as **IC 2022**. Story has it that during the years 1898 to 1901, Delisle Stewart, one of two astronomers sent by Harvard College Observatory to Arequipa, Peru to carry out a photographic survey of the southern skies using the Bruce 24-inch refractor. On plate #4184 Stewart discovered a galaxy which was to become IC 2022. He describes the object as “exceedingly small, very extended at position angle 5 degrees”. When examining the field on the Deep Sky Survey, it showed two galaxies. The western, fainter galaxy, matches Stewart’s coordinates and description. The other galaxy,

situated east, is much brighter, slightly oval and currently listed as Fairall #0019 and PGC 14214 (DDS picture, Webb Deep Sky Society issue 124). Tony Fairall, who lectured at the newly formed Department of Astronomy at UCT in 1970, started a major photographic survey to find supernovae and compact galaxies in the southern hemisphere. Fairall died in a diving accident at Hout Bay on 23 November 2008 (*MNASSA* 68, 3&4, April 2009, 64).

Lucas Ferreira, ASSA's double-star director, has agreed to contribute a note on a few interesting double-stars located in this constellation. He describes them as follows:

Zeta 1, 2 Reticulum - Magnitude 5.2 and 5.5, separation 310"

The lovely outstanding yellow double star Zeta ¹ and ² is situated in the far western part of the constellation, only 25 arc minutes from the border with Horologium. Zeta Reticuli is a very nice wide binary. The system is located about 39 light years from Earth. The stars complete one revolution around each other in over a million years. If the skies are dark enough, to the naked eye, they appear as a close pair of separate stars – a very nice target in binoculars or low magnification telescopes too.

Kappa Reticulum – Magnitude 4.7 and 10.7, separation 54.1"

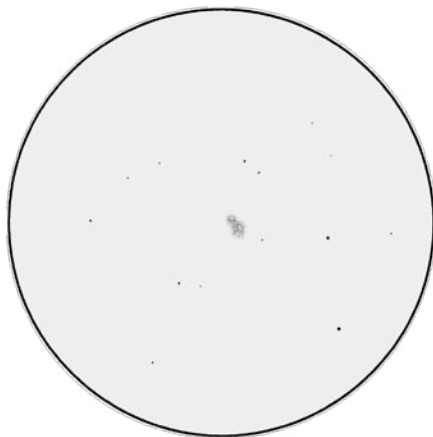
Just hop 1.3 degrees east of Zeta Reticuli where you will find kappa Reticuli. The

primary displays a beautiful yellow colour in contrast to its fainter, slightly orange, companion.

Theta Reticulum – Magnitude 5.9 and 8.0, separation 4.1"

In a low powered eyepiece, Theta Reticuli is situated in the same field, just 50 arc minutes south of the very yellow coloured magnitude 3 **Alpha Reticuli**. Alpha Reticuli is the brightest star in the constellation of Reticulum and has a visual companion of apparent visual magnitude 12.0, located approximately 48 arc seconds away from the primary.

NGC 1559 is situated midway between Alpha and Theta Reticuli, another galaxy with a story. The Reverend Robert Evans from New South Wales visually discovered three supernovae in this galaxy. First was 1984j, followed by 1986L, with the latest 2005df, discov-



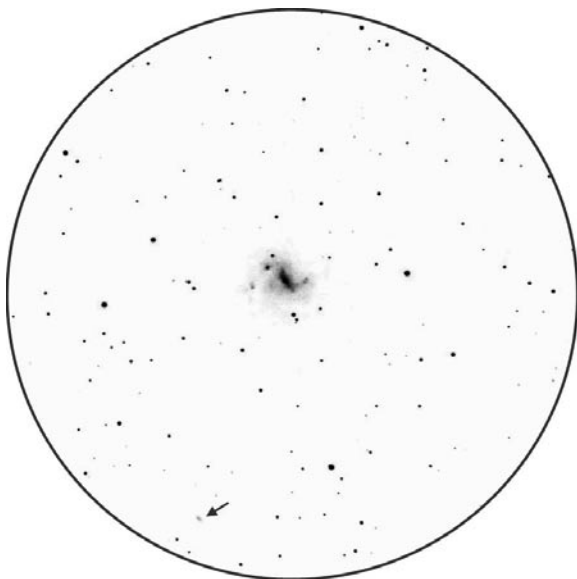
NGC 1559 sketched with my 12-inch working at 218 power.

ered shortly after midnight on 5 August 2005. With a magnitude of 12, supernova 2005df also turned out to be the brightest supernova discovered that year. Be sure to shift the glare of the bright Alpha Reticuli, located only 30 arcminutes north of NGC 1559, out of the field of view, when observing this galaxy. NGC 1559 displays a smooth glow in a north-east to south-west direction. The north-east tip is covered in a fast of haze, with a slightly sharper edged south-east tip. A magnitude 11.8 star is situated just off the galaxy's south-western tip. Higher power reveals the galaxy slowly getting brighter to a pinpoint nucleus. With careful observation and high power, I could just made out surface texture with uneven parts. The galaxy is roughly 50 million light years distant.

The great Reticulum galaxy, **NGC 1313**, is situated exactly in the south-western corner of the constellation, only 3 degrees south-west of beta Reticuli and right in line with the imaginary crosshairs. At closer inspection the galaxy it appears bright, slightly hazy and irregular in a north-west to south-east direction. The flimsy north-western part is noticeably fainter than its south-eastern counterpart. The south-eastern arm tapers down slightly, to

a slender, curved and brighter tip. The galaxy has a high surface brightness, brightening slightly towards the middle. High power, however, will reveal this distorted barred galaxy to have an elongated nucleus. Australian amateur Jenni Kay noticed a thin, bright streak running from the western to the southern edge in this galaxy. She suspects there may also be a dark lane in the north-eastern region.

The world's largest telescopes detects luminous HII regions which outline the nuclear bar and two main arms. Isolated patches of star formation are found in the south-western region and beyond the rim of the northern arm. Lucas Fer-



Lucas Ferreira photographed NGC 1313. The colours were inverted for clarity when printing. What is more, the galaxy NGC 1313A is just visible in this picture (arrowed).

deep-sky delights

reira kindly provided me with wonderful CCD pictures which show the galaxy's flimsy arms extending more than double its visual size in a haze. What is more, the galaxy NGC 1313A, is just visible as a very faint speck of light to the south-east in his pictures.

Two distinct supernova explosions have been recorded in NGC 1313. The first

took place on 26 November 1962, reaching magnitude 11.7. The second was on 31 July 1978, with a brightness of magnitude 16. The recorded positions of the supernovae on the surface of the galaxy coincidentally differ very little.

You can make your own eyepiece reticles quite easily. Spider web silk or silk-worm thread both work very well. ☆

Object	Type	RA (J2000.0)	Dec	Mag	Size
NGC 1313	Galaxy	03 ^h 18.2	-66°30'	8.7	9.2' x 6.9'
Zeta 1 & 2	Double star	03 18.2	-62 30	5.2 - 5.5	Sep. 310"
Kappa Ret	Double star	03 29.4	-62 56	4.7 - 10.3	54.1"
IC 2022	Galaxy	03 58.7	-59 03	16	1.1' x 0.2'
PGC 14214	Galaxy	03 58.9	-59 04	14.8	0.9' x 0.9'
NGC 1543	Galaxy	04 12.7	-57 44	10.5	3.8' x 2.8'
Alpha Ret	Double star	04 14.4	-62 28	3.4 - 12.0	Sep. 48.5"
Theata Ret	Double star	04 17.7	-63 15	6.2 - 8.2	Sep. 4.1"
Ret Cluster	Glob Cluster	04 36.1	-58 52	11.3	5'

Greek Alphabet

A	α	alpha	N	ν	nu
B	β	beta	Ξ	ξ	xi
Γ	γ	gamma	O	ο	omicron
Δ	δ	delta	Π	π	pi
E	ε	epsilon	P	ρ	rho
Z	ζ	zeta	Σ	σ	rho
H	η	eta	T	τ	tau
Θ	θ	theta	Υ	υ	upsilon
I	ι	iota	Φ	φ	phi
K	κ	kappa	X	χ	chi
Λ	λ	lambda	Ψ	ψ	psi
M	μ	mu	Ω	ω	omega