# **Thirty Additional Galaxies**

### observed by Marie Lott

#01 IC 5370 et al in Andromeda	#13 NGC 2804 et al in Cancer	#25 NGC 4261 et al in Virgo
#02 NGC 3 et al in Pisces	#14 NGC 2943 et al in Leo	#28 M 49 et al in Virgo
#04 NGC 80 et al in Andromeda	#15 NGC 2998 et al in Ursa Major	#29 M 87 et al in Virgo (Arp 152)
#05 NGC 329 et al in Cetus	#16 NGC 3158 et al in Leo Minor	#30 M 60 et al in Virgo
#06 NGC 383 et al in Pisces	#17 NGC 3607 et al in Leo	#36 NGC 5490 et al in Bootes
#07 NGC 439 et al in Sculptor	#18 M66 (NGC 3627) et al in Leo	#37 NGC 5714 et al in Bootes
#08 NGC 507 et al in Pisces	#19 IC 696 et al in Leo	#38 NGC 5754 et al in Bootes
#09 NGC 1129 et al in Perseus	#21 NGC 3801 et al in Leo	#46 NGC 7184 et al in Aquarius
#10 The Fornax Cluster	#22 NGC 4005 et al in Leo/CmB	#47 NGC 7331 et al in Pegasus
#11 NGC 2289 et al in Gemini	#24 M 106 et al in Coma Berenices	#48 NGC 7385 et al in Pegasus

## Telescopes, Exposures, and Locations

Remote telescopes were used through SLOOH unless indicated otherwise. The SLOOH telescopes were either in the Canary Islands at the Observatorio del Teide, Izaña, Tenerife or in Chile at the Santa Martina Observatory, La Dehesa, Santiago, Chile. Full specs on the SLOOH scopes are available <a href="https://example.com/here">here</a>. SLOOH images were captured as multiple (2-6) 50-second luminance exposures, stacked in DeepSkyStacker, run through <a href="https://example.com/here">FitsScrubber</a>, and then had curves or levels tweaked in Photoshop. The resulting images were inverted for display here.

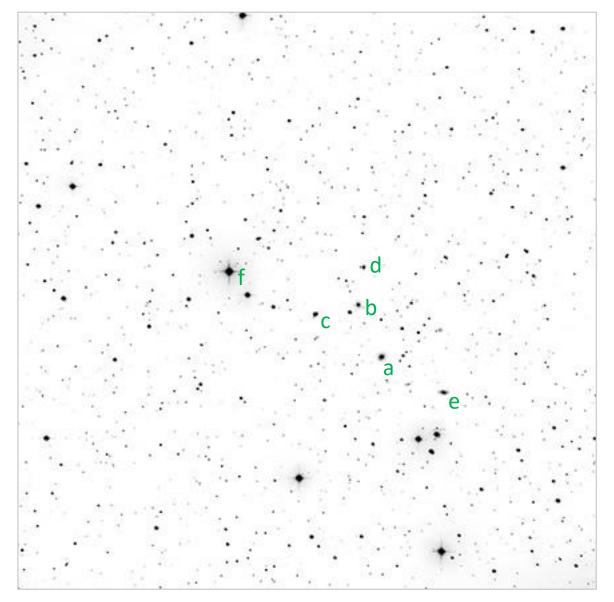
All SLOOH images are oriented with North up and East left.

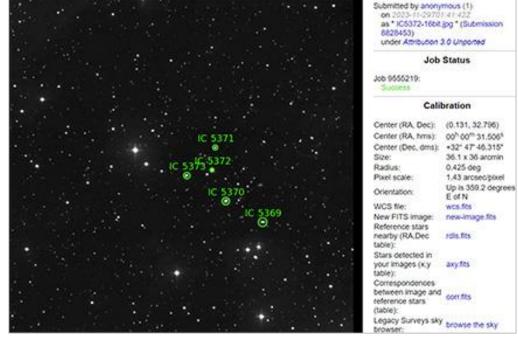
Astrometry was performed at nova.astronometry.net Magnitudes are taken from Sky Safari; in many cases these are dimmer than those listed in the program booklet.

- Canary One: 20" CDK, FLI PL09000 camera
- Canary Two: 17" CDK, FLI PL16803 camera
- Chile Two: 17" CDK, FLI PL16803 camera
- Deerlick Astronomy Village ("DAV") in Sharon GA: 8" SCT with Mallincam DS10c camera

#### #01 IC 5370 et al in Andromeda

2023-09-21 02:00Z, SLOOH Canary One



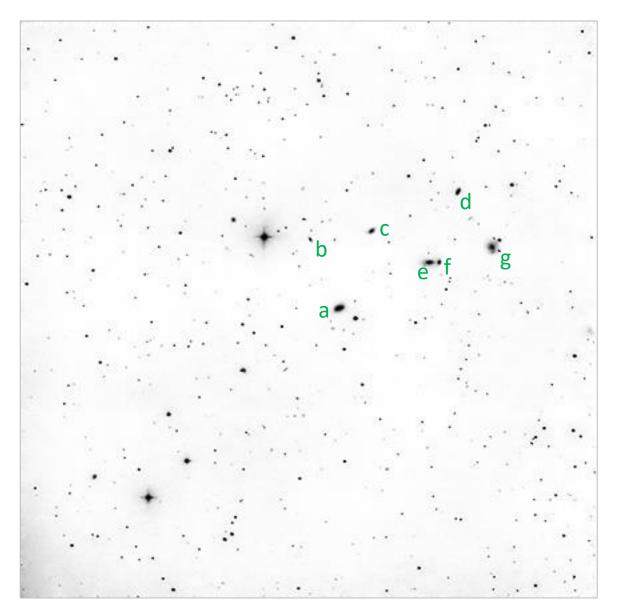


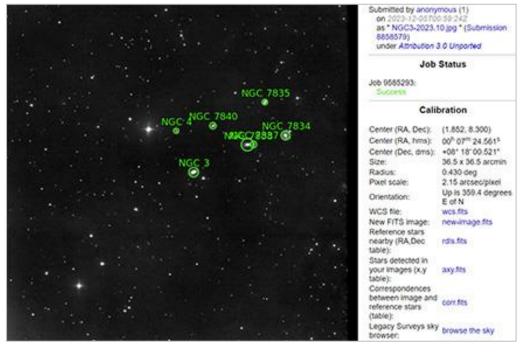
- a) IC 5370, mag 14.8
- b) IC 5372, mag 15.6
- c) IC 5373, mag 15.1
- d) IC 5371, mag 15.7
- e) IC 5369, mag 15.2
- f) V401 And, mag 9.1

Our target galaxy (a) is a spiral, 510Mly away! It anchors a nice string of similarly distant galaxies (be) dangling to the SW from variable star V401And (f). Three mag 9/10 stars form an eye-catching tight triangle below.

#### #02 NGC 3 et al in Pisces

2023-10-06 06:40Z SLOOH Chile Two



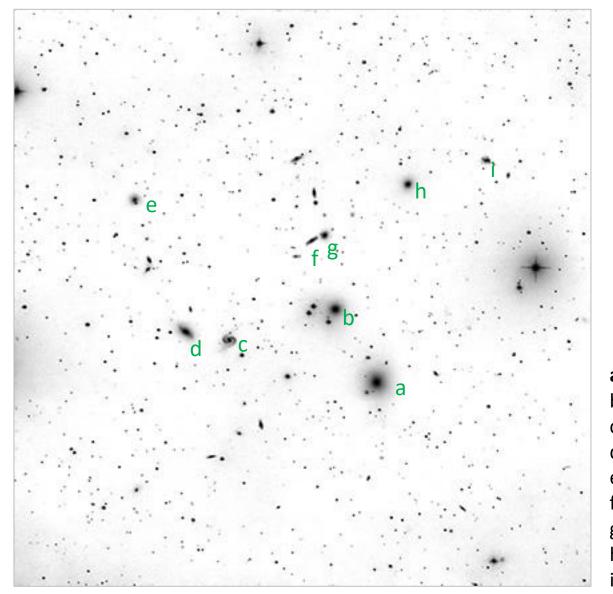


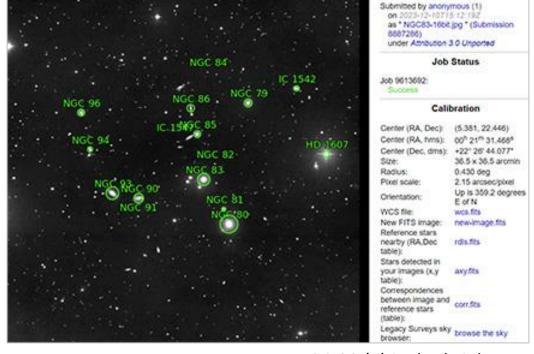
- a) NGC 3, mag 14.3
- b) NGC 4, mag 16.4
- c) NGC 7840, mag 16.5
- d) NGC 7835, mag 15.5
- e) NGC 7838, mag 16.7
- f) NGC 7837, mag 5.2
- g) NGC 7834, mag 15.4

Our target galaxy, NGC 3 (a), is a spiral, 188 Mly away from us. It anchors the bottom left corner of 2 parallel lines of galaxies (a-e-f-g & b-c-d) rising at an angle through this field towards the NW.

#### #04 NGC 80 et al in Andromeda

2023-10-06 23:40Z SLOOH Canary One



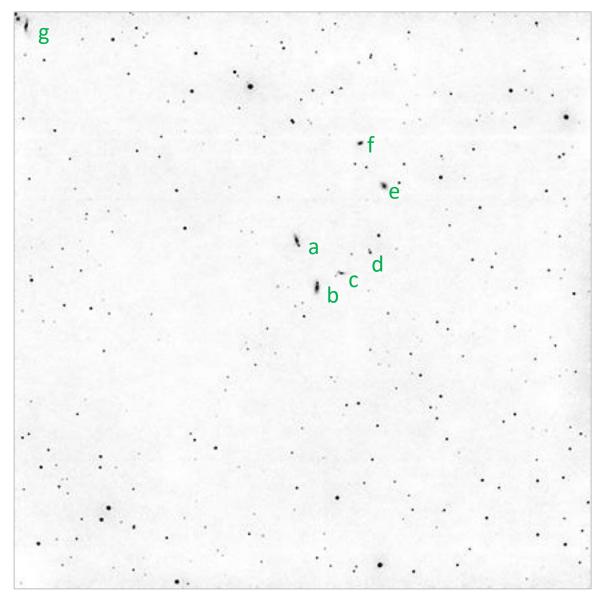


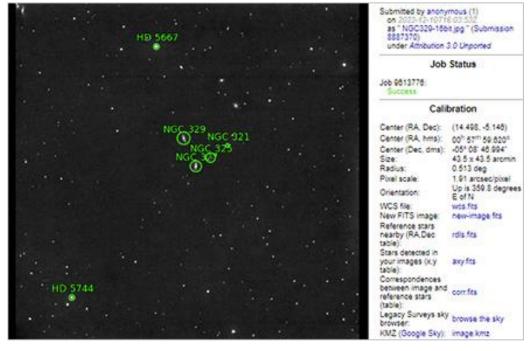
- ) **NGC 80**, mag 12.3
- b) NGC 83, mag 13.4
- c) NGC 90/91 (Arp 65), mag 13.7
- d) NGC 93, mag 13.2
- e) NGC 96, mag 15.5
- f) NGC 85, mag 15.8
- g) PGC 1382, mag 15.5
- n) NGC 79, mag 15.2
- IC 1542, mag 15

NGC 80 (a) is the brightest of a fine group of galaxies (a-I, left) clustered in the constellation of Andromeda. I particularly like the crisp face-on spiral, NGC 90 (c), which is interacting with a tiny companion galaxy; together the pair is cataloged as Arp 65. Other smaller galaxies can be seen in the field.

#### #05 NGC 329 et al in Cetus

2023-10-12 3:50Z SLOOH Chile Two





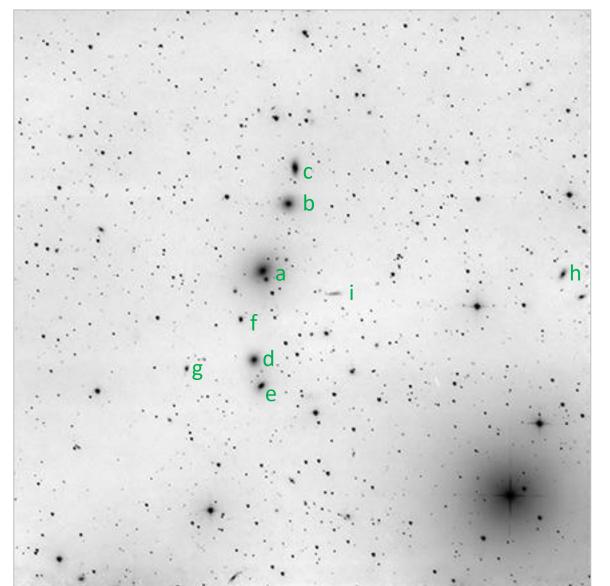
- a) NGC 329, mag 14.3
- b) NGC 327, mag 13.4
- c) NGC 325, mag 14.9
- d) NGC 321, mag 15.8
- e) PGC 3435, mag 14.5
- f) PGC 3449, mag 15
- g) PGC 3547, mag 14.7 with PGC 3547, mag 15.2

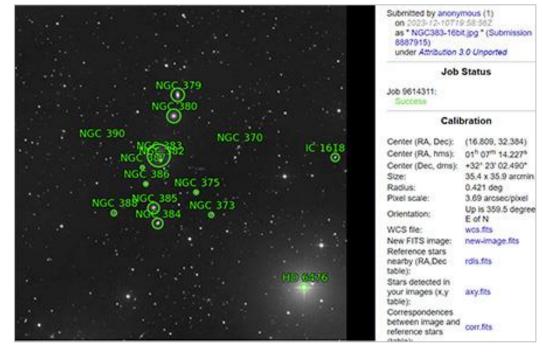
NGC 329 (a) is the highlighted member of this cluster. It is interesting because it carries a distinct dot-like star or galaxy on it SW tip. This object is detected, but not classified, in both the 2MASS and GAIA DR3 surveys. Other galactic members of this cluster (b-f) are small, and swoop upwards in a broad arc to the W of NGC 329.



#### #06 NGC 383 et al in Pisces, the "Pisces Chain" or "Pisces Cloud"

2023-11-19 0:50Z SLOOH Canary One



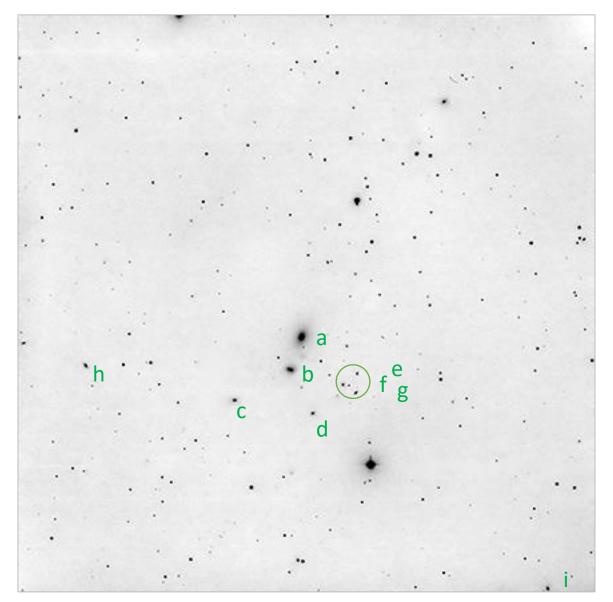


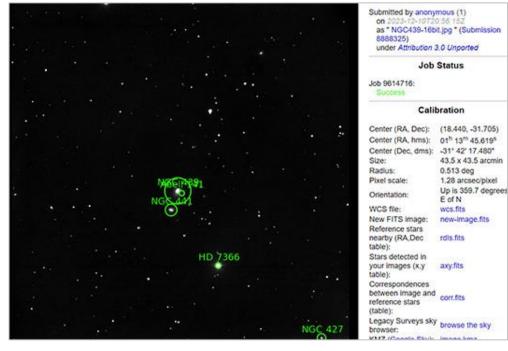
- a) NGC 383 & 382, mag 12/13.6 There are 15 galaxies labeled in the
- b) NGC 380, mag 12.5
- c) NGC 379, mag 12.7
- d) NGC 385, mag 12.9
- e) NGC 384, mag 13.0
- f) NGC 386, mag 14.2
- g) NGC 388, mag 14.4
- h) IC 1618, mag 15.6
- i) UGC 679, mag 16.6

above plate solve! And there are even more tiny ones detectable here. This cluster is centered on bright NGC 383 (a) and I've labeled 8 of its most easily detectable galactic neighbors in the image left. How many more can you pick out?

#### #07 NGC 439 et al in Sculptor

2023-10-19 07:00Z SLOOH Chile Two



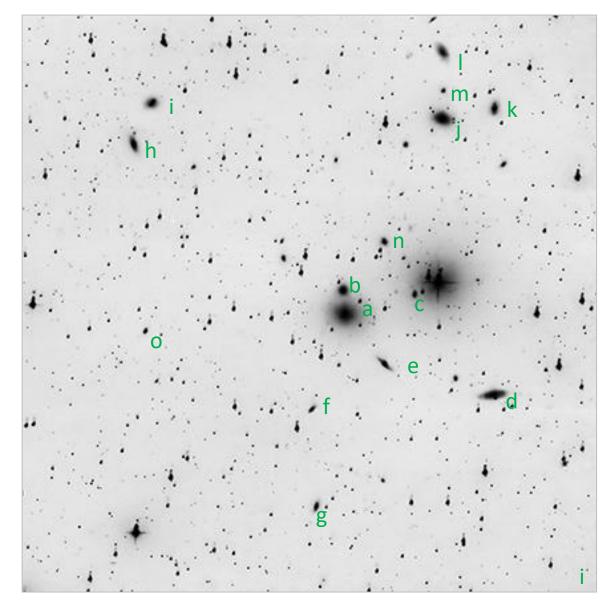


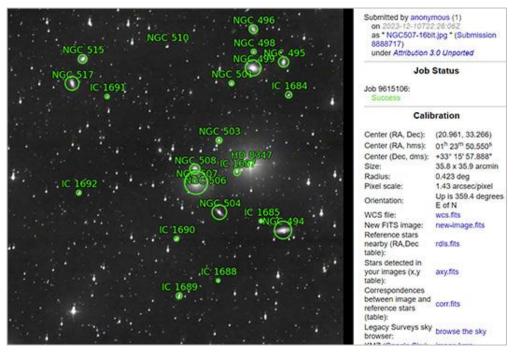
- **a)** NGC 439, mag 12.5
- b) NGC 441, mag 13.7
- c) PGC 4452, mag 15.3
- d) PGC 132859, mag 15.4
- e) PGC 4405, mag 16.7
- f) PGC 4412, mag 16.2
- g) NGC 4413, mag 16.3
- h) PGC 4452, mag 15.3
- i) NGC 427, mag 15.1

Four galaxies center this group (a-d) in Sculptor but a cute little triangle of tiny MGC/PGC galaxies (e-g) joins in on the fun. A few other dim galaxies can be seen in the field as well.

#### #08 NGC 507 et al in Pisces

2023-10-20 23:25Z SLOOH Canary One





- a) NGC 507, mag 11.2
- b) NGC 508, mag 14.1
- c) IC 1687, mag 14.6
- d) NGC 494, mag 13.8
- e) NGC 504, mag 14.0
- f) IC 1690, mag 14.9
- g) IC 1689, mag 14.7
- h) NGC 517, mag 13.4
- i) NGC 515, mag 14.0

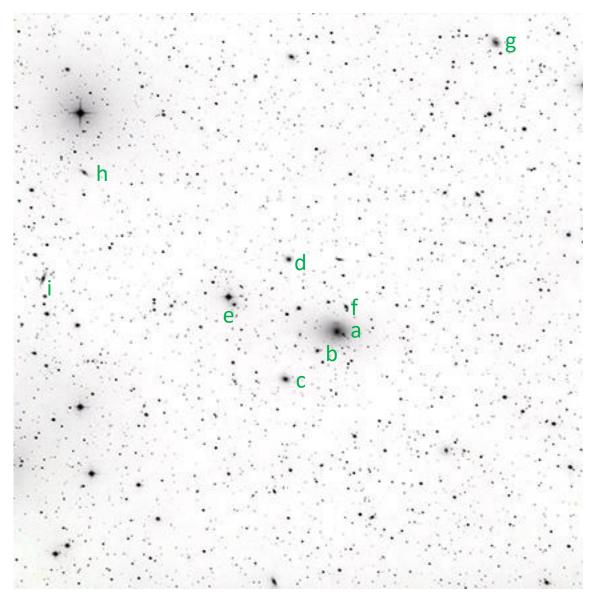
There are so many galaxies here it shook the scope!

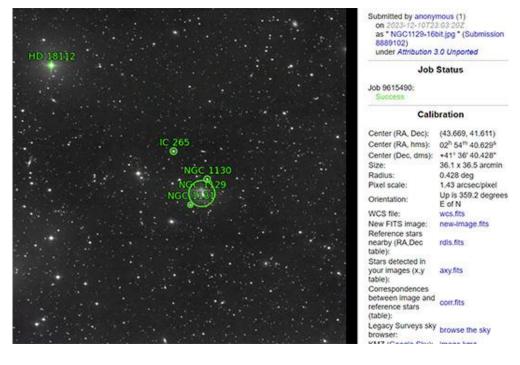
- j) NGC 499, mag 12.1
- k) NGC 495, mag 13.9
- NGC 496, mag 13.6
- m) NGC 501, mag 14.5
- n) NGC 503, mag 15.1
- o) IC 1692, mag 15.6

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#### #09 NGC 1129 et al in Perseus

2023-10-20 23:25Z SLOOH Canary One





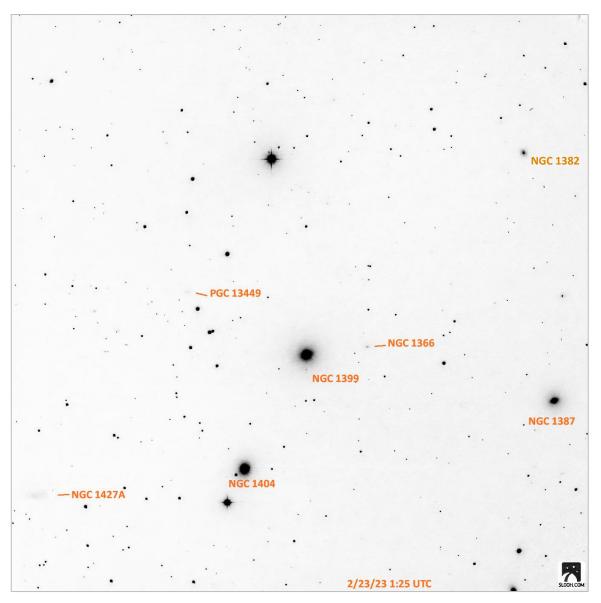
- ) **NGC 1129**, mag 13.5
- b) NGC 1131, mag 14.1
- c) PGC 10980, mag 14.7
- d) IC 265, mag 15.5
- e) PGC 11014, mag 15.5
- f) NGC 1130, mag 15.6
- g) UGC 2361, mag 14.4
- h) PGC 11073, mag 15.8
- i) UGC 2395, mag 15.1

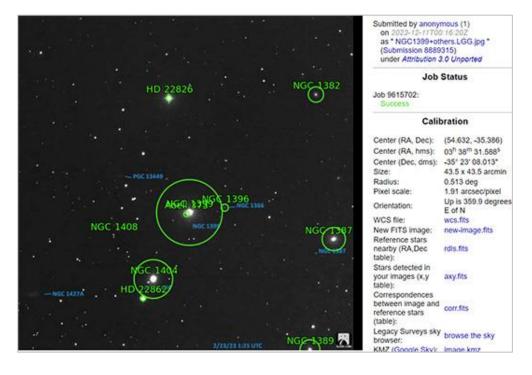
NGC 1129 (a) is the brightest galaxy in this string of 4 (a-c, f) in Perseus with many others scattered about in the field. (I ran out of room to label them - I see at least three others in the bottom right quadrant, and other small ones at the top.)



#### #10 The Fornax Cluster

2023-02-23 01:25Z SLOOH Chile Two

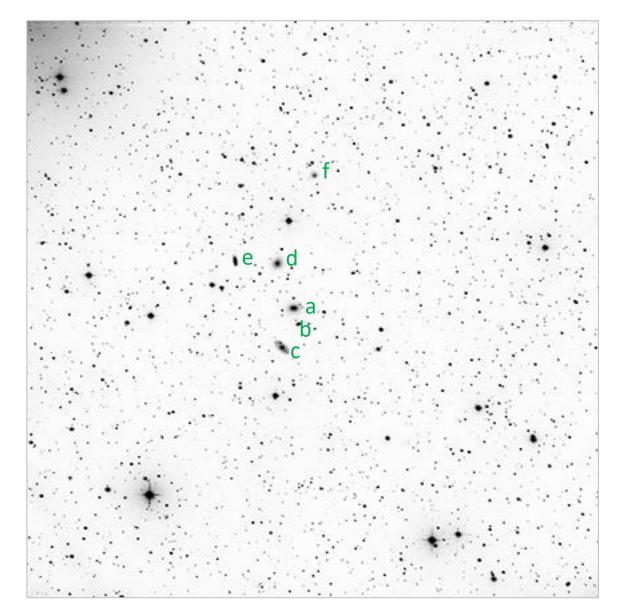


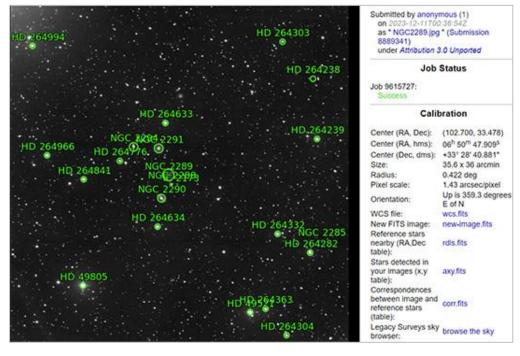


I took this image of the Fornax cluster for the Local Galaxy Groups program. The Fornax Cluster is one of the closest galaxy clusters to our solar system, at "only" 62 Mly away. This image captures only part of it, as it takes up approximately 6 degrees of our sky, across not only Fornax but part of Eridanus.

#### #11 NGC 2289 et al in Gemini

2023-12-03 23:25Z SLOOH Canary One





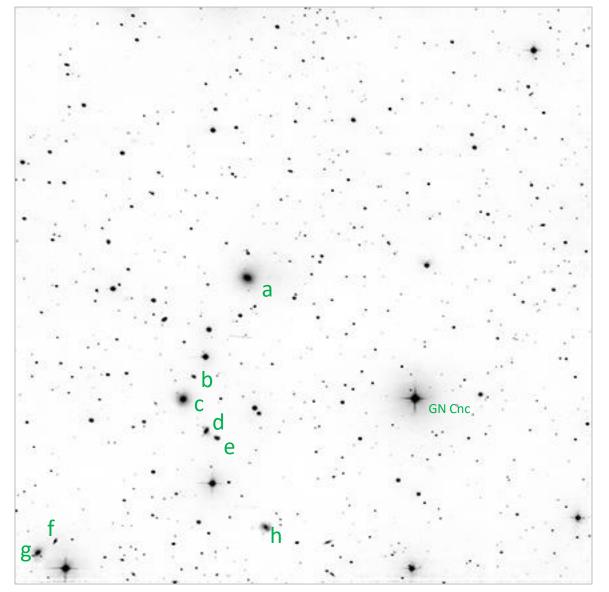
- a) NGC 2289, mag 13.3
- b) NGC 2288, mag 15.3
- c) NGC 2290, mag 13.6
- d) NGC 2291, mag 13.3
- e) NGC 2294, mag 14.9
- f) PGC 19706, mag 16.5

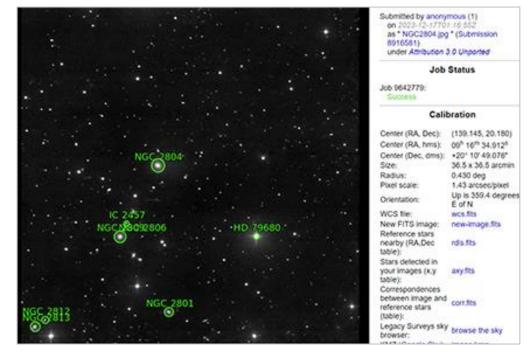
NGC 2288-2291 (a-d) form a slight curving line, blending in with a field containing 10-12 scattered stars of similar magnitude. A fifth galaxy, NGC 2294 (e) sits just east (left) of the uppermost galaxy (d) in this string; a sixth, PGC 19706 (f), lies north of center. The glow from bright Theta Gem (mag 3.6), lying just off-frame in the NE, is evident at the upper left.

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#### #13 NGC 2804 et al in Cancer

2023-12-12 5:00Z SLOOH Canary One





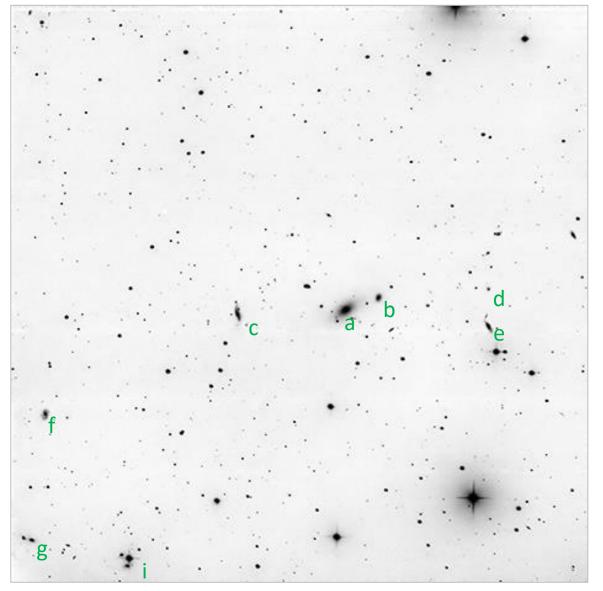
- a) NGC 2804, mag 12.8
- b) IC 2457, mag 16.2
- c) NGC 2809, mag 14.0
- d) NGC 2807, mag 15.1
- e) NGC 2807A, mag 15.6
- f) NGC 2812, mag 15.9
- g) NGC 2813, mag 15.1
- h) NGC 2801, mag 15.3

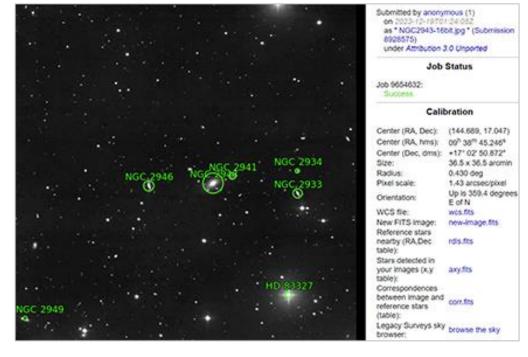
NGC 2804 (a) sits at the top of this ribbon of 10-12 galaxies, 8 of which are labeled here (a-h). NGC 2804 makes a nice visual triangle with the 2<sup>nd</sup> brightest galaxy, NGC 2809 (c), and variable star GN Cancri.

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#### #14 NGC 2943 et al in Leo

2023-12-18 3:50Z SLOOH Canary One



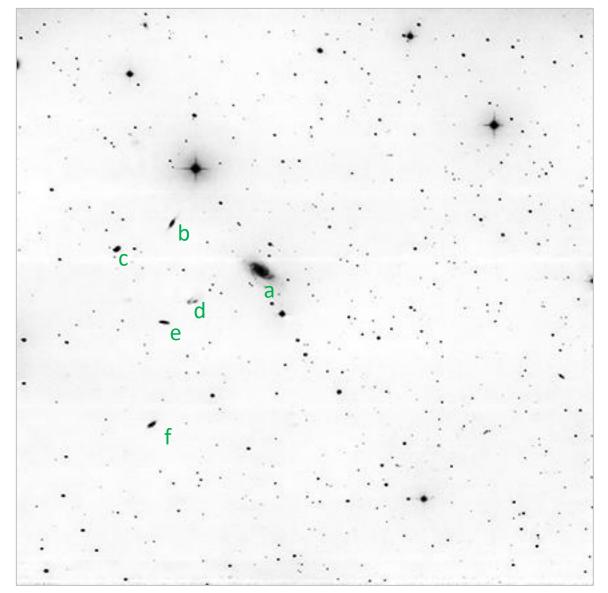


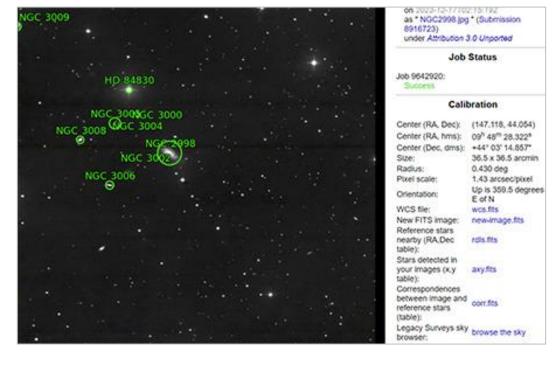
- ) NGC 2943, mag 13.4
- b) NGC 2941, mag 15.1
- c) NGC 2946, mag 14.8
- d) NGC 2934, mag 17.1
- e) NGC 2933, mag 15.0
- f) PGC 27573, mag 15.4
- g) NGC 2949, mag 14.4
- h) PGC 27550, mag 16.8

NGC 2943 is an elliptical galaxy 400Mly away in Leo. It and four neighboring galaxies are lined up, East to West, across the field. A handful of other smaller galaxies are visible, along with two bright mag 8 stars, one of them just off the field's North edge; the other, HD 83327, shines brightly to the SW (bottom right).

#### #15 NGC 2998 et al in Ursa Major

2023-12-12 5:20Z SLOOH Canary One



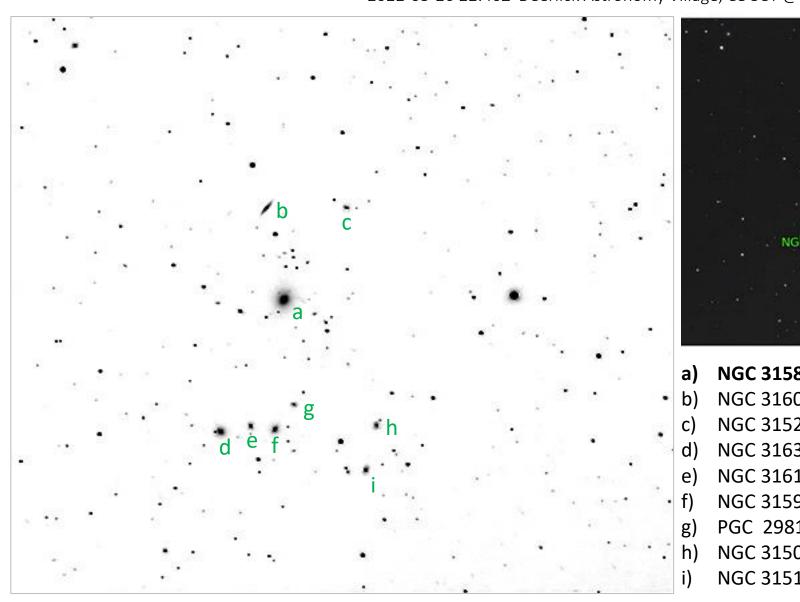


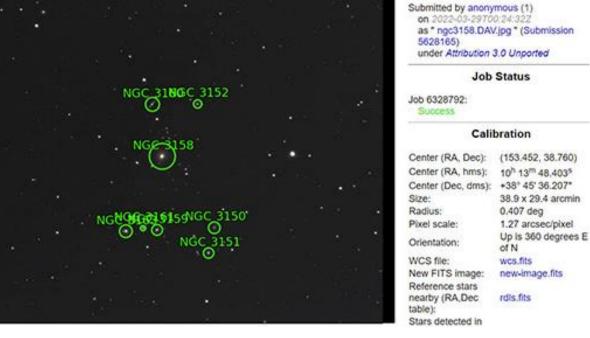
- a) NGC 2998, mag 12.4
- b) NGC 3005, mag 14.9
- c) NGC 3008, mag 15.2
- d) NGC 28208, mag 17.2
- e) NGC 3006, mag 15.76
- f) PGC 28239, mag 15.3

NGC 2998 (a) is much larger and easier to find in the field than the other tiny galaxies in this cluster. A bright mag 9 star in the NE (upper left) makes a nice pairing with it. A smaller but equally wide pair of stars in the NW echoes the first pair, the four together forming a long rectangle. To the left, 4 of the tiny galaxies (b-d) form a small compressed box.

#### #16 NGC 3158 et al in Leo Minor

2022-03-26 22:40Z Deerlick Astronomy Village, C8 SCT @f/7, DS10cTEC



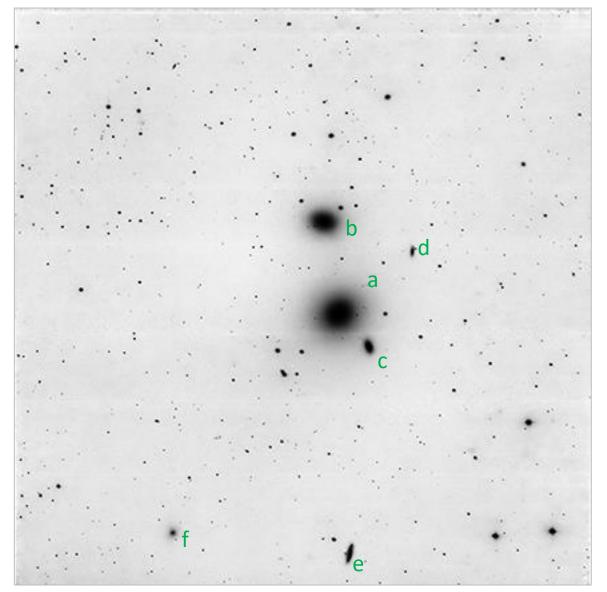


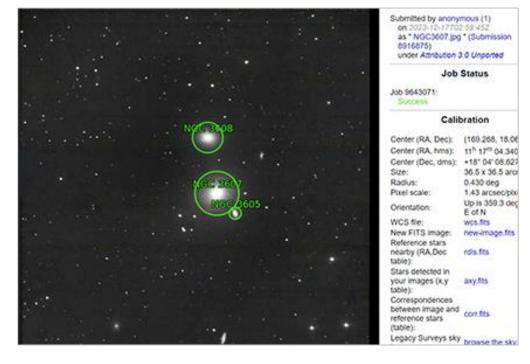
- **NGC 3158**, mag 11.9
- NGC 3160, mag 15.0
- NGC 3152, mag 15.2
- NGC 3163, mag 13.3
- NGC 3161, mag 14.5
- NGC 3159, mag 13.6
- PGC 29818, mag 15.6
- NGC 3150, mag 15.5
- NGC 3151, mag 14.8

This is small but bright galaxy with a round core and faint haze in a fun field filled with several other small galaxies. NGC 3158 sits in a large V-shaped elliptical string of a half dozen stars and galaxies. A little "lambda" of smaller stars sneaks into the lineup. I see 8 other smal galaxies (maybe more) in the field.

#### #17 NGC 3607 et al in Leo

2022-12-12 05:30Z SLOOH Canary One





- a) NGC 3607, mag 10.0
- b) NGC 3608, mag 10.6
- c) NGC 3605, mag 12.3
- d) NGC 3163, mag 15.4
- e) UGC 6296, mag 14.2
- f) PGC 34493, mag 15.5

These are bright ones! NGC 3607 (a) is a mag 10 elliptical in Leo, and occupies ~4.6′ x 4.0′ in this field.

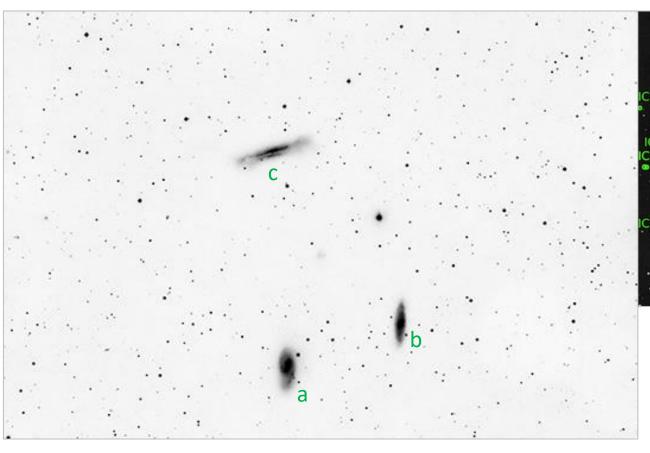
Above it is bright companion NGC 3608 (b), only slightly smaller at 3.2′ x 2.7′ in apparent size. Both are 74 Mly

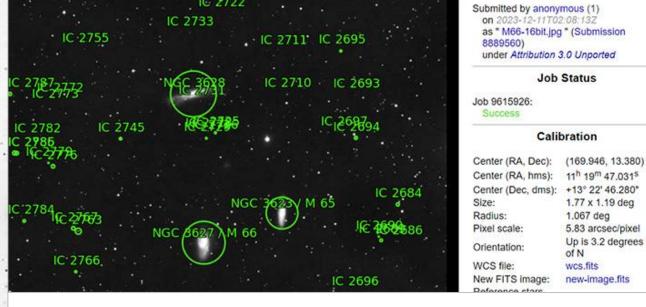
away, so they are literally neighbors!



### #18 M66 (NGC 3627) et al in Leo

2023-03-22 21:55Z SLOOH Canary Two





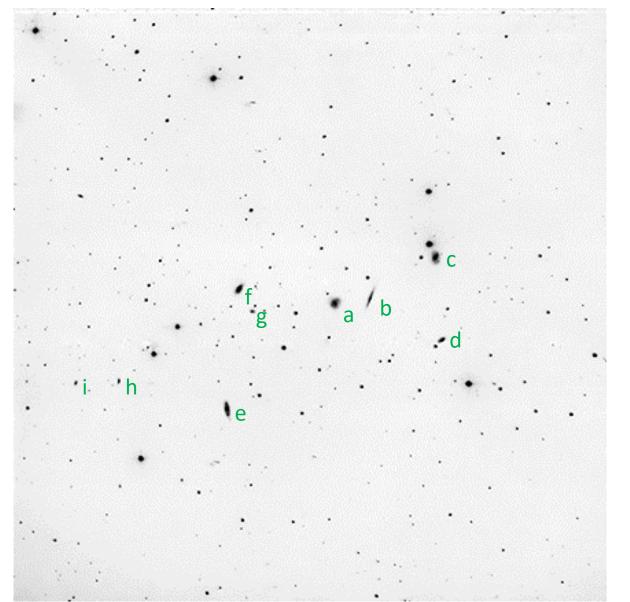
- a) NGC 3627/M66, mag 13.3
- b) NGC 3623/M65, mag 15.3
- c) NGC 3628, mag 13.6
- d) Plus 25 other IC galaxies! (see above)

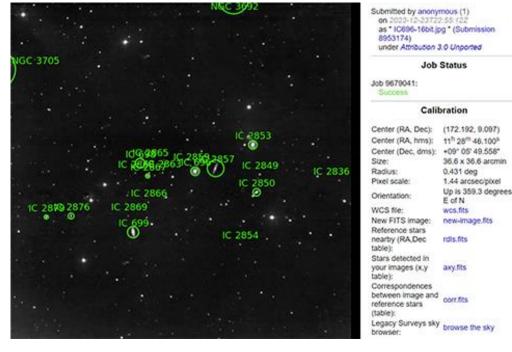
I \*thought\* I was very familiar with the Leo Triplet, but I never realized that this famous threesome was surrounded by 25 or more galaxies within 2°. Amazing!

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#### #19 IC 696 et al in Leo

2023-12-19 06:00Z SLOOH Canary One





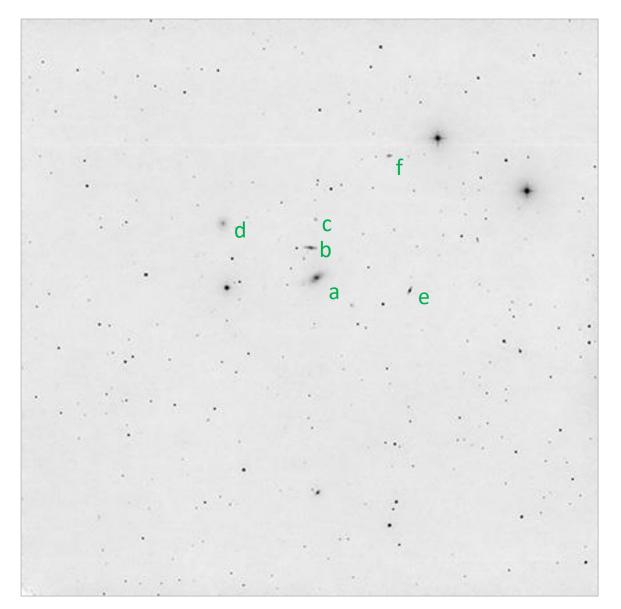
- **a) IC 696**, mag 14.5
- b) NGC 2857, mag 15.3
- c) NGC 2853, mag 14.5
- d) IC 2850, mag 15.0
- e) IC 699, mag 14.5
- f) IC 698, mag 14.4
- g) IC 2867, mag 15.9
- h) IC 2876, mag 16.7
- i) IC 2879, mag 16.8

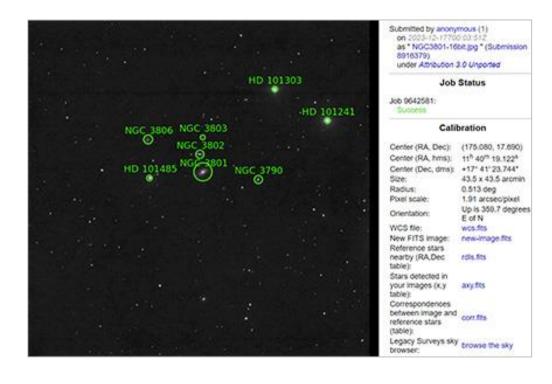
Another nice field scattered with galaxies. Not all IC objects labeled in the plate solve above are confirmed galaxies. According to Sky Safari Pro and theskylive.com, IC 2849, 2836, 2854, 2869, and 2866 are multiple stars; they are not catalogued in Simbad.



#### #21 NGC 3801 et al in Leo

2023-02-22 04:30Z SLOOH Chile Two



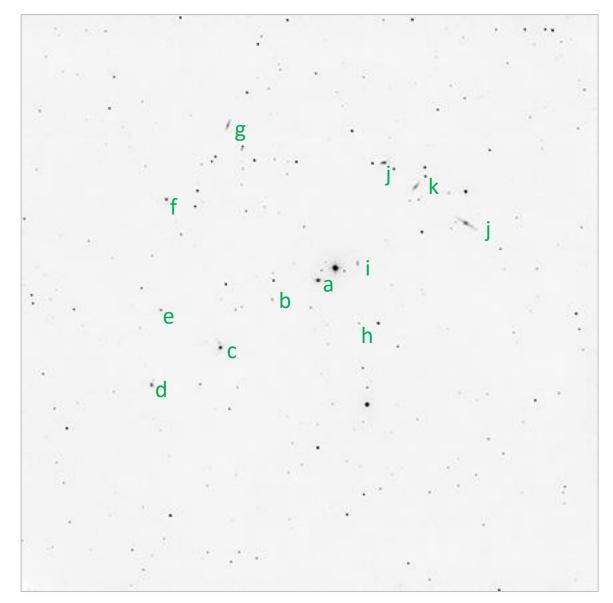


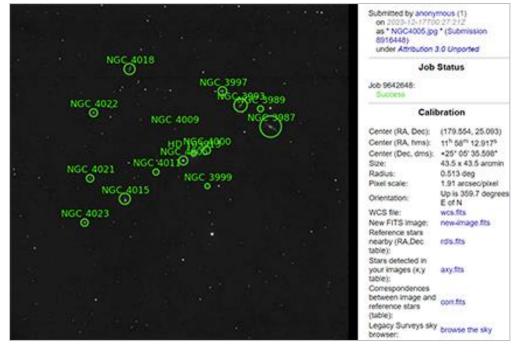
- a) NGC 3801, mag 12.2
- b) NGC 3802, mag 13.5
- c) NGC 3803, mag 16.4
- d) NGC 3806, mag 13.5
- e) NGC 3790, mag 14.4
- f) PGC 36178, mag 15.7

Here we find six small galaxies that I have labeled plus a couple of others detectable as very dim fuzzy dots. Two bright HD stars pair up in the NW corner to set off the field nicely.

#### #22 NGC 4005 et al in Leo/Coma Berenices

2023-02-22 04:35Z SLOOH Chile Two





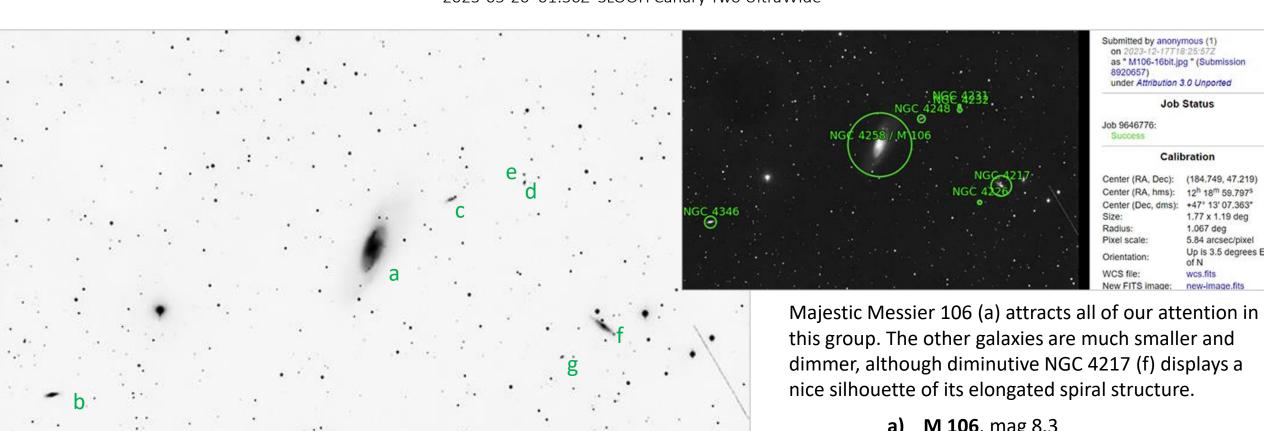
- a) NGC 4005, mag 13.1
- b) NGC 4011, mag 15.7
- c) NGC 4015, mag 14.2 + PGC 37703, mag 14.2
- d) NGC 4023, mag 14.6
- e) NGC 4021, mag 15.5
- f) NGC 4022, mag 14.0
- g) NGC 4018, mag 14.7
- h) NGC 3999, mag 15.7

There are more galaxies here than first meet the eye! All are small and fairly dim. Two (k,j) are distinct (but tiny!) edge-on spirals.

- i) NGC 4000, mag 15.5
- j) NGC 3987, mag 12.8
- k) NGC 3993, mag 14.5
- l) NGC 3997, mag 13.5

#### #24 M 106 et al in Coma Berenices

2023-05-20 01:30Z SLOOH Canary Two UltraWide



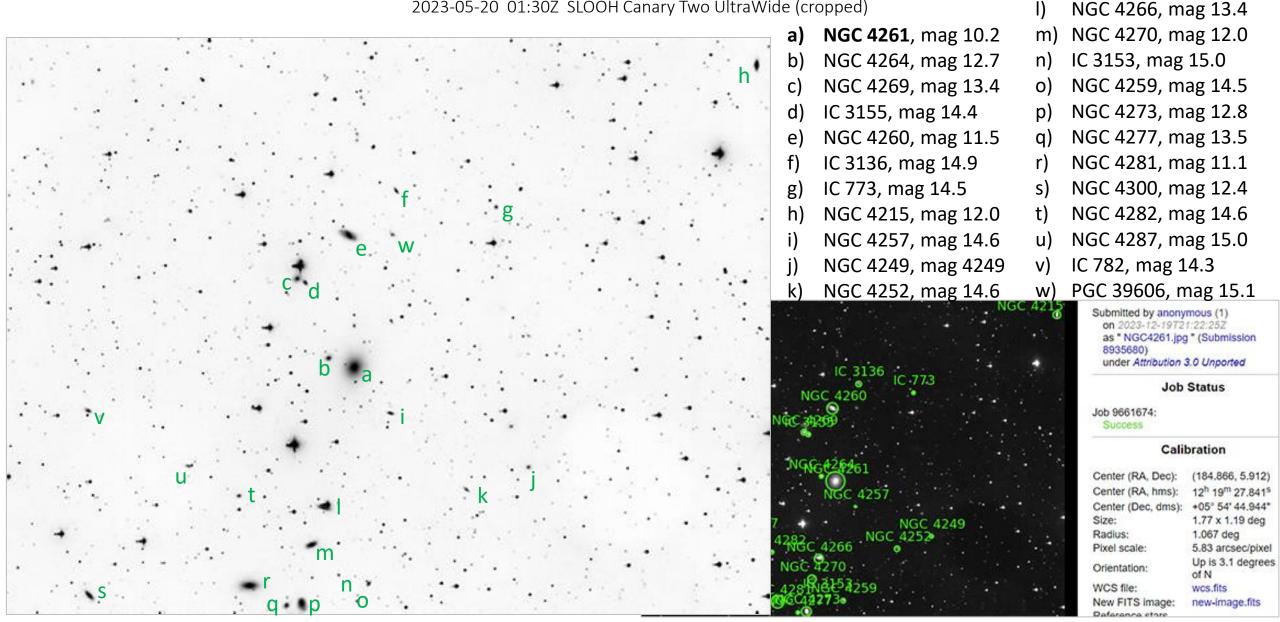
- **M 106**, mag 8.3
- NGC 4346, mag 12.1
- NGC 4248, mag 13.2
- NGC 4232, mag 14.5
- NGC 4231, mag 14.6
- NGC 4217, mag 11.1
- NGC 4226, mag 14.3

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### #25 NGC 4261 et al in Virgo

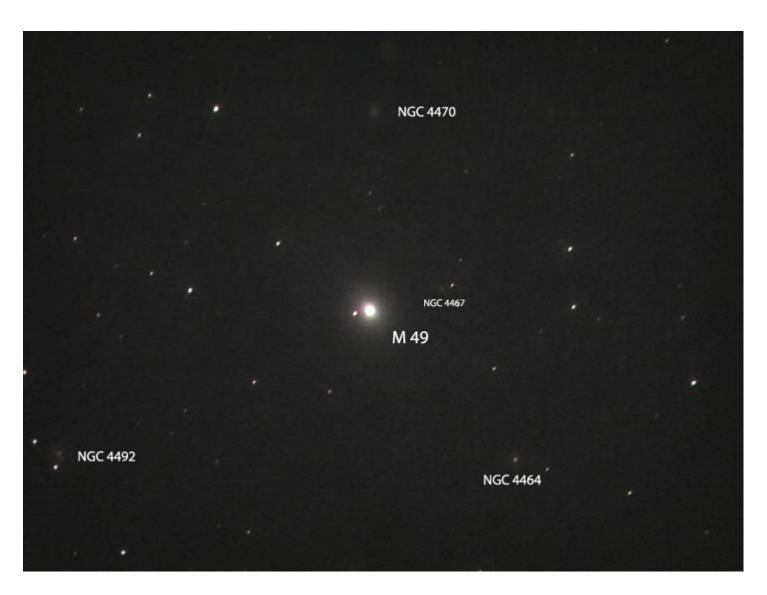
There are 23 galaxies labeled in this image! The largest, NGC 4261 (a) centers this tumbling streamer of galaxies. Very nice!

2023-05-20 01:30Z SLOOH Canary Two UltraWide (cropped)



#### #28 M 49 et al in Virgo

2020-06-14 01:57 EDT Sharon, GA 102mm refractor + Mallincam DS287c



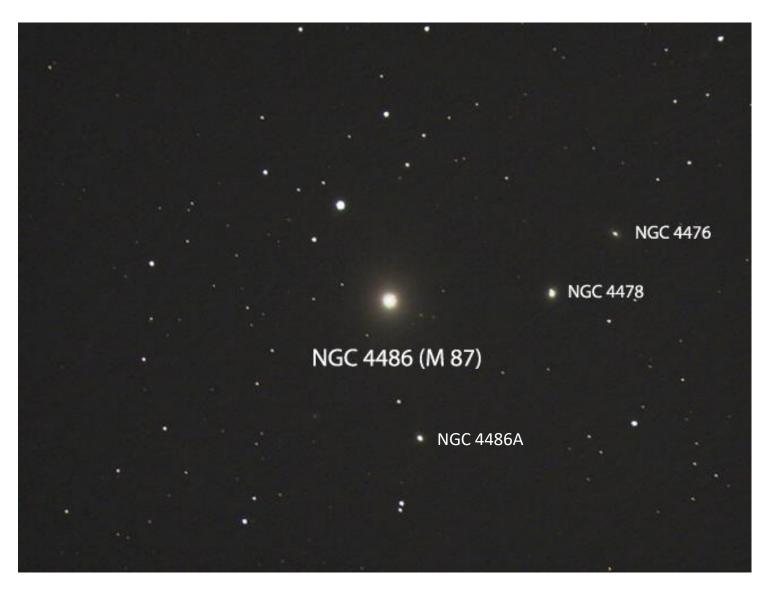
#### Image Details:

South is up, East is left (Up is 170° E of N) 39.2 x 29.4 arcmin; pixel scale 3.27 arcsec/pixel 2020-06-14 01:57:29 EDT, Sharon GA Mallincam DS287c, 10x5s exposures average-stacked, screenshot at 100 frames output; 102mm refractor @ f/3.5, no filter

Bright elliptical Messier 49 has a pronounced surrounding haze, with a bright star on its E side. Several fragments are reported around this galaxy. Labeled in this image is one of the tiny fragments, NGC 4467. Other small galaxies, NGC 4470, 4464, and 4492, are seen within ½°. In this image South is up. M49 is also part of Arp 134.

#### #29 M 87 et al in Virgo (Arp 152)

2020-06-20 23:25 EDT Sharon, GA 102mm refractor + Mallincam DS287c



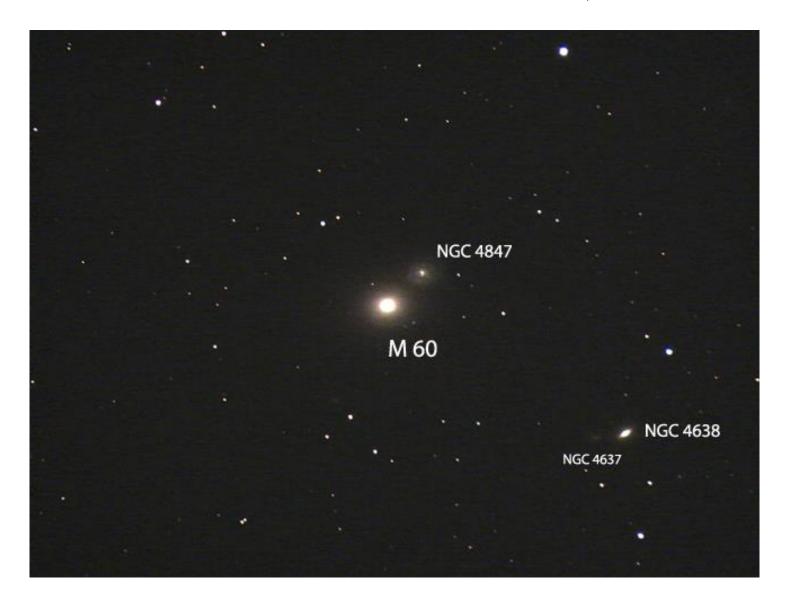
#### Image Details:

North is up, East is left (Up is 28.2° E of N) 39.2 x 29.3 arcmin; pixel scale 3.26 arcsec/pixel 6/20/2020 23:25 EDT, Sharon GA Mallincam DS287c, screenshot taken at 5 minutes of live-stacking 10x5s exposures @ gain 20 102mm refractor @ f/3.5

M49 is a well known as the Virgo A radio source. It is a very bright elliptical galaxy with a jet coming out of the core to the NW @ PA 300° (2 o'clock). Super-sizing this image actually does show a slight bulging blip at that position (click <a href="here">here</a> to view). Maybe that's it?

#### #30 M 60 et al in Virgo

2020-06-21 00:31 EDT Sharon, GA 102mm refractor + Mallincam DS287c



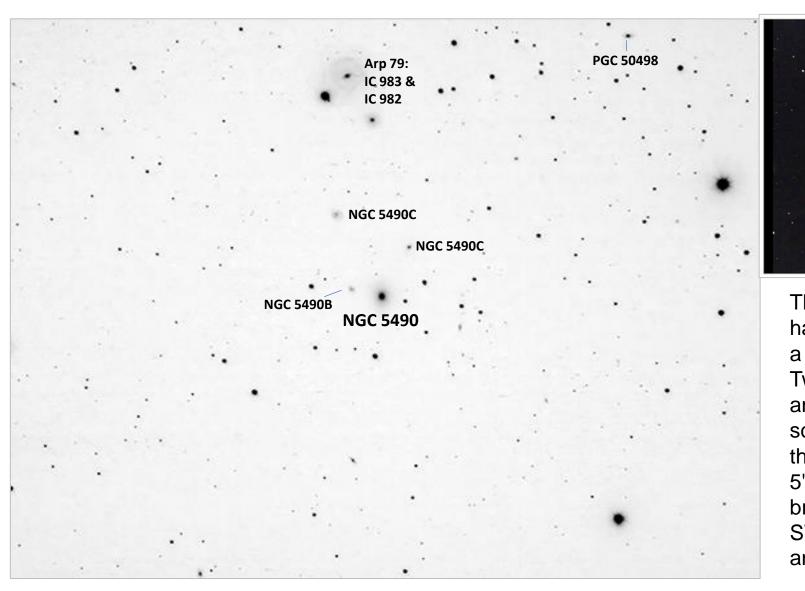
#### Image Details:

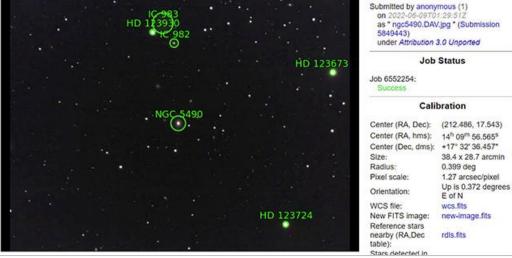
North is up, East is left (Up is 359° E of N) 39.2 x 29.3 arcmin; pixel scale 3.26 arcsec/pixel 6/21/2020 0:31 EDT, Sharon GA Mallincam DS287c, screenshot taken at 5 minutes of live-stacking 10x5s exposures @ gain 22 102mm refractor @ f/3.5

Big elliptical M60 is interacting with little passing spiral NGC 4847. Another elliptical/spiral pair is also having a dust-up to the SW: elongated elliptical 4638 and dim spiral 4637.

#### #36 NGC 5490 et al in Bootes

2022-05-29 23:53 EDT Sharon, GA C8 SCT @f/7 + Mallincam DS10cTEC

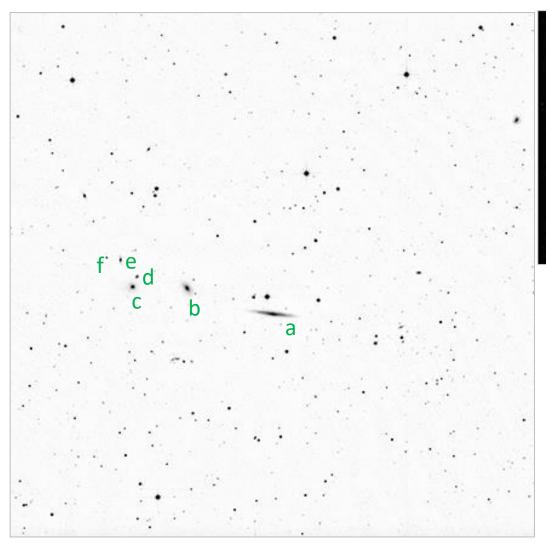


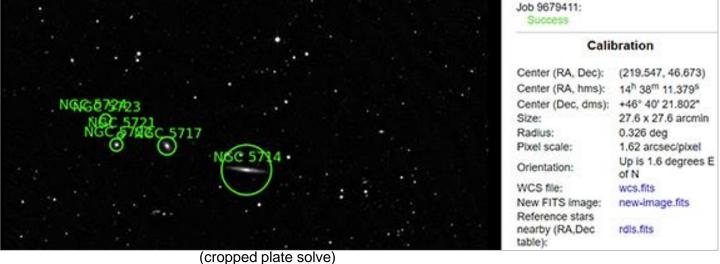


This galaxy is small, round and bright with a thin hazy envelope surrounding it. It sits adjacent to a trapezoid of four modestly bright field stars. Two other IC galaxies are directly to the north, and at least 4 other dimmer galaxies are scattered around the field. Most notable of these is Arp 79, a pair of fuzzy splotches about 5' NE (up & left) of NGC 5490. The two brightest stars in the field sit off the far W and SW edges of the frame, HD 123673 (mag 7.7) and HD 123724 (mag 8.4).

#### #37 NGC 5714 et al in Bootes

2018-05-16 8:23 UTC Sierra Stars: Sonoita, AZ, 0.51m f/6.8 Planewave CDK20, Andor IKON L 936 camera

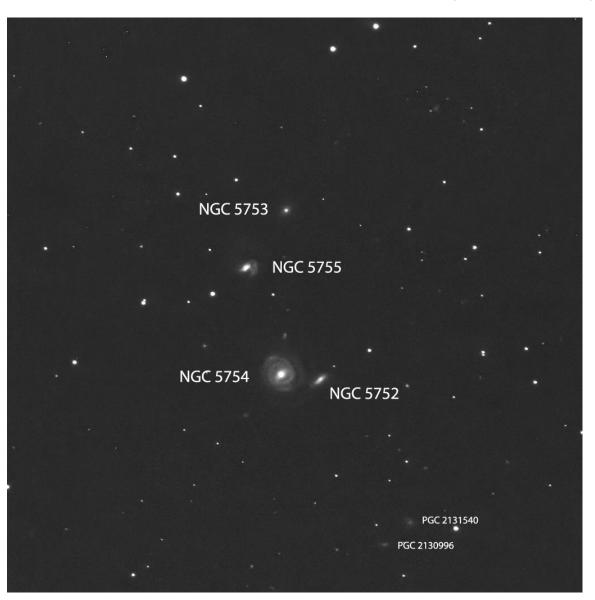




This galaxy group features the beautiful needle-like edge-on spiral, NGC 5714 (a). Smaller galaxies NGC 5717 (b), NGC 5722 (c), NGC 5721 (d), NGC 5723 (e), and tiny NGC 5724 (f) appear to be trailing it in a gentle sweep to the east.

#### #38 NGC 5754 et al in Bootes

2020-07-23 23:37 UTC Telescope Live: Almeria, Spain 0.7m f/8 Officina Stellare ProRC700 FLI PL16803



#### Image Details:

North is up, East is left (Up is 0.181° E of N) 15.7 x 15.7 arcmin; pixel scale 0.921 arcsec/pixel 2020-07-23 23:37:03 UTC, Almeria, Spain FLI PL16803, 1x60s exposure, bin2 SPA-2: 700mm reflector @ f/8

There are two pairs of galaxies here. The first pair is the true pair for Arp 297. NGC 5754+5752 are moving through space together, having the same redshift ( $\sim$ z=0.015).

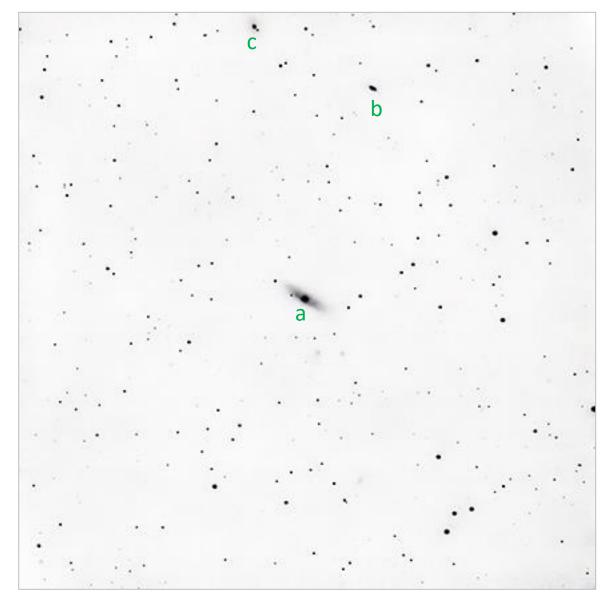
The other two, NGC 5755 and NGC 5753, are no longer considered part of Arp 297 (due to what is now considered to be a typo in Arp's catalog, where he listed 5755 instead of 5722). This pair is also an interacting duo but at a different distance and redshift (z=0.032).

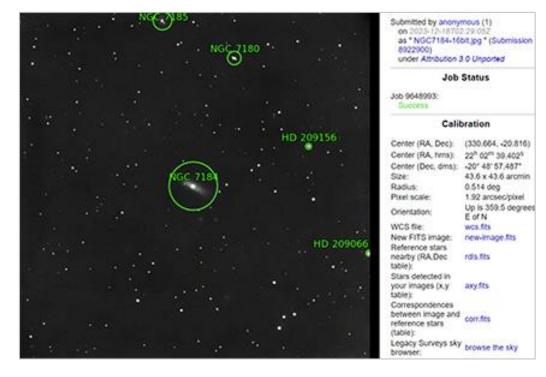
North of the first pair, NGC 5755 has a thick knotty flap that emerges from the NW tip of its core and sharply hooks to the S. This galaxy itself appears to be a merger of two galaxies. Also detectable is a diffuse wide northern arm making a huge sweep clockwise above the brighter portion in the general direction of smaller NGC 5753.



#### #46 NGC 7184 et al in Aquarius

2023-10-12 05:25Z SLOOH Chile Two



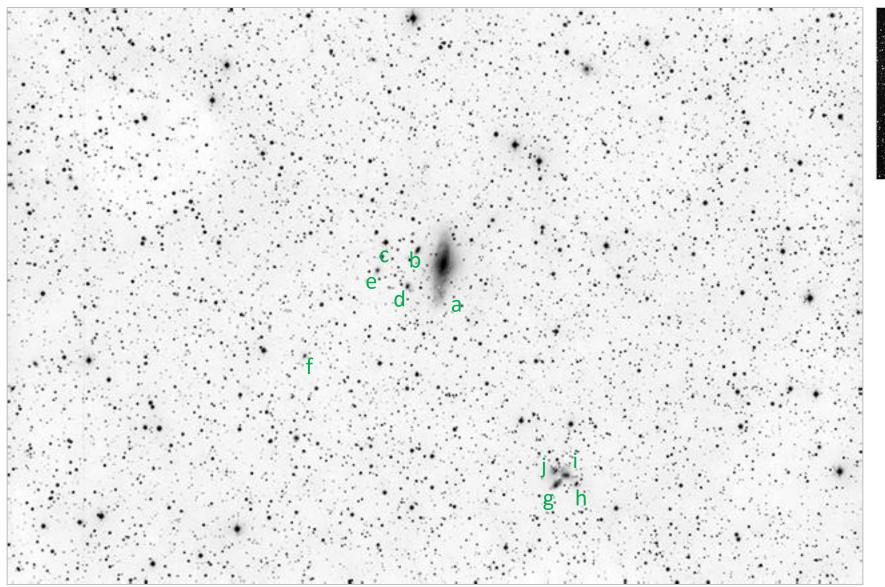


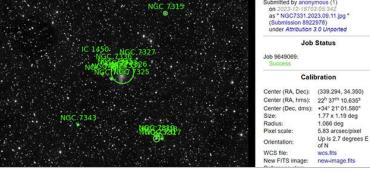
- a) NGC 7184, mag 10.8
- b) NGC 7180, mag 12.6
- c) NGC 7185, mag 12.5

A spiral with an extremely bright core, NGC 7184 (a), appears from our perspective to sit at a 45° angle with its hazy disk tilted away from us. Two other smaller galaxies (b, c) can be detected at the northern edge of the field.

### #47 NGC 7331 et al, the "Deerlick Group", in Pegasus

2023-9-11 01:45Z SLOOH Canary Two UltraWide



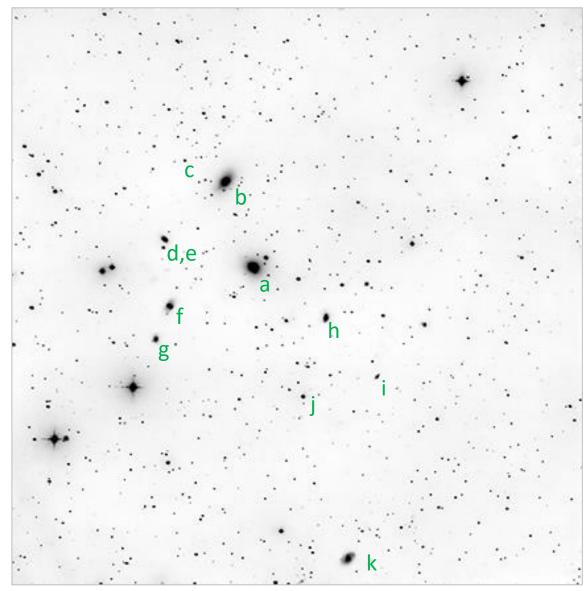


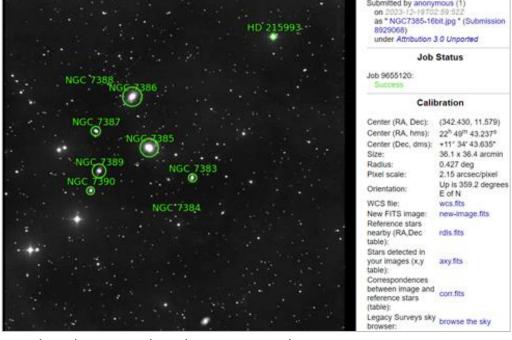
Sooooo many galaxies here!! Giant NGC 7331 (a) is surrounded by a swarm of tiny galaxies, with an especially striking group of four, clustered a good ways down to the SW (bottom right of center.)

- a) NGC 7331, mag 9.2
- b) NGC 7335, mag 14.4
- c) NGC 7336, mag 16.8
- d) NGC 7337, mag 15.2
- e) NGC 7340, mag 14.7
- f) PGC 69387, mag 14.7
- g) NGC 7320, mag 12.6
- h) NGC 7317, mag 13.6
- i) NGC 7318A/B, mag 12.9/13.3
- ) NGC 7320, mag 12.6

### #48 NGC 7385 et al in Pegasus

2023-10-19 00:10Z SLOOH Canary One





And we have another dozen or so galaxies here!! The brightest are labeled. NGC 7385 (a) is an elliptical, but for the rest, when classified, are spirals according to Sky Safari Pro.

- a) NGC 7385, mag 12.0
  - f) NGC 7389, mag 14.9
- b) NGC 7386, mag 12.3
- g) NGC 7390, mag 15.4
- c) NGC 7388, mag
- h) NGC 7383, mag 14.0
- d) NGC 7387, mag 15.0
- i) PGC 69788?, mag 15.9
- e) PGC 69835, mag 16.8
- ) NGC 7384, mag unknown
- k) UGC 12202, mag 14.9