

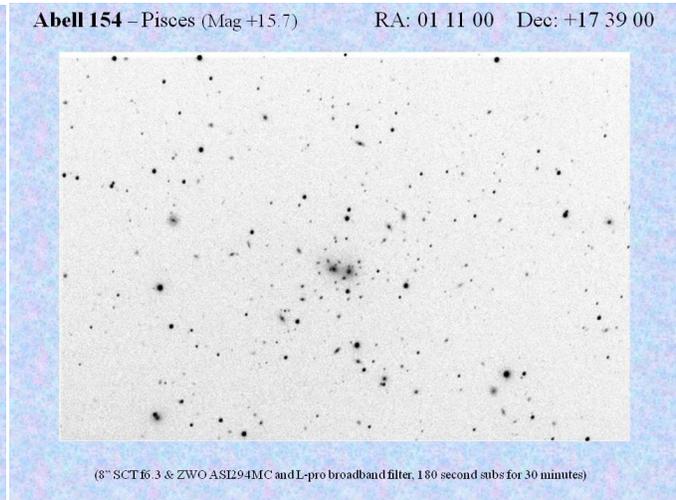
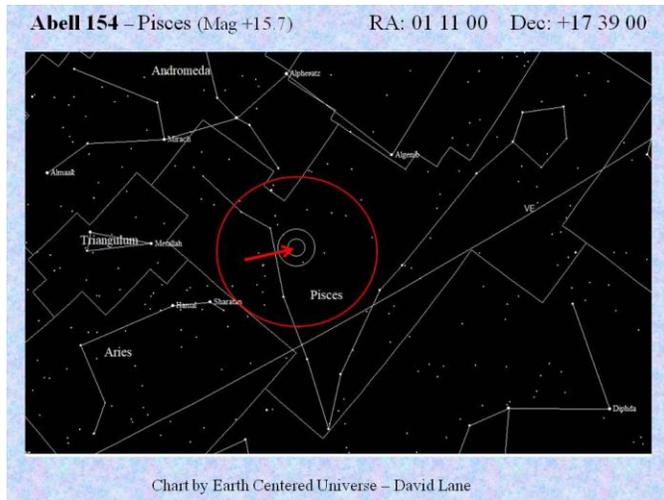
## Galaxy Clusters: (Chart Addendum)

### Abell Galaxy Clusters:

**Abell 154 - Pisces** (image scale = 24' x 16' arc minutes)

(cluster mag +15.7 – mag of the 10<sup>th</sup> brightest galaxy in the cluster), #members=35, Abell class richness / distance: '0/3'. Located about 815 million light-years distant.

Core Cluster Members: IC1634 (brightest member +15.6 - elliptical), IC1635, PGC4253, PGC4193, PGC4209, PGC73760, PGC73748, PGC73743, PGC73761, PGC73764, PGC73766, PGC1535574, PGC1539023, MAC0110+1745A, MAC0110+1745B, MAC0110+1736, MAC0111+1738B, MAC0111+1741B

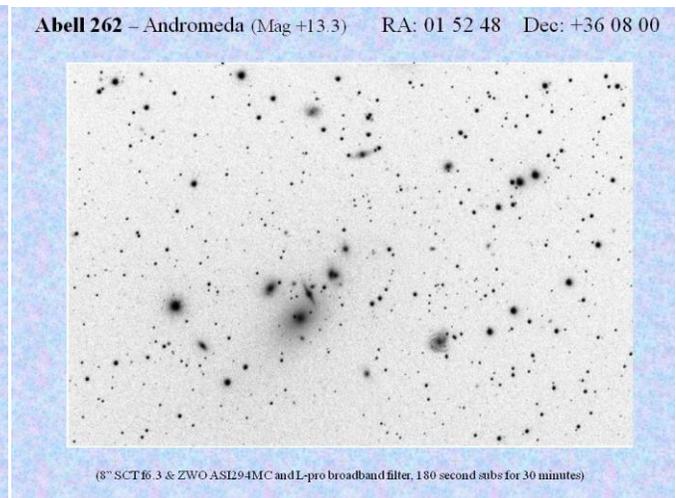
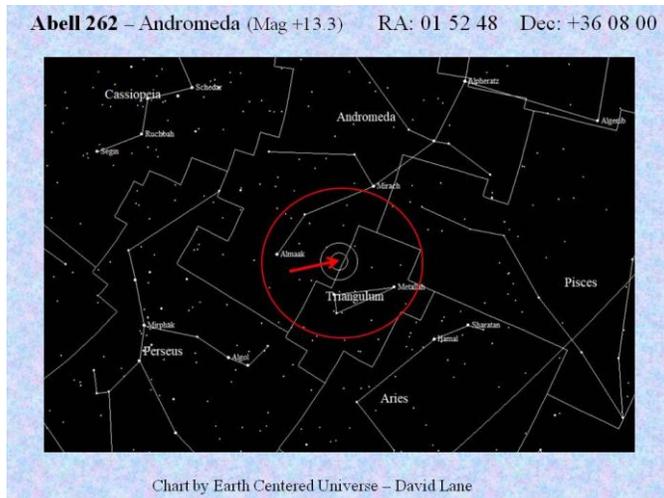


**Abell 262 - Andromeda** (image scale = 24' x 16' arc minutes) (near open cluster NGC752)

(cluster mag +13.3 – 10<sup>th</sup> brightest galaxy in cluster), #members=40, Abell class richness / distance: '0/1'.

Located about 224 million light-years distant, most of its members are spirals, which is unusual for Abell galaxy clusters.

Core Cluster Members: NGC708 (brightest member +12.7 - elliptical), NGC700, NGC703, NGC704, NGC705, NGC709, NGC710, PGC6974, UGC1319, CGCG522-30, MCG+6-5-24

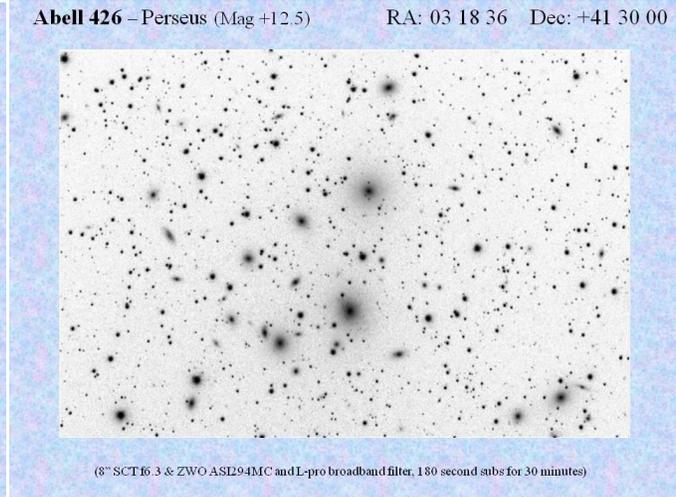
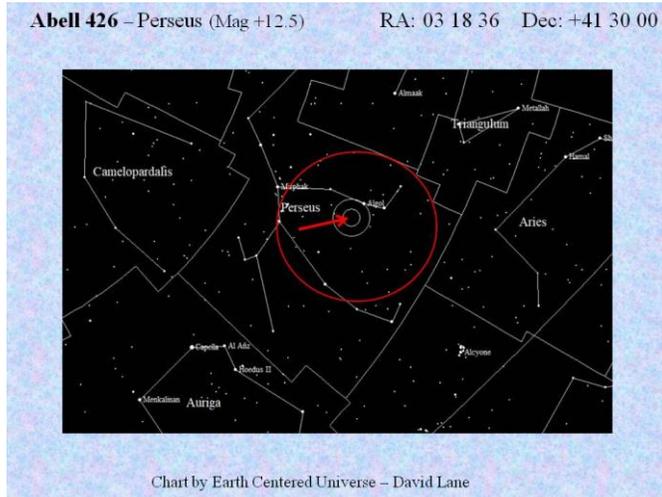


**Abell 426 – Perseus** known as the “Perseus Galaxy Cluster” (image scale = 9' x 9' arc minutes) (near open cluster M34) (cluster mag +12.5 – 10<sup>th</sup> brightest galaxy in cluster), #members=88, Abell class richness / distance: '2/0'.

Located about 230 million light-years distant, the closest of the nearby rich Abell galaxy clusters.

Core Cluster Members: NGC1275 (brightest member +11.9 – lenticular, X-ray & radio source 3C84 known as Perseus A, which is a Seyfert galaxy with a quasar like core containing a supermassive blackhole),

NGC1270, NGC1271, NGC1272, NGC1273, NGC1277, NGC1278, NGC1281, NGC1282, NGC1283, IC1907

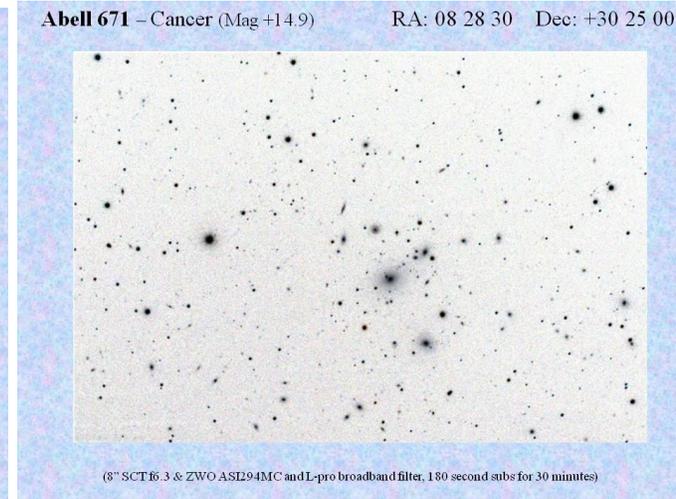
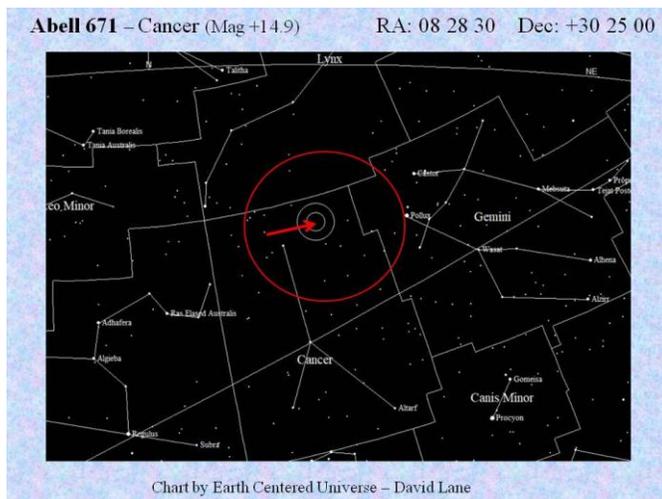


**Abell 671 - Cancer** (image scale = 24' x 16' arc minutes)

(cluster mag +14.9 – 10<sup>th</sup> brightest galaxy in cluster), #members=38, Abell class richness / distance: '0/3'.

Located about 600 million light-years distant.

Core Cluster Members: IC2380 (brightest member +11.1 - lenticular), IC2378, MAC0828+3024A, MAC0828+3024B, MAC0828+3026, CGCG149-35, CGCG149-27, CGCG149-28

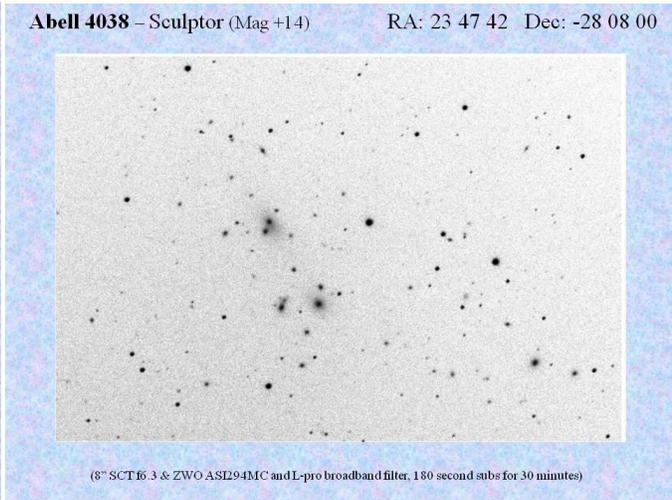
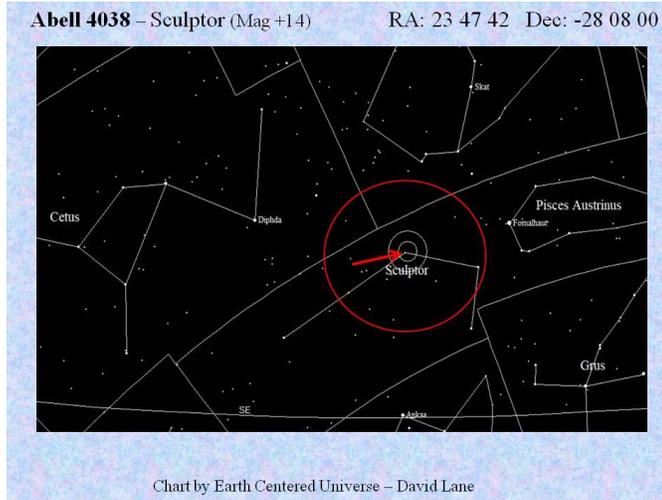


**Abell 4038 - Sculptor** (image scale = 24' x 16' arc minutes)

(cluster mag +14.7 – 10<sup>th</sup> brightest galaxy in cluster), #members=117, Abell class richness / distance: '2/2'.

Located about 430 million light-years distant.

Core Cluster Members: IC5358 (brightest member +13.4 - elliptical), IC5353, IC5354, PGC85756, PGC85759, PGC72451, PGC72436, PGC72393, PGC85750, PGC85758, PGC72403, PGC747116

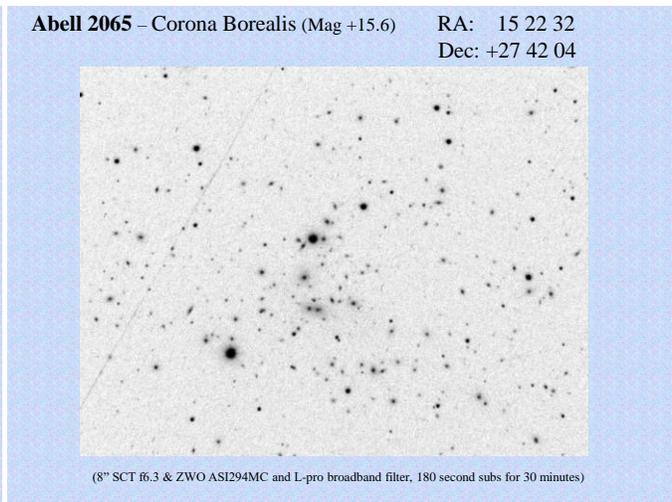
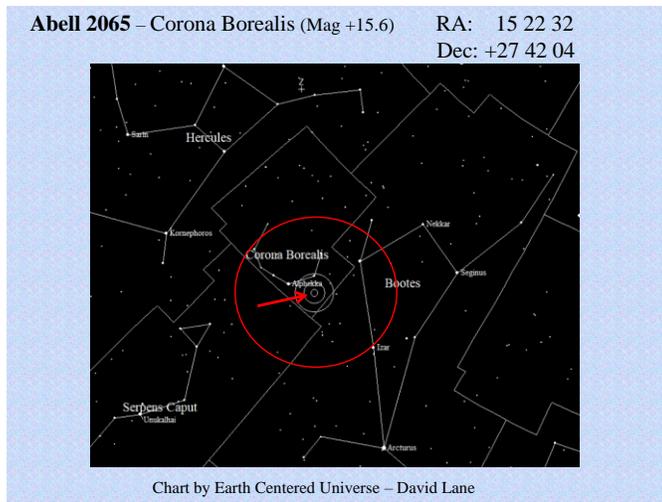


**Abell 2065 – Corona Borealis** (image scale = 24' x 16' arc minutes)

“Corona Borealis Cluster” – part of the “Corona Borealis SuperCluster”,

(cluster mag +15.6 – 10<sup>th</sup> brightest galaxy in cluster), #members=400, Abell class richness / distance: '2/2'. Located about 964 million light-years distant.

Core Cluster Members: PGC54876 +15.5 (Top 6 brightest members +15.5 to +16), many PGC's.

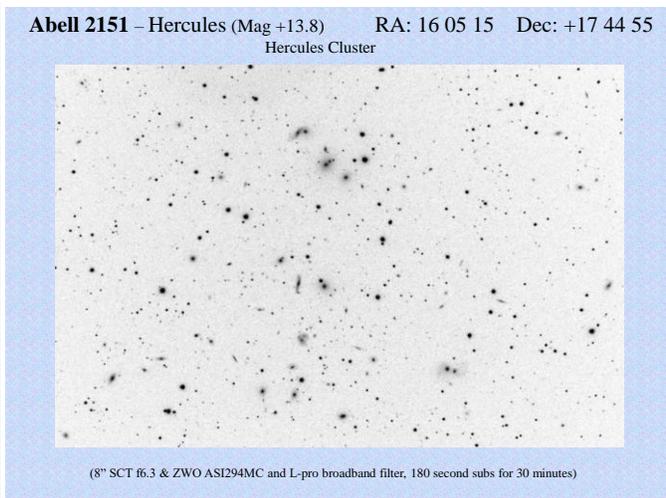
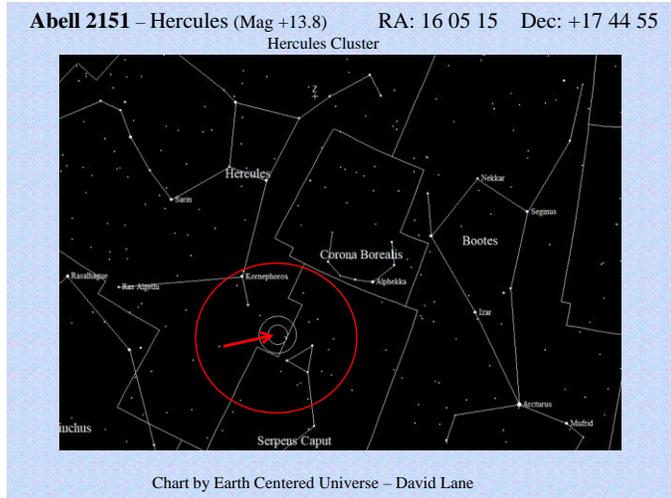


**Abell 2151 - Hercules** (image scale = 24' x 16' arc minutes)

“Hercules Cluster” – part of the “Hercules SuperCluster”, and the “Great Wall” filament.

(cluster mag +13.8 – 10<sup>th</sup> brightest galaxy in cluster), #members=300, Abell class richness / distance: ‘2/1’. Located about 700 million light-years distant.

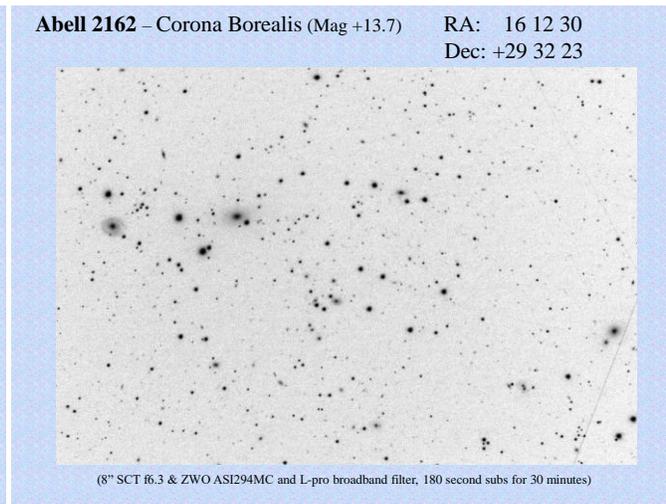
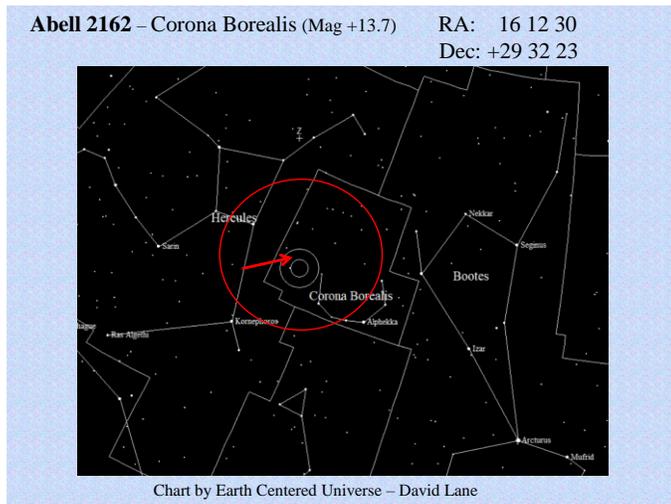
Core Cluster Members: NGC6041 (brightest member +13.3 - elliptical), NGC6041, NGC6043, NGC6045, NGC6047, NGC6050, IC1182, IC1178, IC1181, and other NGC, IC, and MAC galaxies.



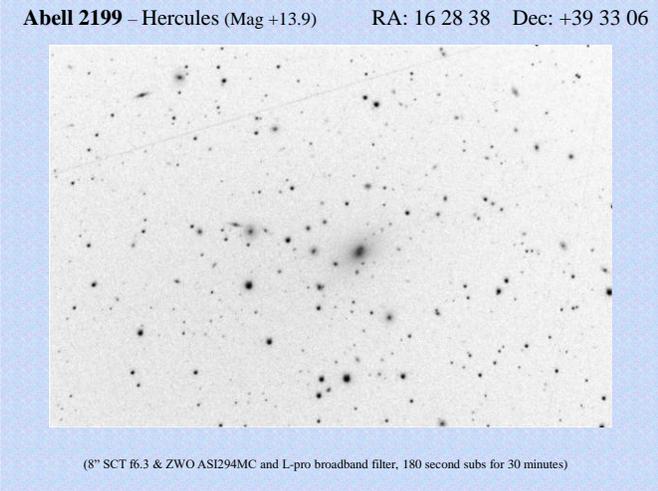
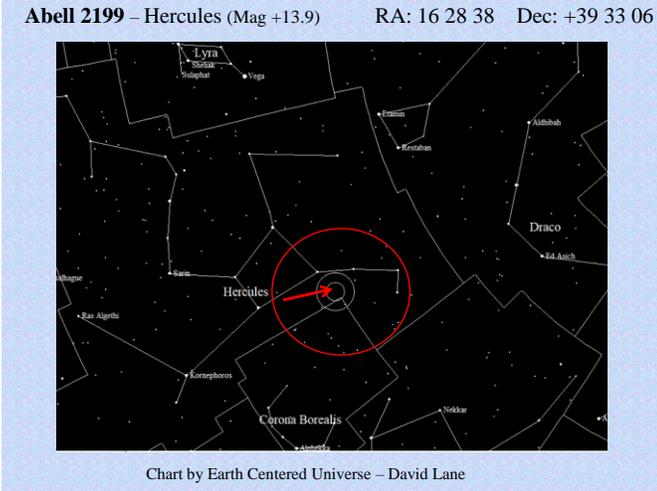
**Abell 2162 – Corona Borealis** (image scale = 24' x 16' arc minutes) part of Herc Supcluster.

(cluster mag +13.7 – 10<sup>th</sup> brightest galaxy in cluster), #members=37, Abell class richness / distance: ‘0/1’. Located about 463 million light-years distant.

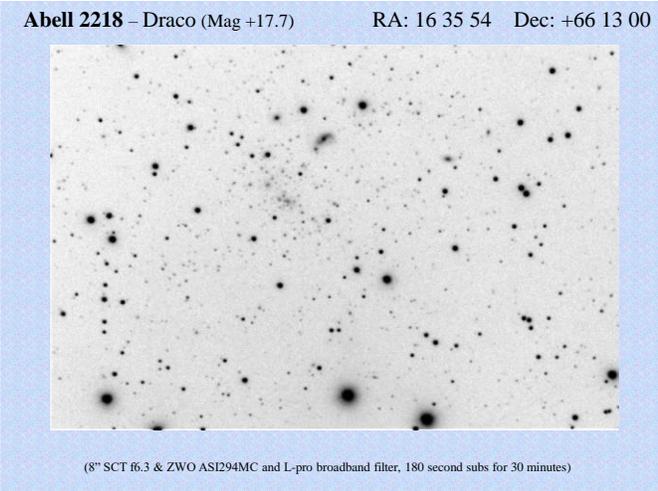
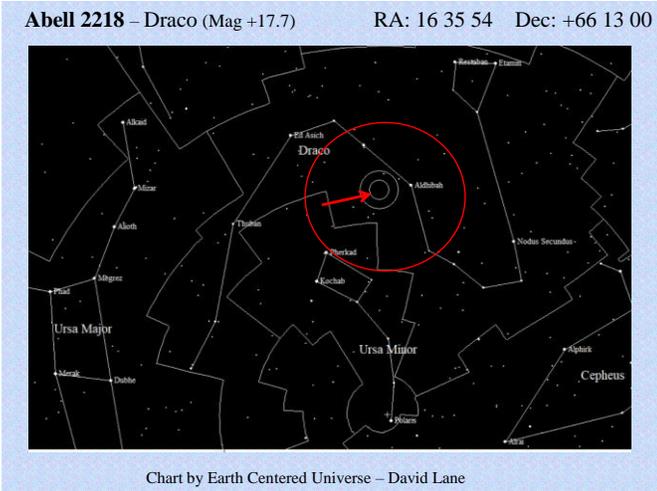
Core Cluster Members: NGC6086 (brightest +12.7 - elliptical), NGC6085, PGC57444/55/75.



**Abell 2199 - Hercules** (image scale = 24' x 16' arc minutes) part of Hercules Supercluster.  
 (cluster mag +13.9 – 10<sup>th</sup> brightest galaxy in cluster), #members=88, Abell class richness / distance: '2/1'. Located about 417 million light-years distant.  
 Core Cluster Members: NGC6166 (brightest member +12.8 - elliptical), NGC6166C, MCG+7-34-50, MCG+7-34-48, PGC58277, PGC58278, PGC58279, PGC58325, PGC58262, PGC2149914, PGC2153801, PGC2154233



**Abell 2218 - Draco** (image scale = 24' x 16' arc minutes)  
 (cluster mag +17.7 – 10<sup>th</sup> brightest galaxy in cluster), #members=10,000, Abell class richness / distance: '4/6'. Located about **2 billion** light-years distant.  
 Core Cluster Members: PGC58586 (brightest member +15.1 – spiral, actually a foreground object not related to Cluster), and a whole bunch of other MCG and MAC # galaxies!  
 Like looking at grains of sand!

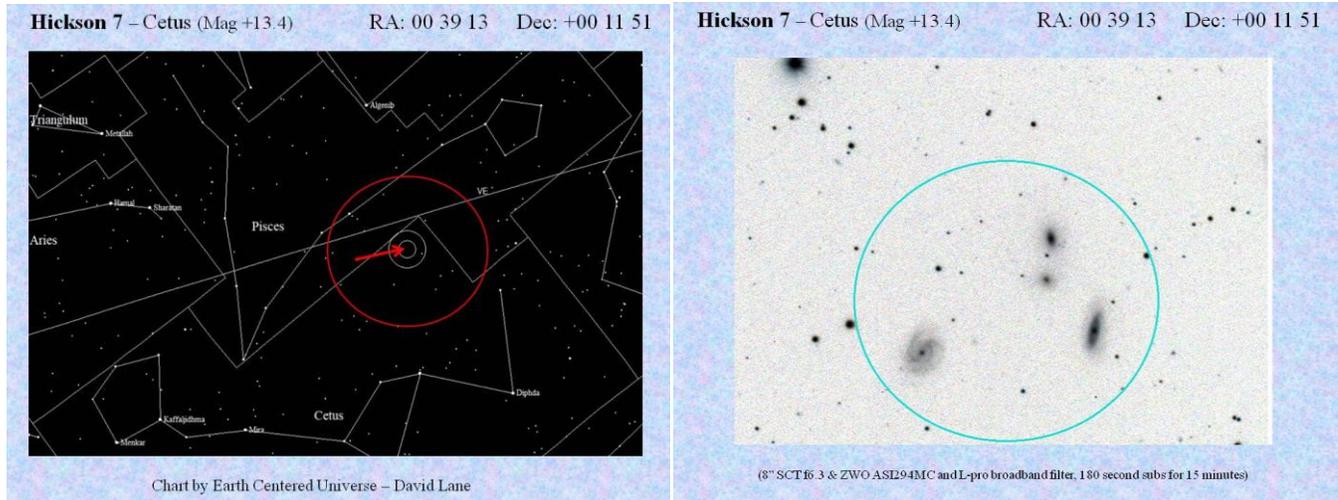


**Hickson Compact Galaxy Clusters:**

**HCG-7 - Cetus** (image scale = 16.5' x 12' arc minutes)

(Cluster mag +13.4 = brightest member), #members=4, Located about 189 million light-years distant.

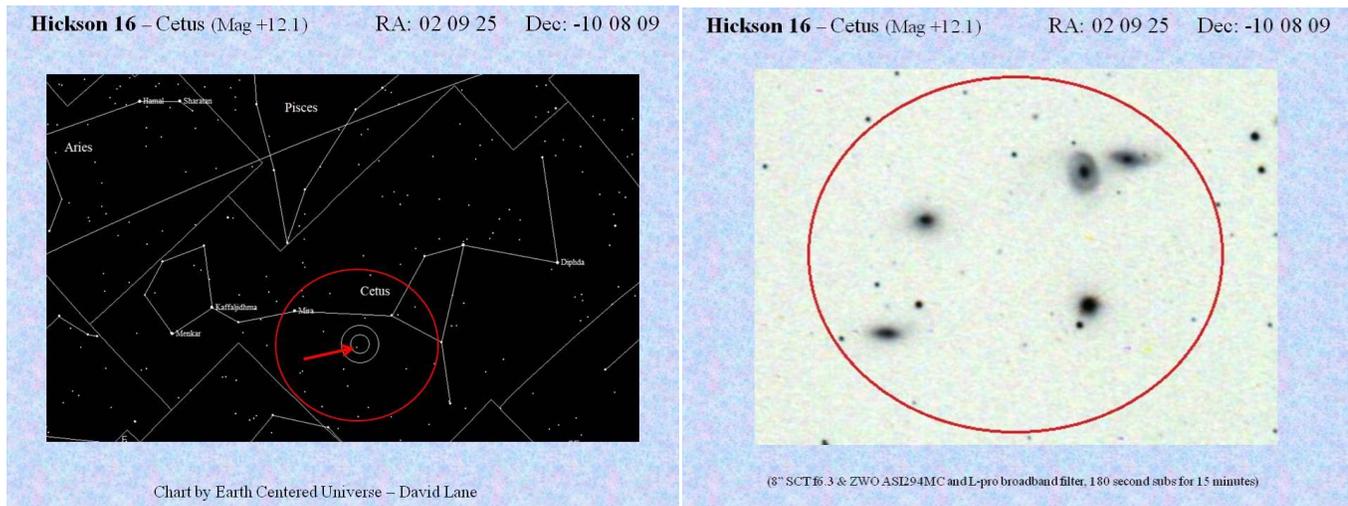
Cluster Members: NGC192 (brightest - spiral), NGC196, NGC197, and NGC201



**HCG-16 - Cetus** (image scale = 11' x 8' arc minutes)    Arp318

(Cluster mag +12.1 = brightest member), #members=4, Located about 110 million light-years distant.

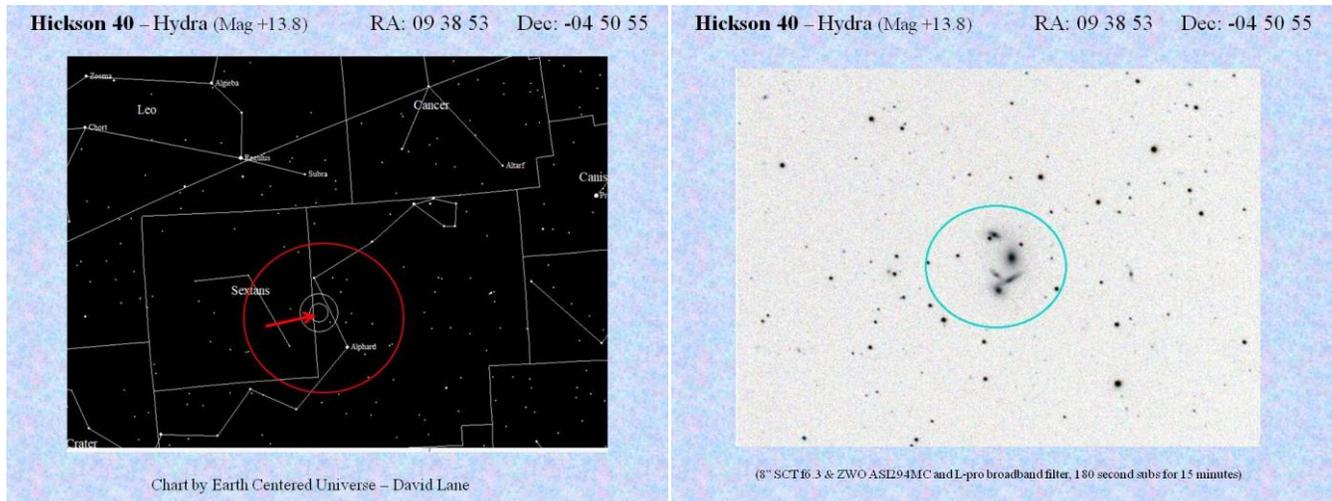
Cluster Members: NGC835 (brightest - spiral), NGC833, NGC838, and NGC839



**HCG-40 - Hydra** (image scale = 16.5' x 12' arc minutes) Arp321

(Cluster mag +13.8 = brightest member), #members=5, Located about 280 million light-years distant.

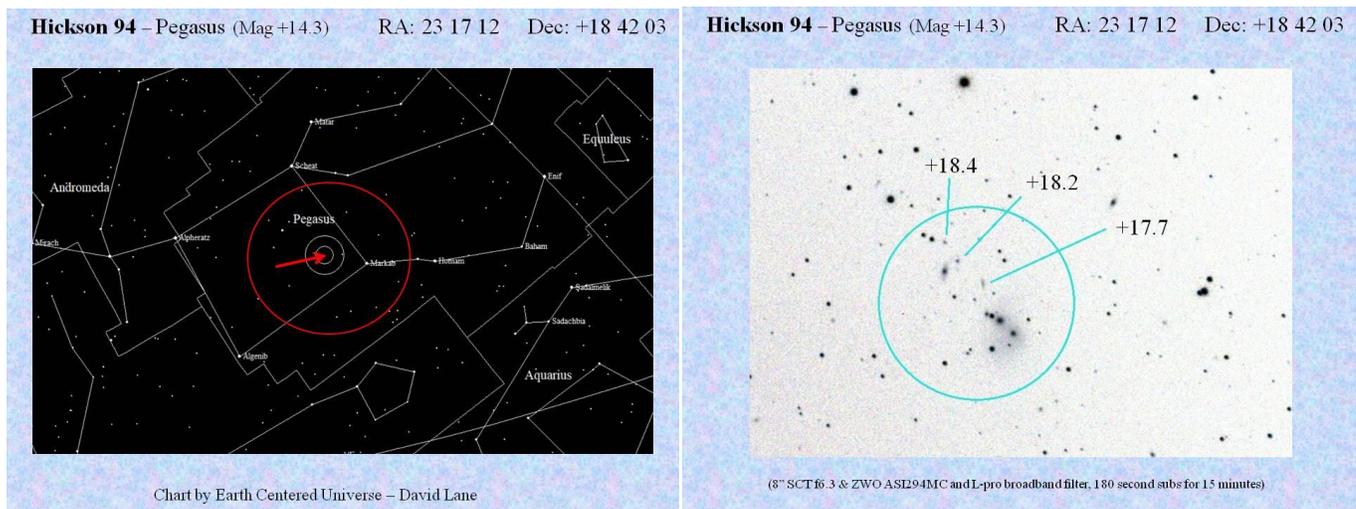
Cluster Members: MCG-1-25-9 (brightest - elliptical), MCG-1-25-8, MCG-1-25-10, MCG-1-25-11, MCG-1-25-12



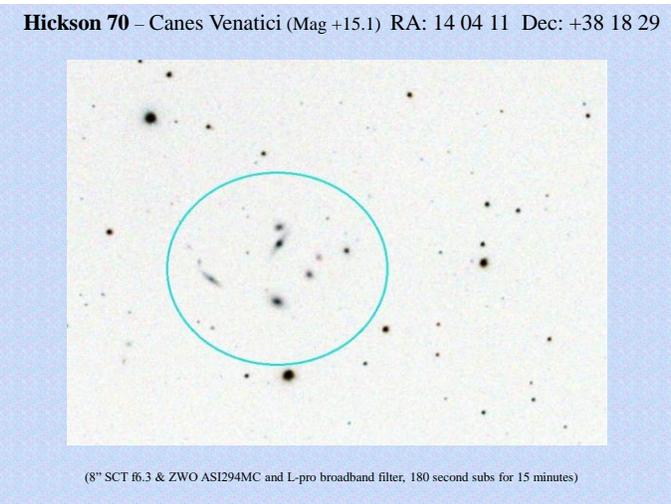
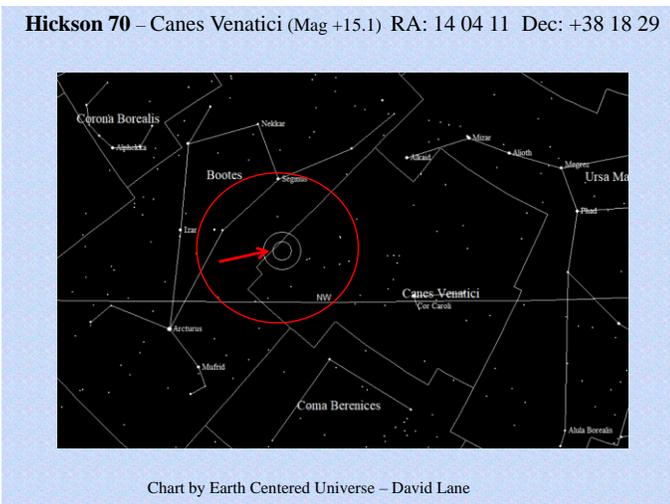
**HCG-94 - Pegasus** (image scale = 16.5' x 12' arc minutes)

(Cluster mag +14.3 = brightest member), #members=7, Located about 564 million light-years distant.

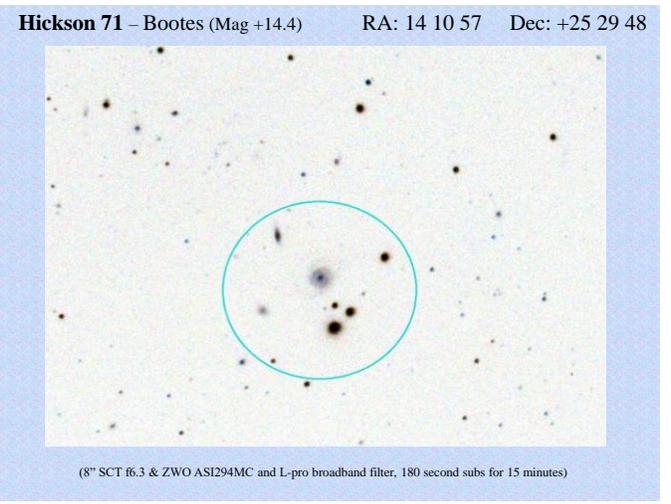
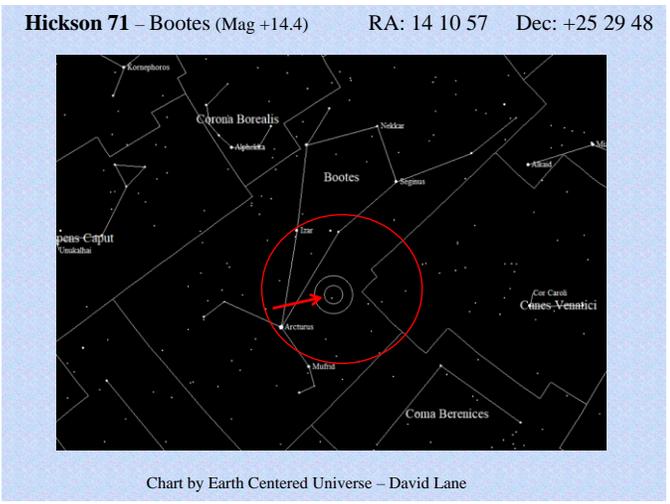
Cluster Members: NGC7578A (brightest - elliptical), NGC7578B, PGC70936, PGC70937 (+17.7), PGC70939 (+18.2), PGC70941 (+18.4), PGC70943 Nearby Galaxies: MAC 2316+1845



**HCG-70 – Canes Venatici** (image scale = 16.5' x 12' arc minutes) all spirals  
 (Cluster mag +14.9 = brightest member), #members=7, Located about 375 million light-years.  
 Cluster Members: A=IC4370 (brightest - spiral), B=IC4371, C=MCG+6-31-65,  
 D=MCG+6-31-60, E=IC4369, F=MCG+6-31-57 (faintest +16.7 spiral) , G=PGC50123



**HCG-71 – Bootes** (image scale = 16.5' x 12' arc minutes) all spirals  
 (Cluster mag +14.4 = brightest member), #members=4, Located about 525 million light-years.  
 Cluster Members: A=NGC5008, also known as IC4381 (brightest - face-on spiral), B=IC4382, C=PGC50640, and  
 D=PGC50641 (faintest +17.2 spiral).



**HCG-75 – Serpens** (image scale = 16.5' x 12' arc minutes)

(Cluster mag +15.0 = brightest member), #members=6, Located about 596 million light-years.

Cluster Members: A=CGCG135-50 (brightest - elliptical), B=PGC54803, C=PGC54827, D=PGC54824, E=PGC54818 (faintest +16.9 spiral), and F=PGC54802,

Nearby Galaxies: PGC1646140

**Hickson 75 – Serpens (Mag +15.0)** RA: 15 21 30 Dec: +21 11 26

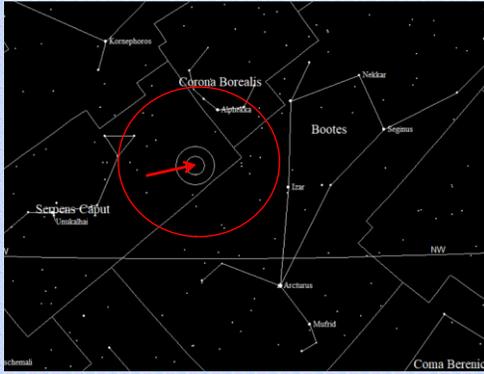


Chart by Earth Centered Universe – David Lane

**Hickson 75 – Serpens (Mag +15.0)** RA: 15 21 30 Dec: +21 11 26



(8" SCT f6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**HCG-79 – Serpens** (image scale = 16.5' x 12' arc minutes) "Seyferts Sextet"

(Cluster mag +14.8 = brightest member), #members=6, Located about 190 million light-years.

Cluster Members: A=NGC6027A (brightest - spiral), B=NGC6027B, C=NGC6027, D=NGC6027C, E=NGC6027D, and F=NGC6027E (faintest +16.7 is faint ext of NGC6027B)

**Hickson 79 – Serpens (Mag +14.8)** RA: 15 59 11 Dec: +20 45 17

Seyferts Sextet

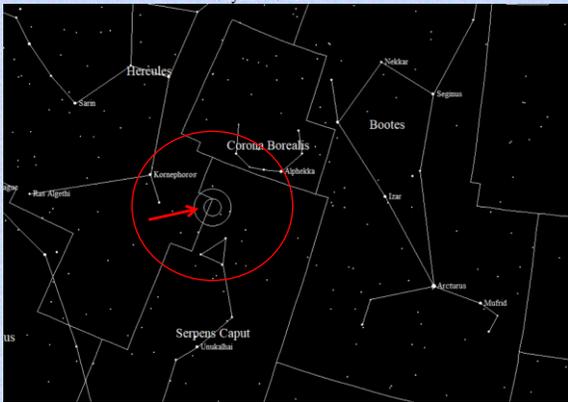
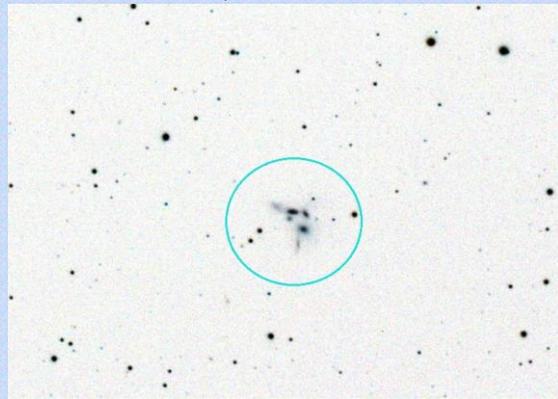


Chart by Earth Centered Universe – David Lane

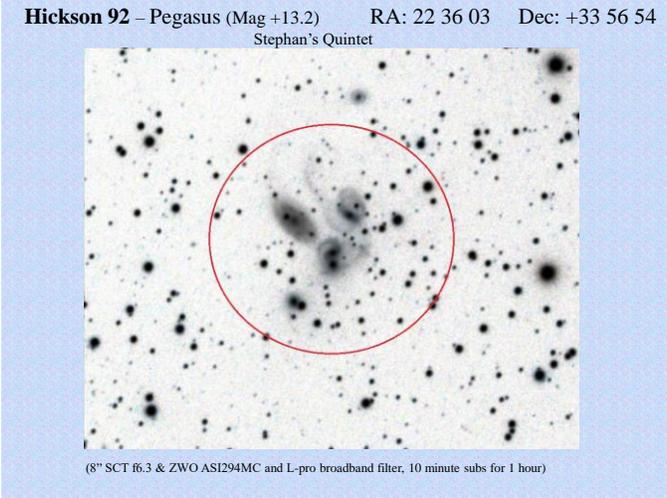
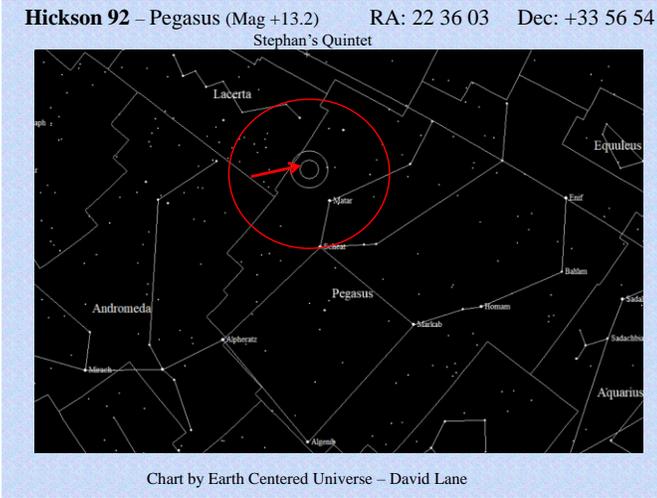
**Hickson 79 – Serpens (Mag +14.8)** RA: 15 59 11 Dec: +20 45 17

Seyferts Sextet



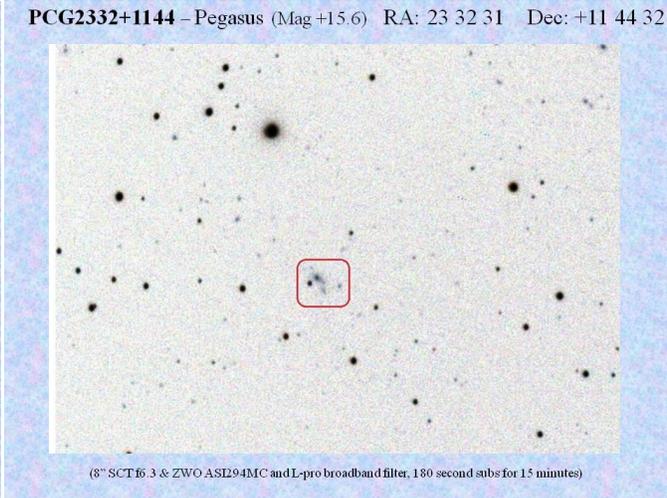
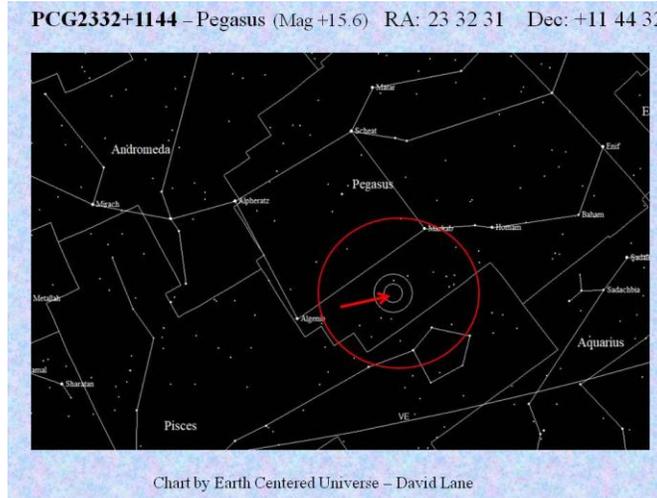
(8" SCT f6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**HCG-92 - Pegasus** (image scale = 14.5' x 12' arc minutes) Arp 319 - "Stephans Quintet"  
 (Cluster mag +13.2 = brightest member), #members=5, Located about 280 million light-years.  
 Cluster Members: A=NGC7320 (brightest - spiral), B=NGC7318B, C=NGC7319, D=NGC7318A, and E=NGC7317 (faintest +13.6)



**Palomar Compact Galaxy Clusters:**

**PCG2332+1144 – Pegasus** (image scale = 16.5' x 12' arc minutes)  
 (galaxy cluster mag +15.6), #members=4, Located about ??? billion light-years distant.



**PCG2259+1329 - Pegasus** (image scale = 16.5' x 12' arc minutes)

(galaxy cluster mag +15.7), #members=4, Located about 1.8 billion light-years distant. Nearby Galaxies: UGC12281

PCG2259+1329 - Pegasus (Mag +15.7) RA: 22 59 03 Dec: +13 29 34

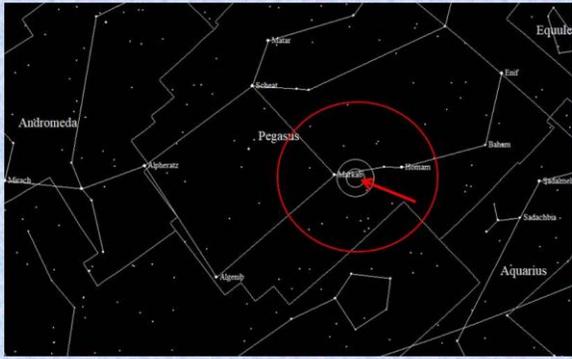
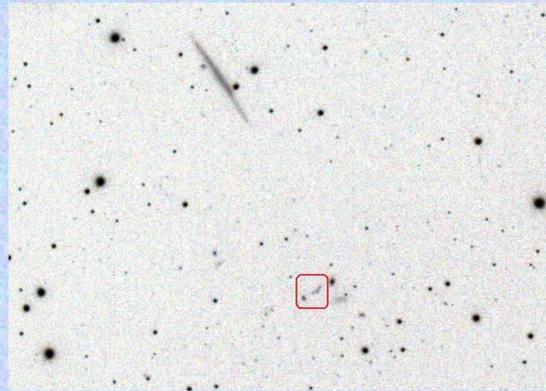


Chart by Earth Centered Universe - David Lane

PCG2259+1329 - Pegasus (Mag +15.7) RA: 22 59 03 Dec: +13 29 34



(8" SCTf6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**PCG0011+0544 - Pisces** (image scale = 16.5' x 12' arc minutes)

(galaxy cluster mag +16.1), #members=4, Located about 2.1 billion light-years distant.

PCG0011+0544 - Pisces (Mag +16.1) RA: 00 11 09 Dec: +05 44 49

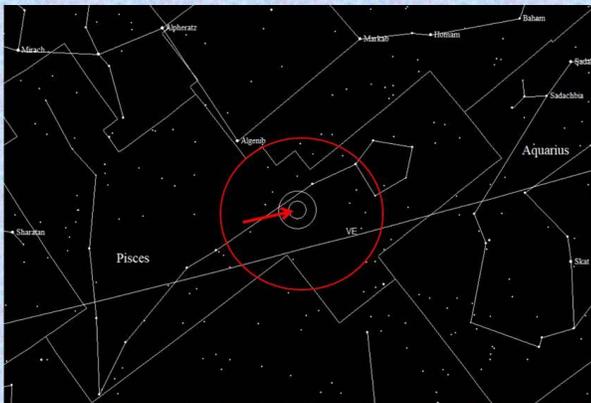
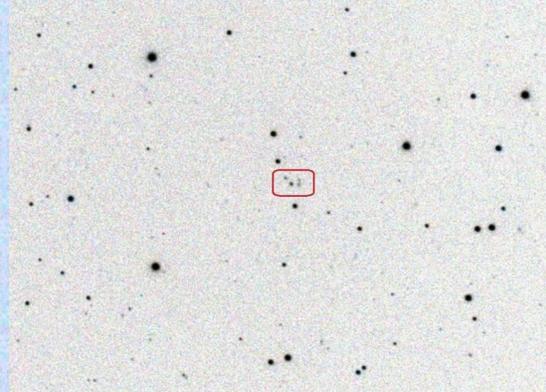


Chart by Earth Centered Universe - David Lane

PCG0011+0544 - Pisces (Mag +16.1) RA: 00 11 09 Dec: +05 44 49



(8" SCTf6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**PCG0209+1039 - Aries** (image scale = 16.5' x 12' arc minutes)

(galaxy cluster mag +15.5), #members=4, Located about ??? billion light-years distant.

PCG0209+1039 - Aries (Mag +15.5) RA: 02 09 15 Dec: +10 39 53

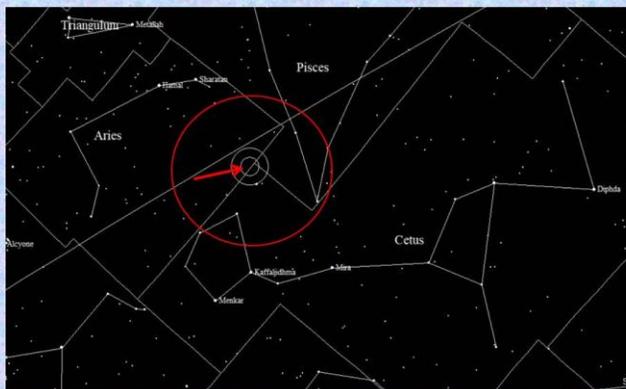
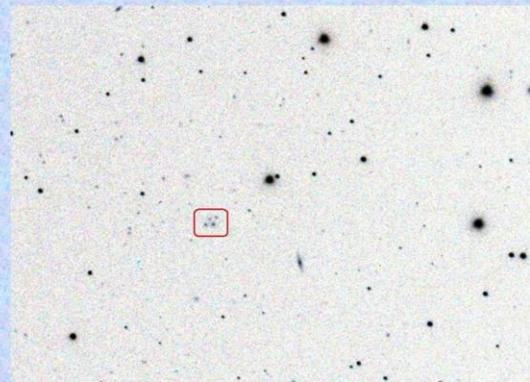


Chart by Earth Centered Universe - David Lane

PCG0209+1039 - Aries (Mag +15.5) RA: 02 09 15 Dec: +10 39 53



(8" SCTf6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**PCG0904+4523 - Lynx** (image scale = 16.5' x 12' arc minutes)

(galaxy cluster mag +16.3), #members=4, Located about 2.9 billion light-years distant. Nearby Galaxies: PGC25472

PCG0904+4523 -Lynx (Mag +16.3) RA: 09 04 27 Dec: +45 23 47

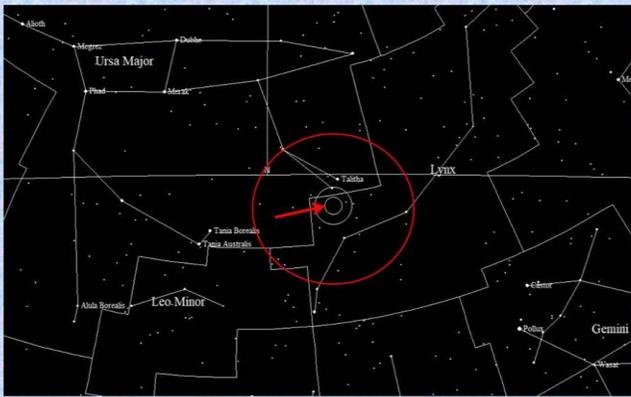
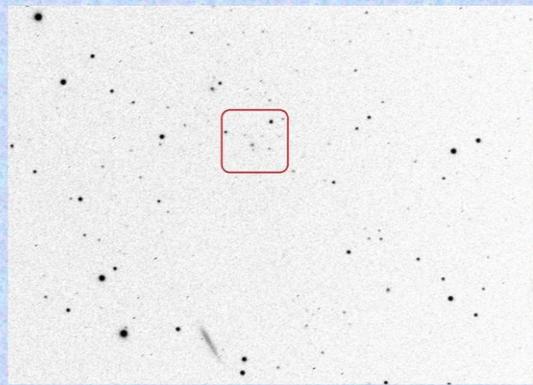


Chart by Earth Centered Universe - David Lane

PCG0904+4523 -Lynx (Mag +16.3) RA: 09 04 27 Dec: +45 23 47



(8" SCT f6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**PCG0854+4919 - Ursa Major** (image scale = 16.5' x 12' arc minutes)

(galaxy cluster mag +15.3), #members=4, Located about 2.7 billion light-years distant.

PCG0854+4919 -Ursa Major (Mag +15.3) RA:08 54 49 Dec:+49 19 12

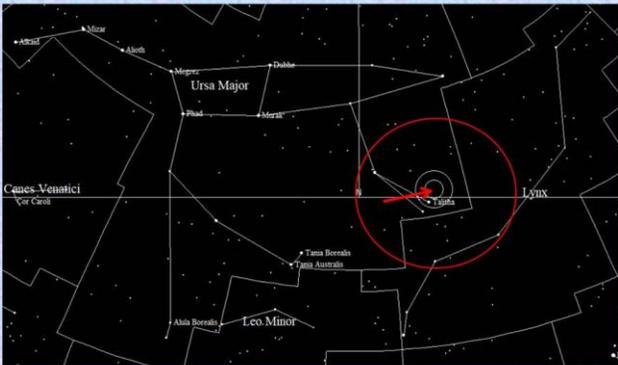
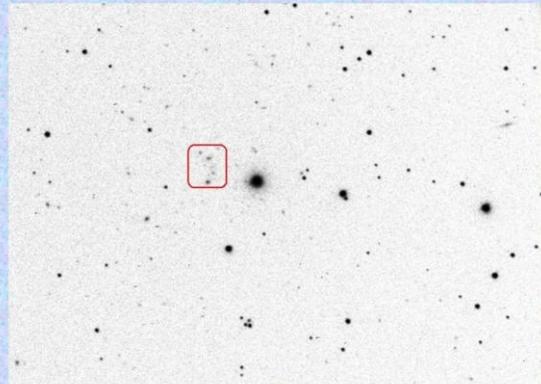


Chart by Earth Centered Universe - David Lane

PCG0854+4919 -Ursa Major (Mag +15.3) RA:08 54 49 Dec:+49 19 12



(8" SCT f6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**PCG1528+4235 - Bootes** (image scale = 16.5' x 12' arc minutes)

(galaxy cluster mag +15.7), #members=5, Located about ??? billion light-years distant.

PCG1528+4235 - Bootes (Mag +15.7) RA: 15 28 53 Dec: +42 35 46

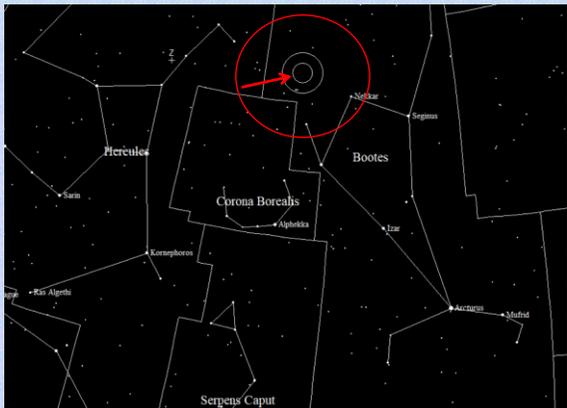
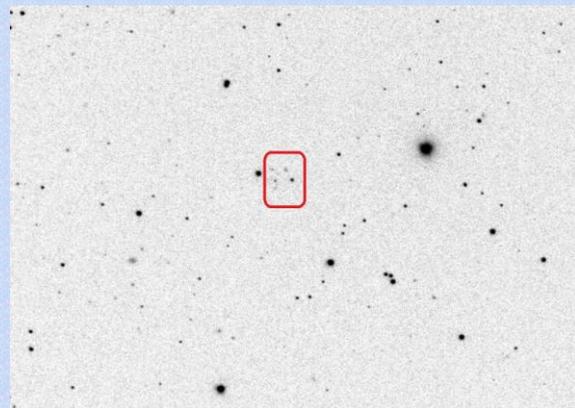


Chart by Earth Centered Universe - David Lane

PCG1528+4235 - Bootes (Mag +15.7) RA: 15 28 53 Dec: +42 35 46



(8" SCT f6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**PCG1513+1907 – Serpens** (image scale = 16.5' x 12' arc minutes)  
 (galaxy cluster mag +15.8), #members=4, Located about ??? billion light-years distant.

PCG1513+1907 – Serpens (Mag +15.8) RA: 15 13 40 Dec: +19 07 14

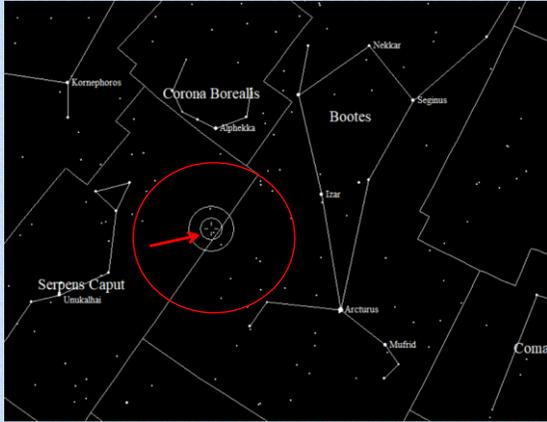
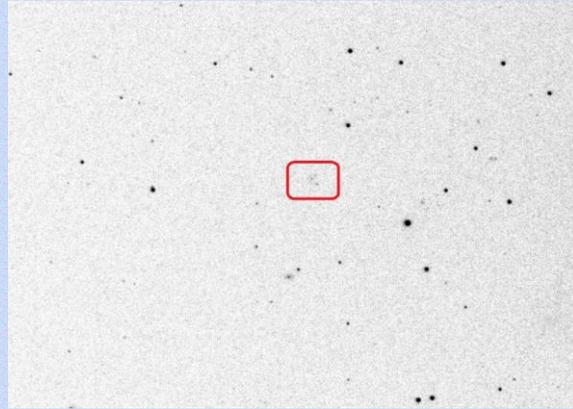


Chart by Earth Centered Universe – David Lane

PCG1513+1907 – Serpens (Mag +15.8) RA: 15 13 40 Dec: +19 07 14



(8" SCT f6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**PCG1525+2956 – Corona Borealis** (image scale = 16.5' x 12' arc minutes)  
 (galaxy cluster mag +15.1), #members=4, Located about ??? billion light-years distant.

PCG1525+2956 – Corona Borealis (Mag +15.1) RA: 15 25 02  
 Dec: +29 56 05

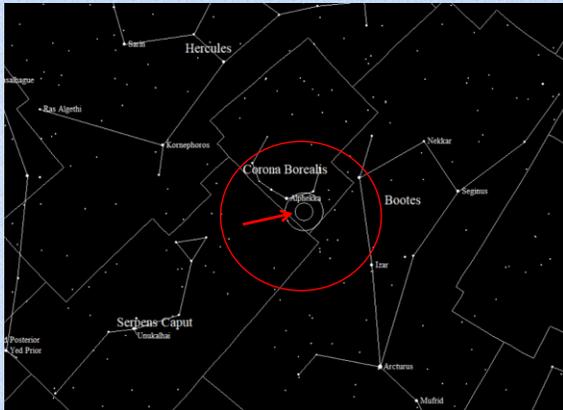
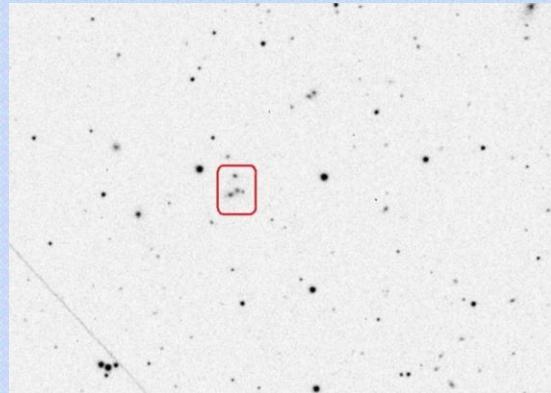


Chart by Earth Centered Universe – David Lane

PCG1525+2956 – Corona Borealis (Mag +15.1) RA: 15 25 02  
 Dec: +29 56 05



(8" SCT f6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**PCG1212+2235 – Coma Berenices** (image scale = 16.5' x 12' arc minutes)  
 (galaxy cluster mag +15.2), #members=4, Located about ??? billion light-years distant.

PCG1212+2235 – Coma Berenices (Mag +15.2) RA: 12 12 53  
 Dec: +22 35 20

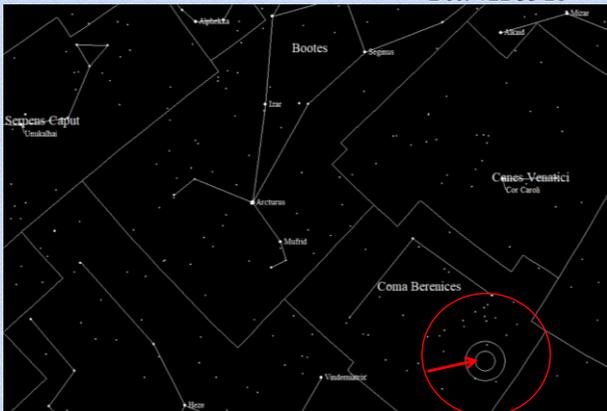
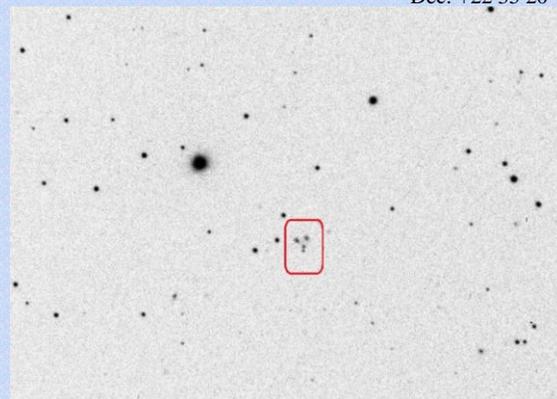


Chart by Earth Centered Universe – David Lane

PCG1212+2235 – Coma Berenices (Mag +15.2) RA: 12 12 53  
 Dec: +22 35 20



(8" SCT f6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**PCG1221+5548 – Ursa Major** (image scale = 16.5' x 12' arc minutes)  
(galaxy cluster mag +15.4), #members=4, Located about ??? billion light-years distant.  
Nearby Bright Galaxies: **MCG+9-20-155** and MCG+9-20-157

**PCG1221+5548 – Ursa Major** (Mag +15.4) RA: 12 21 42  
Dec: +55 48 23

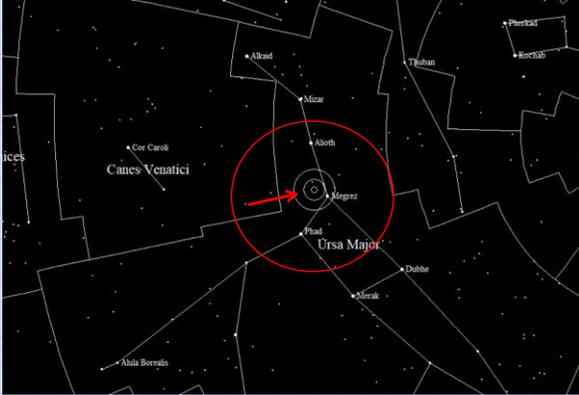
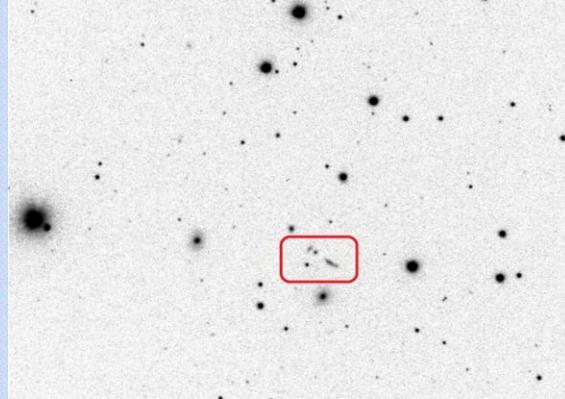


Chart by Earth Centered Universe – David Lane

**PCG1221+5548 – Ursa Major** (Mag +15.4) RA: 12 21 42  
Dec: +55 48 23



(8" SCT f6.3 & ZWO ASI294MC and L-pro broadband filter, 180 second subs for 15 minutes)

**Credits:**

**Amateur Images:** EAA capture Images: Larry McHenry - <http://stellar-journeys.org/>

**Planetarium Software:** "Earth Centered Universe" planetarium software by David Lane <http://www.nova-astro.com/>