Early Spring Galaxy Hunt

Small Scope Targets Away from the Messiers

By: Michael Wright

Galaxies in Leo, Cancer, and Sextans

Away from the bright band of the Milky Way, the skies in and around Leo are a wonderful playground for galaxy hunters in late winter and early spring. Most people get stuck on the splendours of the Leo Triplet and the M95 Group. However, beyond the Messiers and their close-by partners, there are some interesting (and a few surprisingly bright) galaxies to be found in Leo, Cancer and Sextans near Hydra.

This talk will examine 8 non-Messier galaxies, including one interacting pair, accessible to 4.5 inch scopes under dark skies. All of these galaxies are part of the Herschel 400, and four are included in RASC's Finest NGC observing list.


Praesepe
Cancer
Leo
Regulus
Canis Minor
Procyon
n-Virginids
Sextans
M48
Hydra
NGC 2539
M47
M46
M93
Crater
Earth, Monkton, Ontario, 0m
FOV 52.4°
24 FPS
2022-03-31 22:18:24 UTC-04:00


Praesepe
Cancer
1
Leo
7 & 8
Regulus
Canis Minor
Procyon
2
4 & 5
n-Virginids
6
Sextans
M48
3
Hydra
NGC 2539
M47
M46
Crater
M93
Earth, Monkton, Ontario, 0m
FOV 52.4°
24 FPS
2022-03-31 22:18:24 UTC-04:00


NGC 2903
Type: Galaxy
Magnitude: 8.90 (extincted to: 9.04)
Surface brightness: 14.24 (extincted to: 14.38)
RA/Dec (J2000.0): 9h32m12.01s/+21°30'00.0"
RA/Dec (J2022.2): 9h33m27.40s/+21°24'03.8"
Hour angle/DE: 23h58m20.81s/+21°24'28.3" (apparent)
Az/Alt: +178°58'51.0"/+67°48'57.7" (apparent)
Ecliptic longitude/latitude (J2000.0): +138°27'11.3"/+6°32'00.8"
Ecliptic longitude/latitude (J2022.2): +138°45'50.7"/+6°32'07.7"
Galactic longitude/latitude: -151°17'03.5"/+48.6"
Size: +0°12'36"
Algenubi
λ Leonis
NGC 2903
Algieba
Al'dzhabkhakh
Regulus
Praesepe
Cancer
M67
Earth, Monkton, Ontario, 0m
FOV 16.3°
37.8 FPS
2022-03-31 22:18:24 UTC-04:00

NGC2903 - RASC Finest NGC #54

Photo: Tony Hallas (APOD)

NGC2903 - RASC Finest NGC #54

Magnitude: 8.9

Surface Brightness: 14.24

Distance: 20,000,000 light years

This gem in western Leo is surprisingly missing from the Messier catalogue, only discovered by Herschel on November 16, 1784. With a diameter of 80,000 light years and a mass of 80 billion suns, it is slightly smaller than the Milky Way.

At low power, the galaxy has a sharp nucleus inside a bright central lens, which is surrounded by a diffuse elliptical glow. At moderate power, the view shows two knots of brightness to the north and south of the stellar nucleus. The boundary between the inner lens and the diffuse outer portions is sharp. O'Meara claims he could just barely detect two arms in a 4 inch Genesis refractor. In a 10-inch or larger scope, several of the galaxies many H-II regions become evident.

NGC2903 - Pencil Sketch in 4.5 inch Newtonian


Praesepe
Cancer
Leo
Regulus
Canis Minor
Procyon
n-Virginids
Sextans
M48
Hydra
NGC 2539
M47
M46
M93
Crater
Earth, Monkton, Ontario, 0m
FOV 52.4°
24 FPS
2022-03-31 22:18:24 UTC-04:00


C48 (C 48 - NGC 2775)
Type: Galaxy
Magnitude: 10.30 (extincted to: 10.46)
Surface brightness: 13.40 (extincted to: 13.57)
RA/Dec (J2000.0): 9h10m18.01s/+7°02'00.0"
RA/Dec (J2022.2): 9h11m28.86s/+6°56'30.9"
Hour angle/DE: 0h20m18.99s/+6°57'15.7" (apparent)
Az/Alt: +188°24'55.0"/+53°05'42.0" (apparent)
Ecliptic longitude/latitude (J2000.0): +137°51'18.3"/-8°51'29.2"
Ecliptic longitude/latitude (J2022.2): +138°09'55.5"/-8°51'22.3"
Galactic longitude/latitude: -136°44'03.5"/+33°58'39.7"
Size: +0°04'30"
M67
Hydrobius
Earth, Monkton, Ontario, 0m
FOV 19.3°
32.7 FPS
2022-03-31 22:18:24 UTC-04:00

Caldwell 48 - NGC2775

Photo: Hubble ST

Caldwell 48 - NGC2775

Magnitude: 10.3

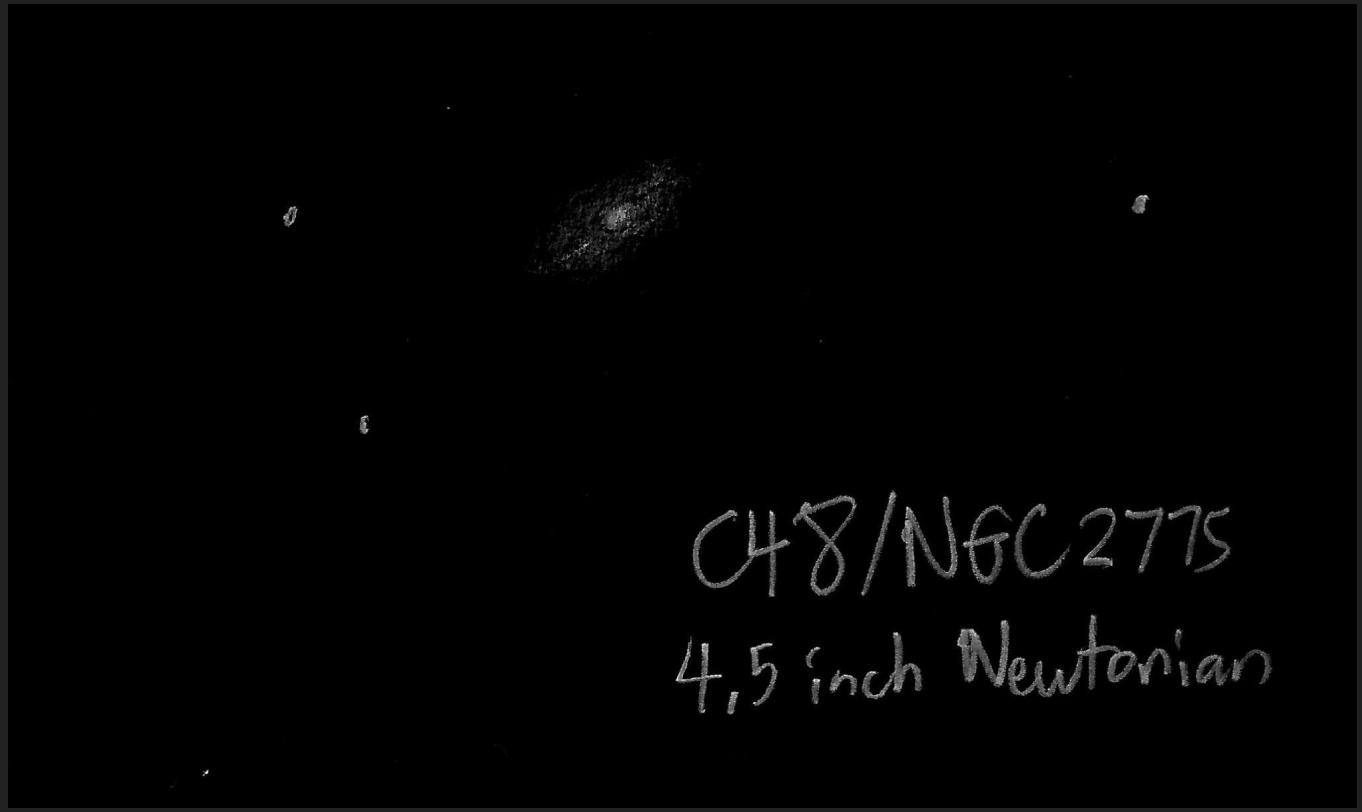
Surface Brightness: 13.4

Distance: ~67,000,000 light years

This galaxy was discovered by Herschel on December 19, 1783. With a diameter of 73,000 light years and a mass of 17 billion suns, it is dominated by old, cool stars in the large central bulge, and is relatively inactive in star formation in the arms. It is a textbook flocculent spiral, with complex, tightly wound, poorly defined arms that are a delight to view in high resolution photographs. The arms begin abruptly at the edge of the brighter bulge.

As this galaxy is small and moderately dim, you must star-hop carefully to get to it in smaller scopes. It can be found at the eastern tip of a right angled triangle formed by the stars Hydrobius and Omega Hydrae and the galaxy. At low power, it has a star-like core surrounded by a slightly oval haze oriented northwest to southeast. Many dim double stars are in the field of view, some tight enough to look fuzzy at low power, creating the illusion that other dim and distant galaxies can be seen. Higher powers do not do much to improve the view in small scopes.

Caldwell 48 - Pencil Sketch in 4.5 inch Newtonian




Spindle galaxy (C 53 - NGC 3115)
Type: Galaxy
Magnitude: 9.20 (extincted to: 9.41)
Surface brightness: 13.63 (extincted to: 13.84)
RA/Dec (J2000.0): 10h05m12.01s/-7°43'00.0"
RA/Dec (J2022.2): 10h06m18.48s/-7°49'30.7"
Hour angle/DE: 23h25m30.41s/-7°48'14.8" (apparent)
Az/Alt: +169°07'54.9"/+38°00'51.8" (apparent)
Ecliptic longitude/latitude (J2000.0): +156°12'33.6"/-18°12'32.9"
Ecliptic longitude/latitude (J2022.2): +156°31'08.9"/-18°12'28.7"
Galactic longitude/latitude: -112°13'34.3"/+36°46'34.4"
Size: +0°08'18"
Hydrobius
Sextans
Hydra
Alphard
Earth, Monkton, Ontario, 0m
FOV 19.3°
48.5 FPS
2022-03-31 22:18:24 UTC-04:00

Caldwell 53 - NGC3115 - The Spindle - Finest NGC #49

Photo:
Rick Johnson

Caldwell 53 - NGC3115 - The Spindle - Finest NGC #49

Magnitude: 8.9

Surface Brightness: 12.1

Distance: ~33,000,000 light years

No farther south than the Orion Nebula, this galaxy is another surprising ‘miss’ for Messier. It was discovered by Herschel on February 23, 1787. This lenticular galaxy is inclined 24 degrees from edge on to our line of sight, and is visible in 7x50 binoculars under a dark sky.

At low power, it is a 7’ long spindle oriented northeast to southwest with a bright central lens and a tapered halo. At medium power, the core appears stunningly bright, surrounded by an oval haze that dims gradually outward and tapers to opposite points.

Caldwell 53 - Pencil Sketch in 4.5 inch Newtonian


NGC 3166
Type: Galaxy
Magnitude: 10.60 (extincted to: 10.77)
Surface brightness: 14.02 (extincted to: 14.19)
RA/Dec (J2000.0): 10h13m48.00s/+3°26'00.0"
RA/Dec (J2022.2): 10h14m57.19s/+3°19'21.6"
Hour angle/DE: 23h16m51.71s/+3°20'13.4" (apparent)
Az/Alt: +163°34'58.8"/+48°37'41.8" (apparent)
Ecliptic longitude/latitude (J2000.0): +154°07'16.1"/-7°02'18.0"
Ecliptic longitude/latitude (J2022.2): +154°25'53.4"/-7°02'13.5"
Galactic longitude/latitude: -121°51'20.0"/+45°32'13.4"
Size: +0°05'12"
Sextans
Hydra
Alphard
Earth, Monkton, Ontario, 0m
FOV 19.3°
59.5 FPS
2022-03-31 22:18:24 UTC-04:00


NGC 3166
Type: Galaxy
Magnitude: 10.60 (extincted to: 10.77)
Surface brightness: 14.02 (extincted to: 14.19)
RA/Dec (J2000.0): 10h13m48.00s/+3°26'00.0"
RA/Dec (J2022.2): 10h14m57.19s/+3°19'21.6"
Hour angle/DE: 23h12m15.74s/+3°20'13.6" (apparent)
Az/Alt: +161°53'27.7"/+48°22'52.2" (apparent)
Ecliptic longitude/latitude (J2000.0): +154°07'16.1"/-7°02'18.0"
Ecliptic longitude/latitude (J2022.2): +154°25'53.4"/-7°02'13.5"
Galactic longitude/latitude: -121°51'20.0"/+45°32'13.4"
Size: +0°05'12"
Sextans
Earth, Monkton, Ontario, 0m
FOV 9.59°
15.7 FPS
2022-03-31 22:13:48 UTC-04:00

NGC3166 & 3169

Photo: Adam Block (APOD)

NGC3166 & 3169

Magnitude: 10.4 & 10.2 (some resources indicate brightness upwards of a magnitude fainter)

Surface Brightness: 14.02 & 13.74

Distance: ~75,000,000 light years

Discovered by Herschel in 1783, NGC3166 & 3169 form an interacting pair of spirals 8.5 degrees south south-east of Regulus. This is a challenging pair for small scopes - need dark skies and good transparency.

Using low power to moderate power, NGC3166 is a circular glow that gets increasingly bright towards the middle to a sharp nucleus. Larger telescope users may detect the galaxy's dimmer large halo extending in an east-west direction, and also perhaps glimpse the small companion galaxy NGC3165 to the southwest.

NGC3169 is slightly smaller and slightly dimmer. It immediately appears more elongated. At low power, it is a 1' amorphous ellipse. At moderate power, the galaxy's nuclear region is less defined than NGC3166. The lens seems slightly mottled, uneven or misshapen. In very large scopes, look for a dust lane.

NGC3166 & 3169 - Pencil Sketch from 4.5 Inch Newtonian


NGC 3521
Type: Galaxy
Magnitude: 8.90 (extincted to: 9.10)
Surface brightness: 13.63 (extincted to: 13.82)
RA/Dec (J2000.0): 11h05m48.00s/-0°02'00.0"
RA/Dec (J2022.2): 11h06m56.40s/-0°09'12.7"
Hour angle/DE: 22h24m53.54s/-0°08'10.0" (apparent)
Az/Alt: 147°29'33.5"/+41°23'25.1" (apparent)
Ecliptic longitude/latitude (J2000.0): +167°32'40.8"/-5°22'41.7"
Ecliptic longitude/latitude (J2022.2): +167°51'18.2"/-5°22'39.5"
Galactic longitude/latitude: -104°28'26.5"/+52°49'46.4"
Size: +0°09'30"
Denebola
Regulus
M67
n-Virginids
Sextans
Hydra
Alphard
Crater
Earth, Monkton, Ontario, 0m
FOV 37.6°
58.4 FPS
2022-03-31 22:18:24 UTC-04:00


NGC 3521
Type: Galaxy
Magnitude: 8.90 (extincted to: 9.10)
Surface brightness: 13.63 (extincted to: 13.82)
RA/Dec (J2000.0): 11h05m48.00s/-0°02'00.0"
RA/Dec (J2022.2): 11h06m56.40s/-0°09'12.7"
Hour angle/DE: 22h20m17.59s/-0°08'09.5" (apparent)
Az/Alt: +146°05'26.2"/+40°56'03.6" (apparent)
Ecliptic longitude/latitude (J2000.0): +167°32'40.8"/-5°22'41.7"
Ecliptic longitude/latitude (J2022.2): +167°51'18.2"/-5°22'39.5"
Galactic longitude/latitude: -104°28'26.5"/+52°49'46.4"
Size: 0°09'30"
Sextans
NGC 3521
Zavijava
Earth, Monkton, Ontario, 0m
FOV 15.8°
45.7 FPS
2022-03-31 22:13:48 UTC-04:00

NGC3521 - RASC Finest NGC #56

Photo: Eric Benson &
Dietmar Hager (APOD)

NGC3521 - RASC Finest NGC #56

Magnitude: 8.9

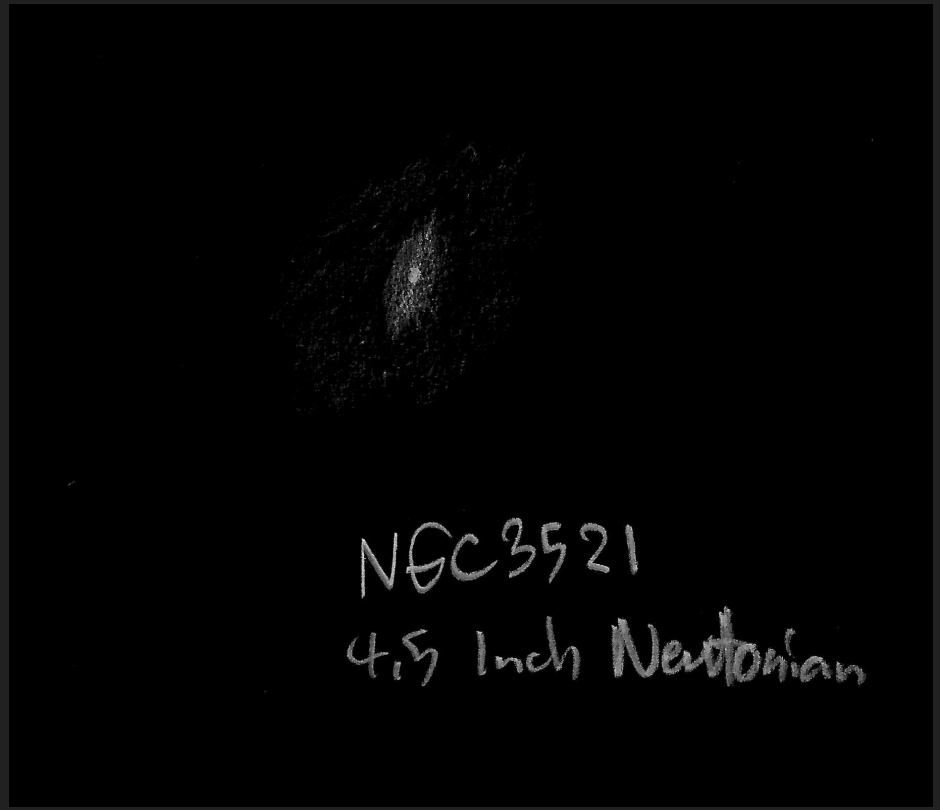
Surface Brightness: 13.6

Distance: ~23,000,000 light years

Lying on the celestial equator, this galaxy is yet another example of something relatively bright that was missed by Messier and Mechain. It was discovered by Herschel on February 22, 1784, less than 2 months after he began his systematic survey of the skies. This flocculent mixed spiral galaxy is visible in 7x50 binoculars under a dark sky. It is fairly large at 72,000 light years in diameter and a mass of 150 billion suns.

At low power, it looks like a spindle oriented southeast to northwest among a rich group of dim stars, slightly comet-like. The core is condensed and the surrounding lens a bit mottled. At medium power, the galaxy appears more complex, but the details are delicate. The nucleus is sharp, surrounded by an oval coma. The southeast side is more sharply defined. O'Meara suspects that he can see an arm reaching out from the centre on this side through his 4 inch refractor under a dark sky.

NGC3521 - Pencil Sketch from 4.5 inch Newtonian




Praesepe
Cancer
Leo
Regulus
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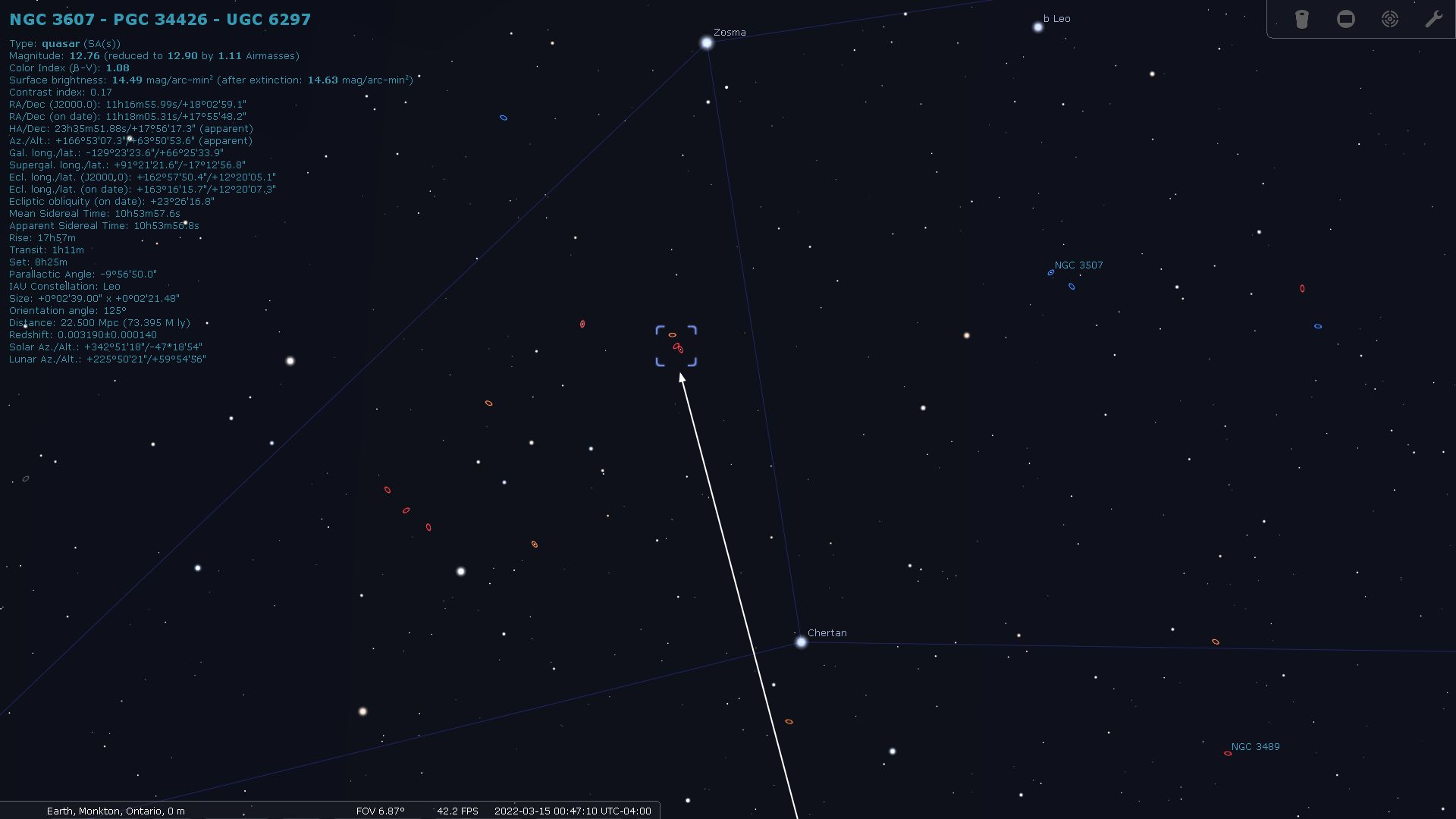
Procyon
n-Virginids
Sextans
M48
Hydra
NGC 2539
M47
M46
M93
Crater
Earth, Monkton, Ontario, 0m
FOV 52.4°
24 FPS
2022-03-31 22:18:24 UTC-04:00


NGC 3607 - PGC 34426 - UGC 6297
Type: quasar (SA(s))
Magnitude: 12.76 (reduced to 12.90 by 1.11 Airmasses)
Color Index (B-V): 1.08
Surface brightness: 14.49 mag/arc-min² (after extinction: 14.63 mag/arc-min²)
Contrast index: 0.17
RA/Dec (J2000.0): 11h16m55.99s/+18°02'59.1"
RA/Dec (on date): 11h18m05.31s/+17°55'48.2"
HA/Dec: 23h35m51.88s/+17°56'17.3" (apparent)
Az./Alt.: +166°53'07.3"/+63°50'53.6" (apparent)
Gal. long./lat.: -129°23'23.6"/+66°25'33.9"
Supergal. long./lat.: +91°21'21.6"/-17°12'56.8"
Ecl. long./lat. (J2000.0): +162°57'50.4"/+12°20'05.1"
Ecl. long./lat. (on date): +163°16'15.7"/+12°20'07.3"
Ecliptic obliquity (on date): +23°26'16.8"
Mean Sidereal Time: 10h53m57.6s
Apparent Sidereal Time: 10h53m56.8s
Rise: 17h57m
Transit: 1h11m
Set: 8h25m
Parallactic Angle: -9°56'50.0"
IAU Constellation: Leo
Size: +0°02'39.00" x +0°02'21.48"
Orientation angle: 125°
Distance: 22.500 Mpc (73.395 M ly)
Redshift: 0.003190±0.000140
Solar Az./Alt.: +342°51'18"/-47°18'54"
Lunar Az./Alt.: +225°50'21"/+59°54'56"
Zosma
b Leo
NGC 3507
Chertan
NGC 3489
Earth, Monkton, Ontario, 0 m
FOV 6.87°
42.2 FPS
2022-03-15 00:47:10 UTC-04:00

NGC3607 & 3608 - RASC Finest NGC #57

Photo: HubbleST

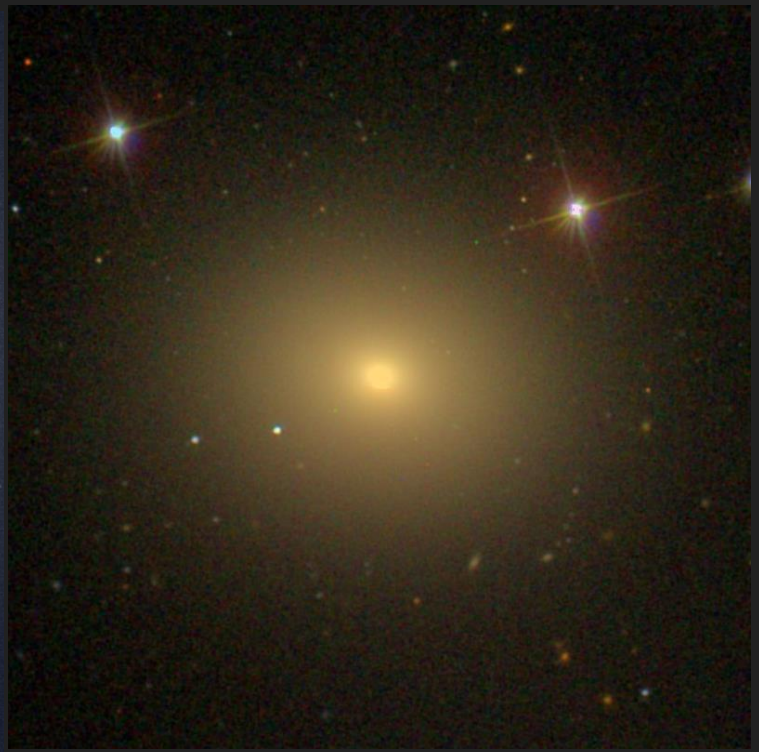


Photo: SDSS

NGC3607 & 3608 - RASC Finest NGC #57

Magnitude: 9.9 & 10.8

Surface Brightness: 14.0 & 12.5

Distance: ~73,000,000 light years

The Leo II Group has two cores of galaxies, one of which contains NGC3607 and NGC3608. NGC3607 is a fairly bright intermediate mass lenticular galaxy with a paucity of dark matter and a kinematically distinct core. NGC3608 is elliptical, with a bimodal population of globular clusters that indicate past galactic cannibalism, with orbits showing the effects of interaction between NGC3608 and NGC3607.

NGC3607 appears in small scopes as an almost featureless circular glow, with a brighter core 1’ across surrounded by a dimmer haze that extends out another 1’. Larger telescopes will reveal a slight elongation NW-SE and companion galaxy NGC3605 just to the southwest. NGC3608 is a fairly obvious 1’ wide glow with a stellar nucleus and a tight, brightened core.

NGC3607 & 3608 - Pencil Sketch from 4.5 inch Newtonian

References

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