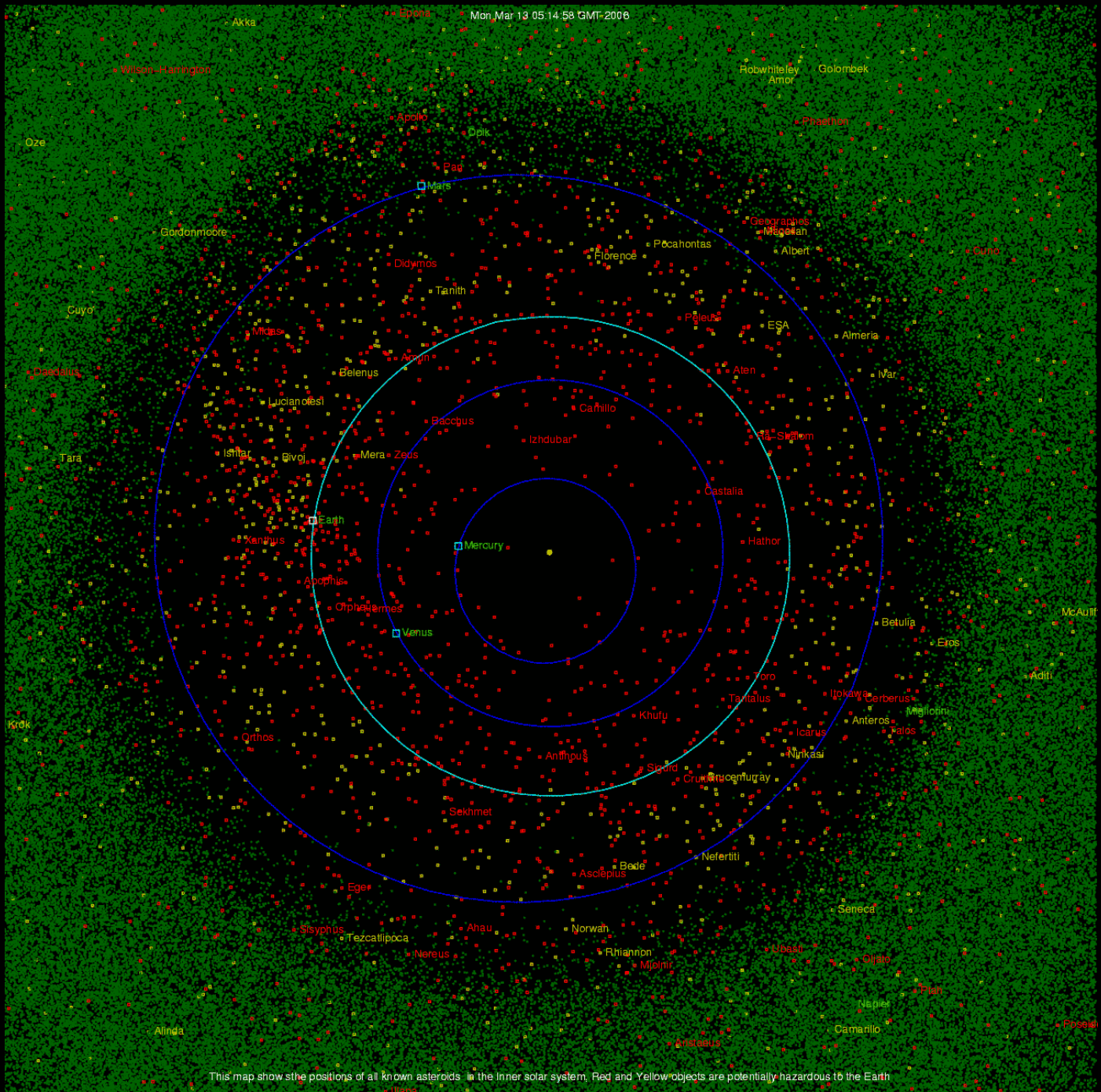
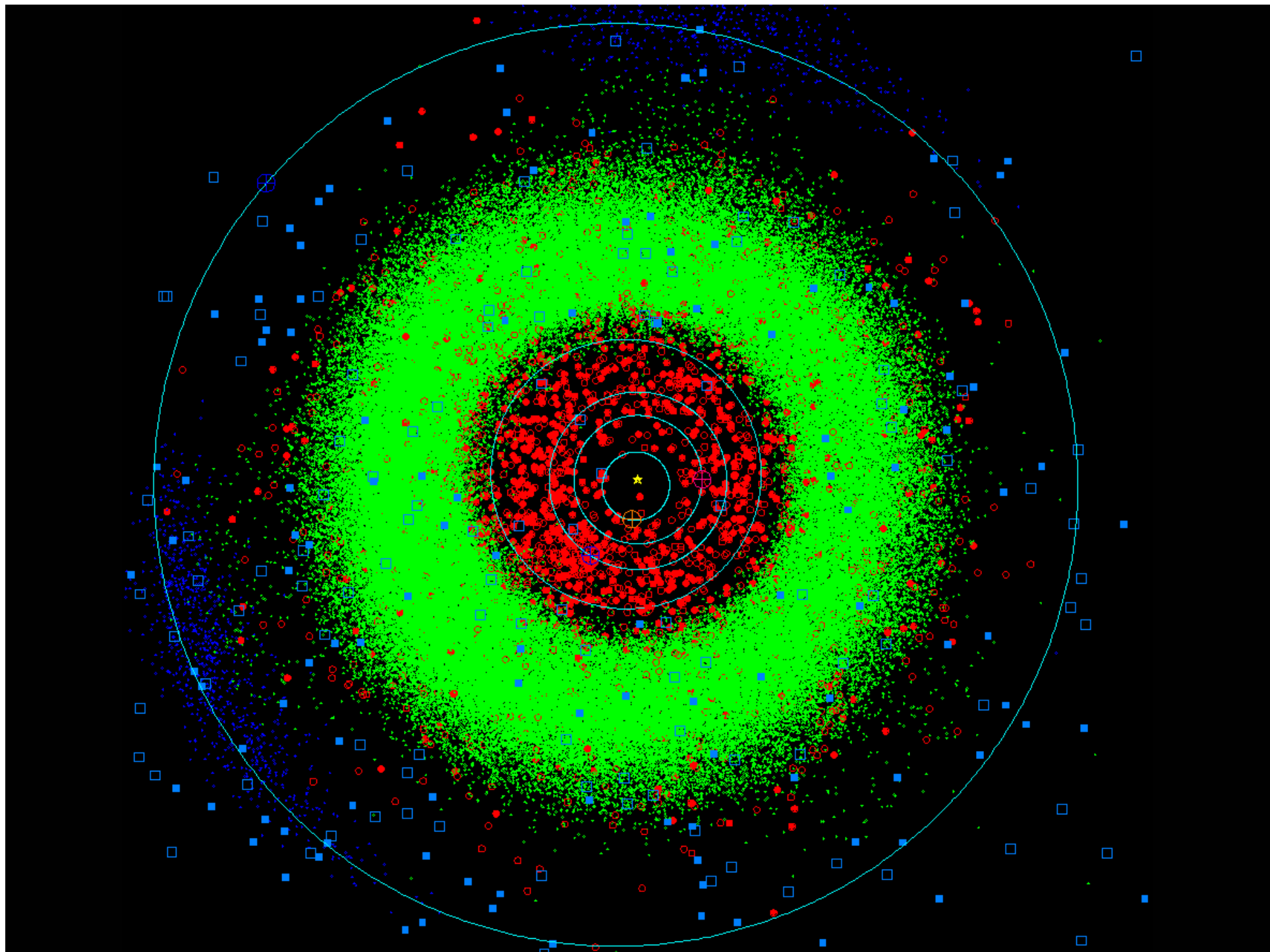


A dense field of orange and red stars, likely a star cluster or galaxy core. The stars vary in brightness and size, with many showing diffraction spikes. A prominent, bright, slightly curved streak is visible in the upper right quadrant, possibly representing a meteor or a specific astronomical event.

Very Local Transients

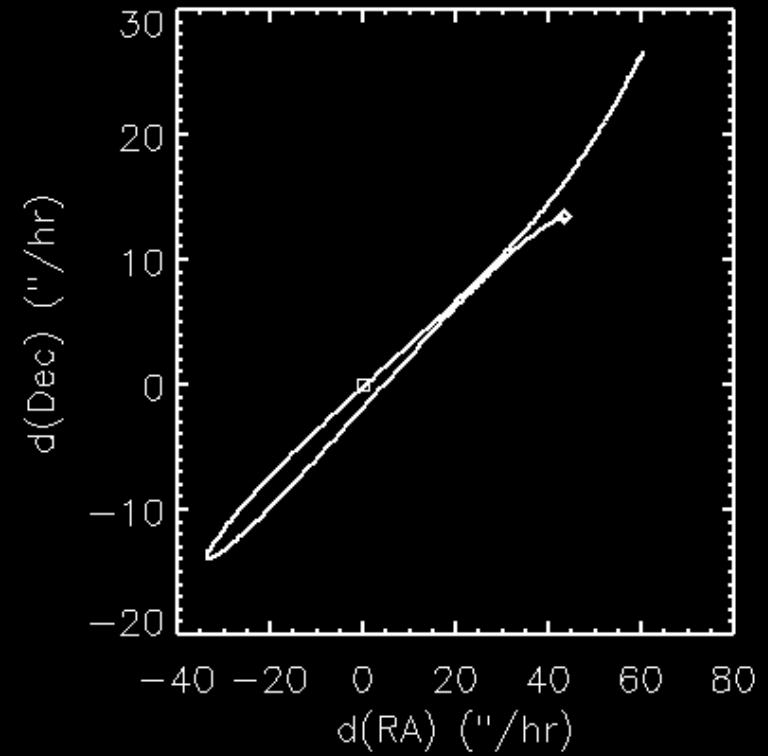
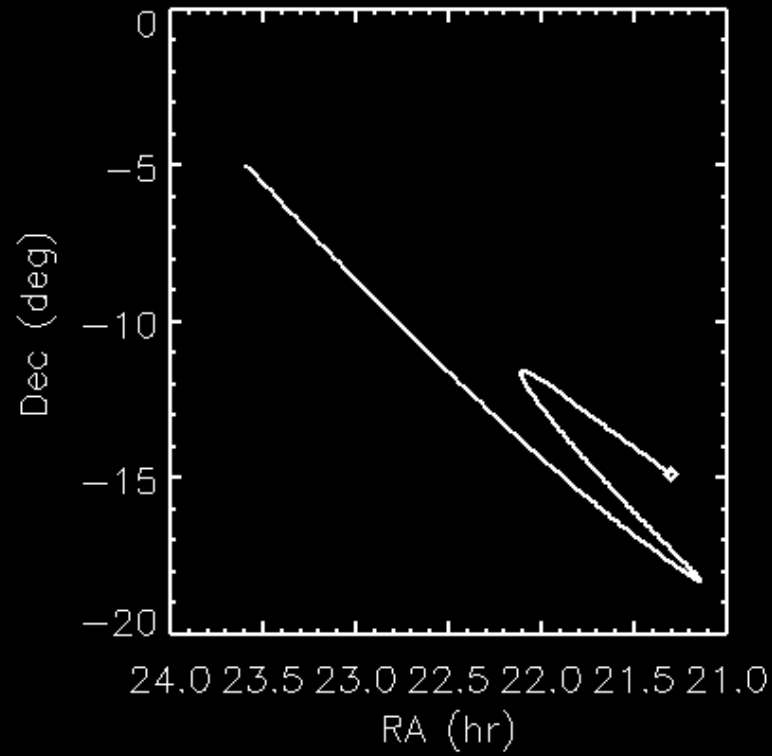
Henry Roe
Caltech

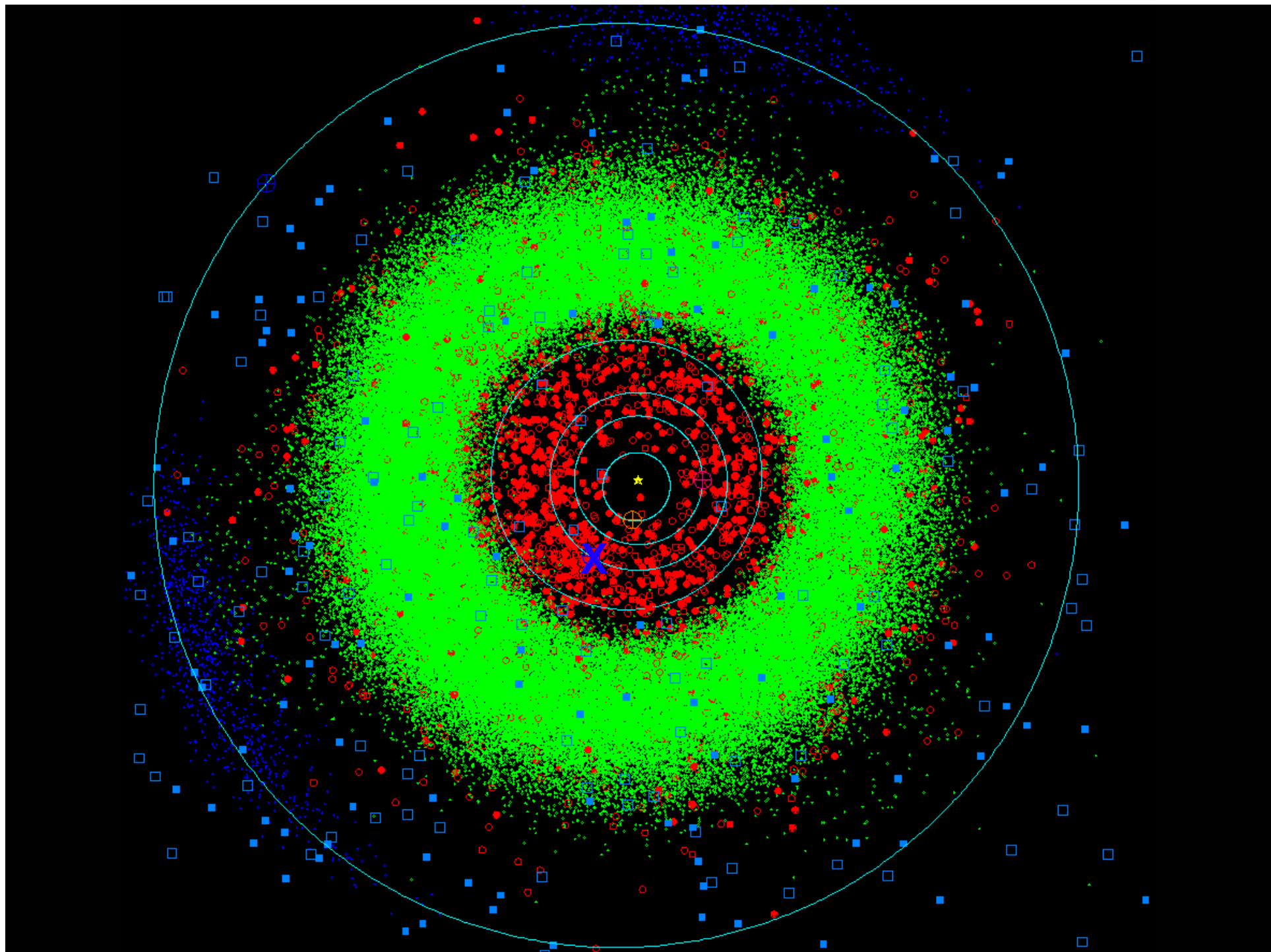


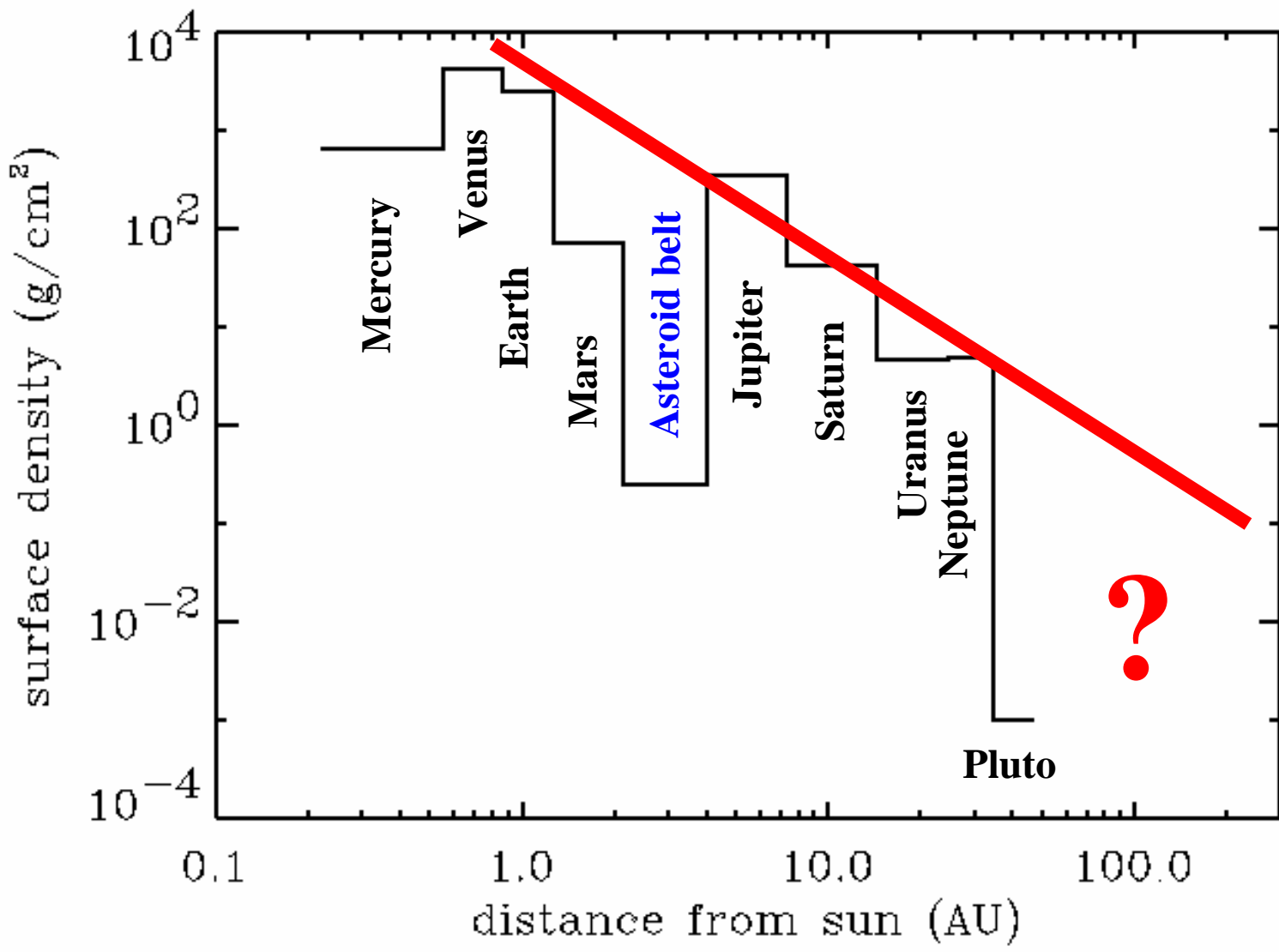


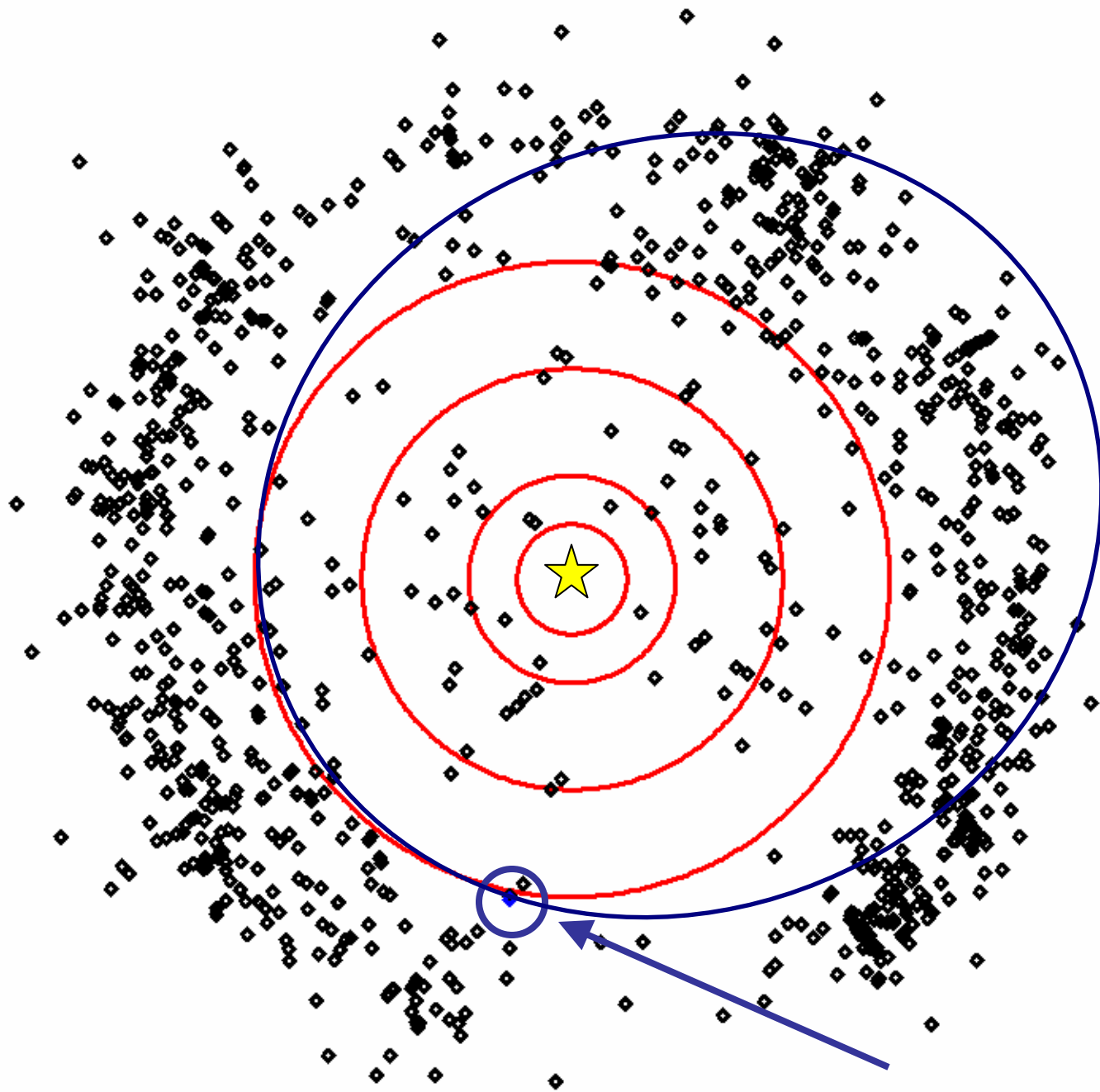
Things move,
except when they don't

Random main-belt asteroid

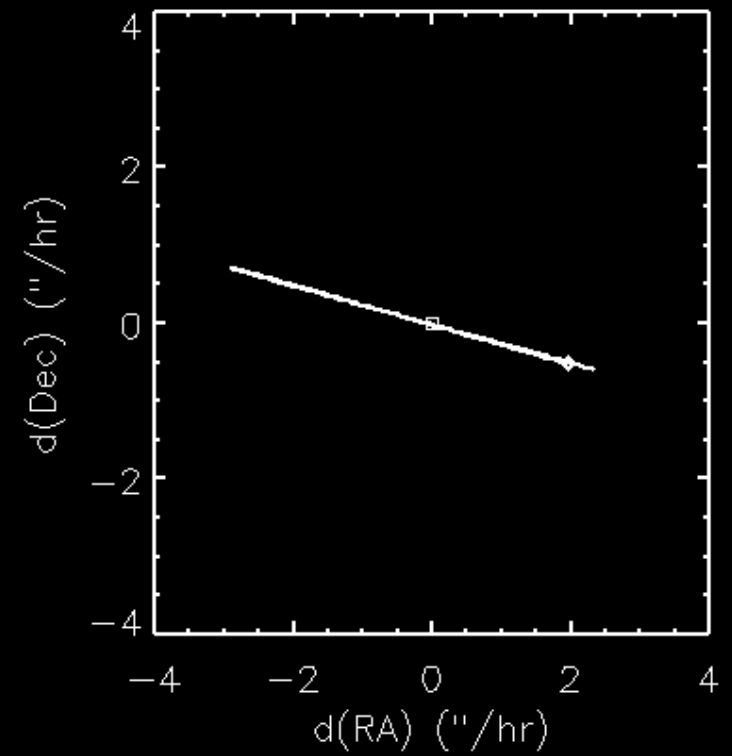
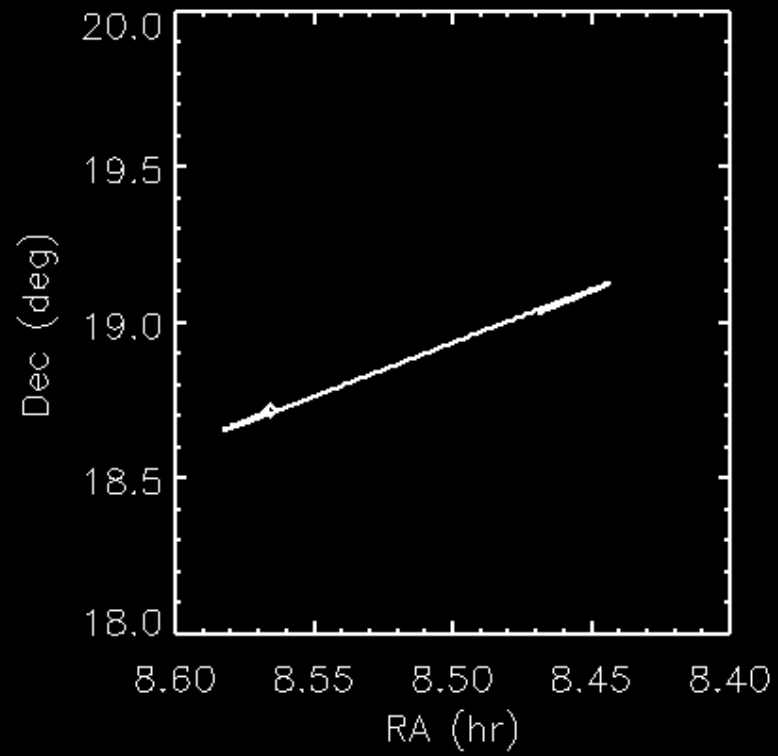




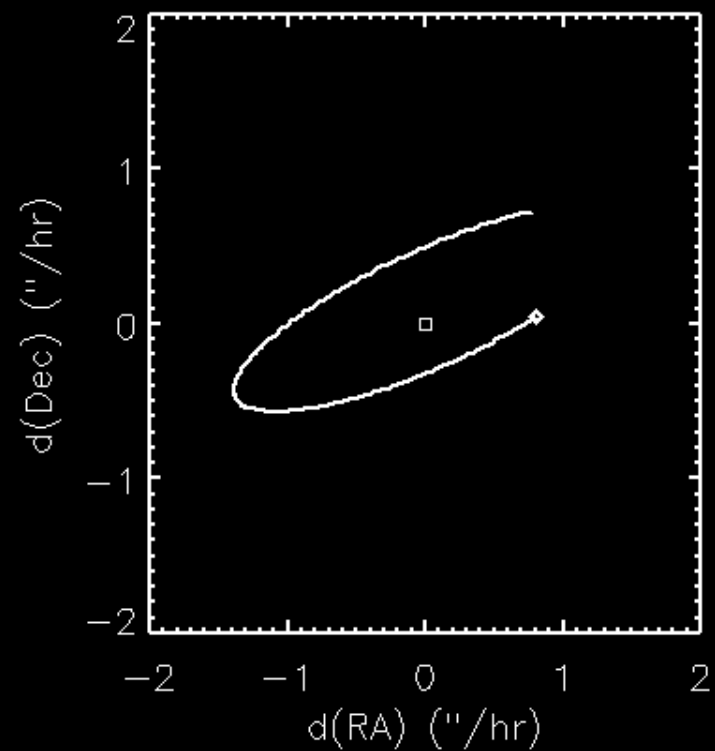
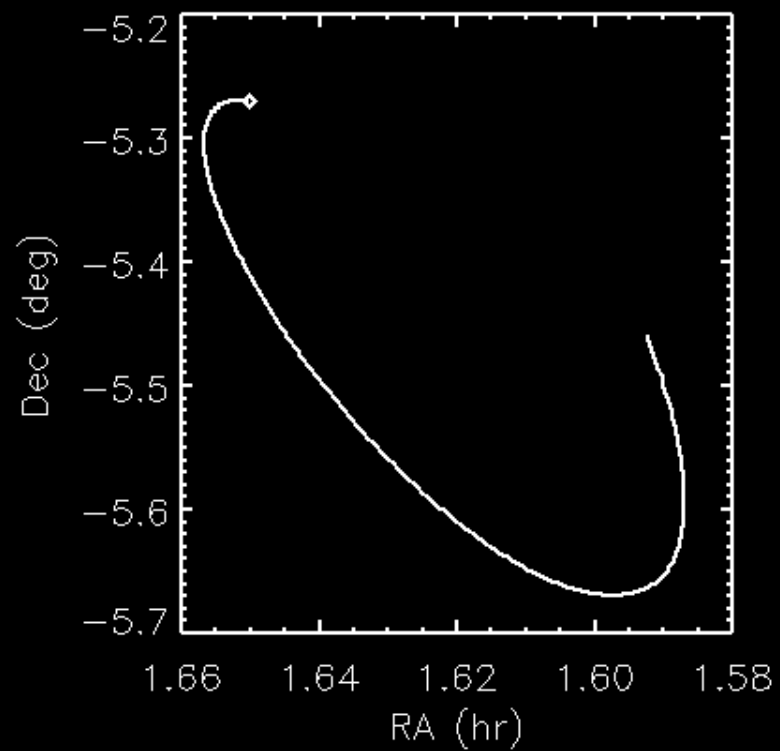




Random KBO



2003 UB313 ("Xena")





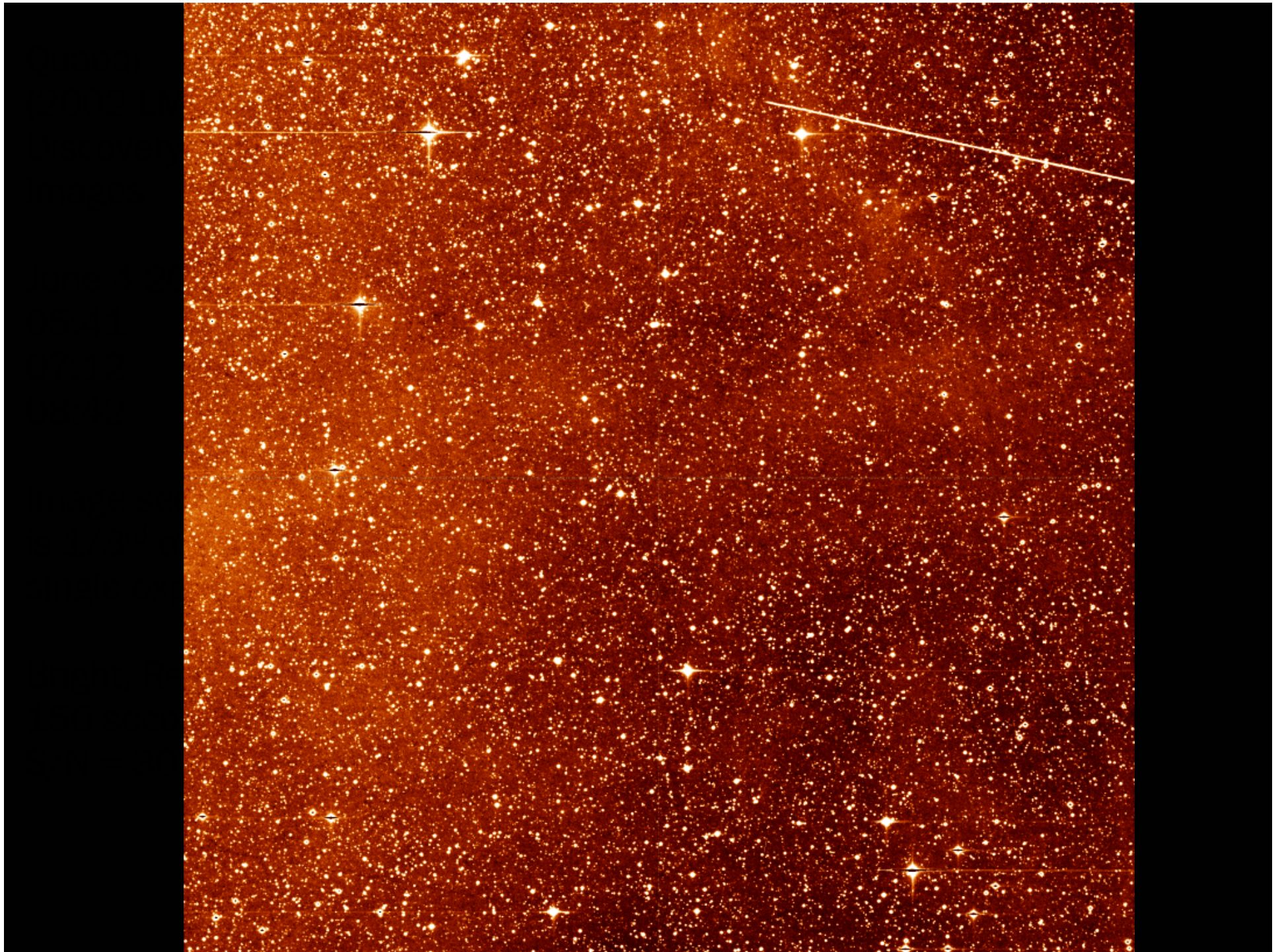
**1st astronomical
CCDs**

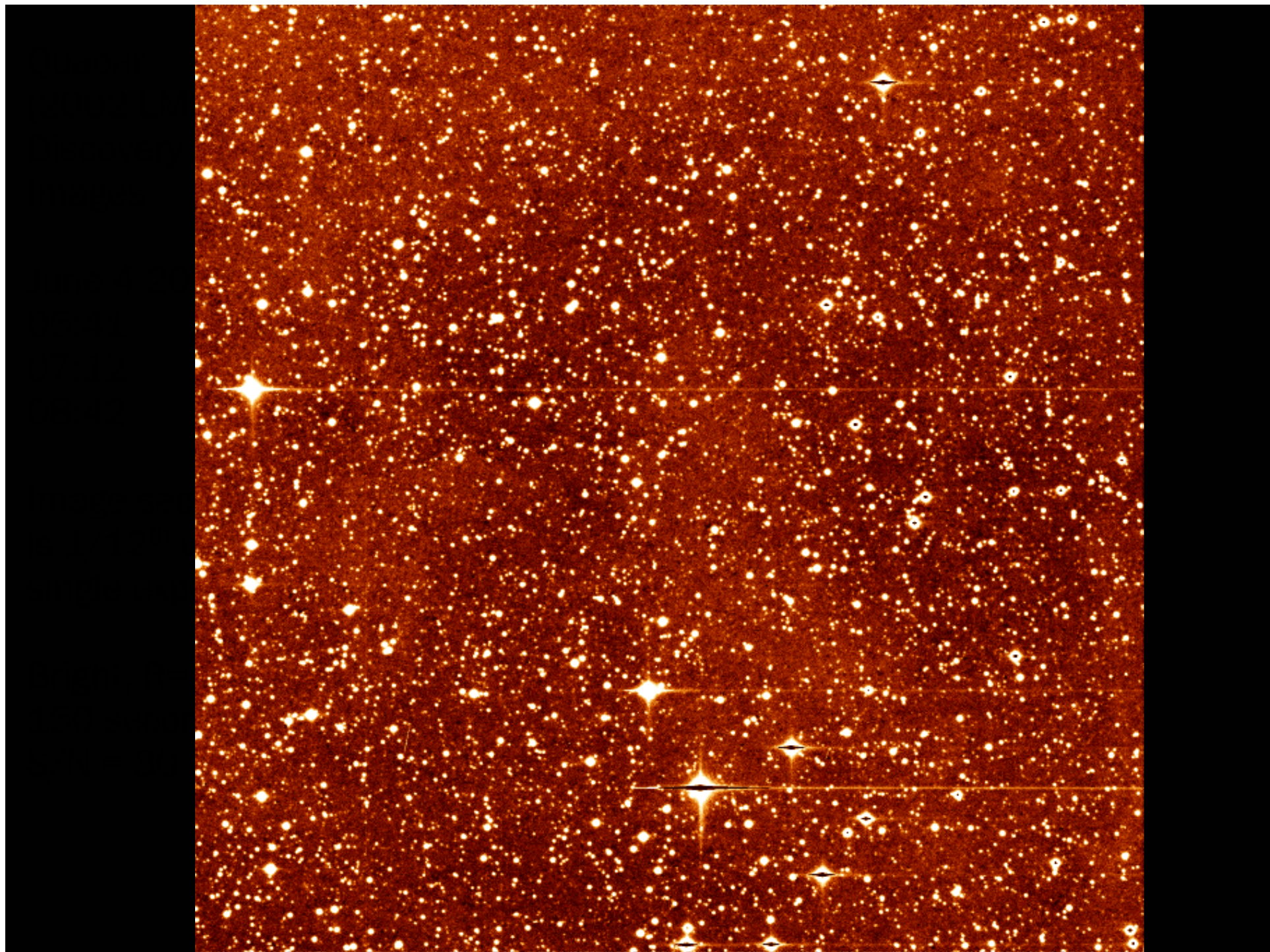


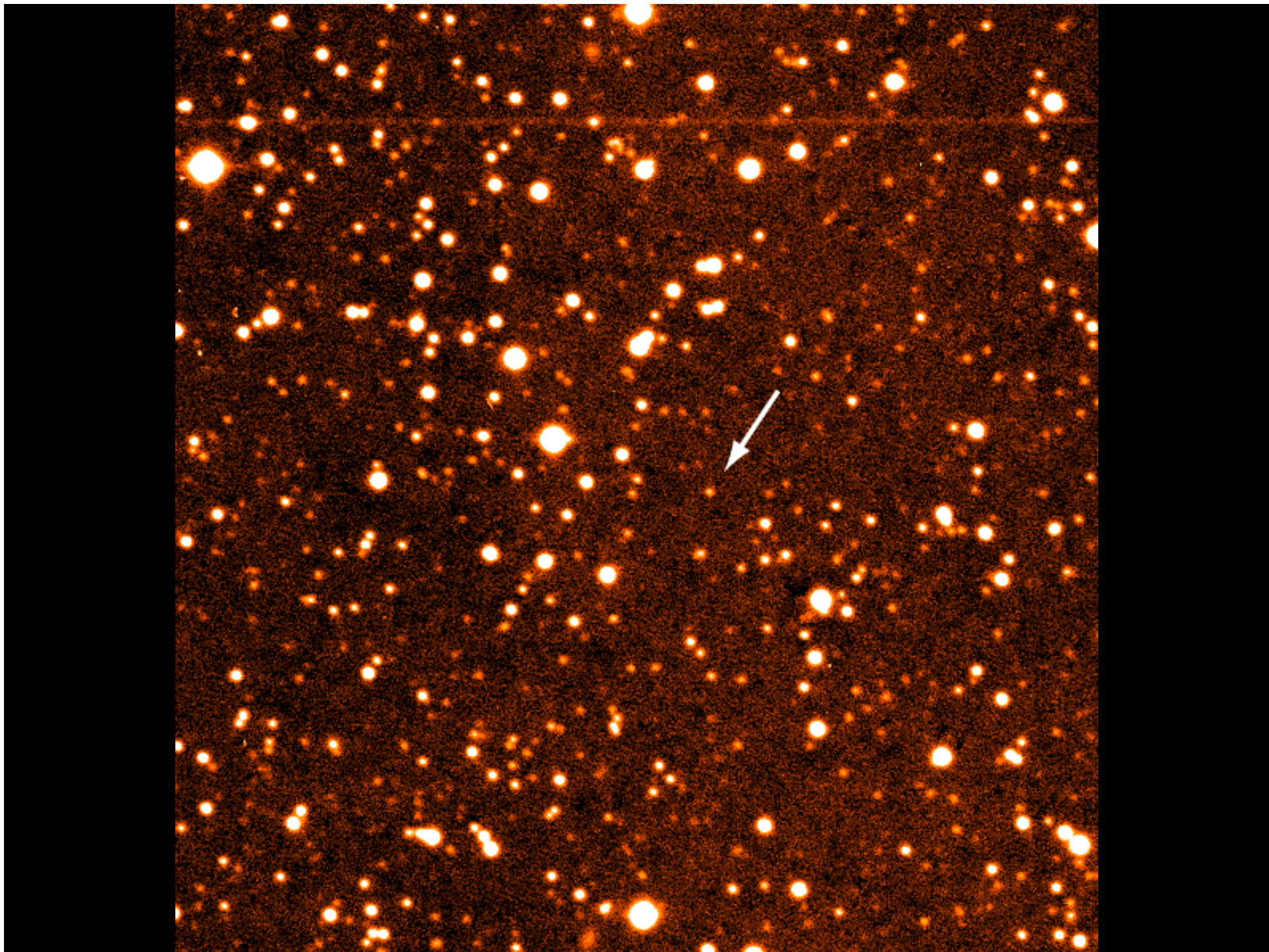
**Keck wide-area CCD
mosaic field-of-view**

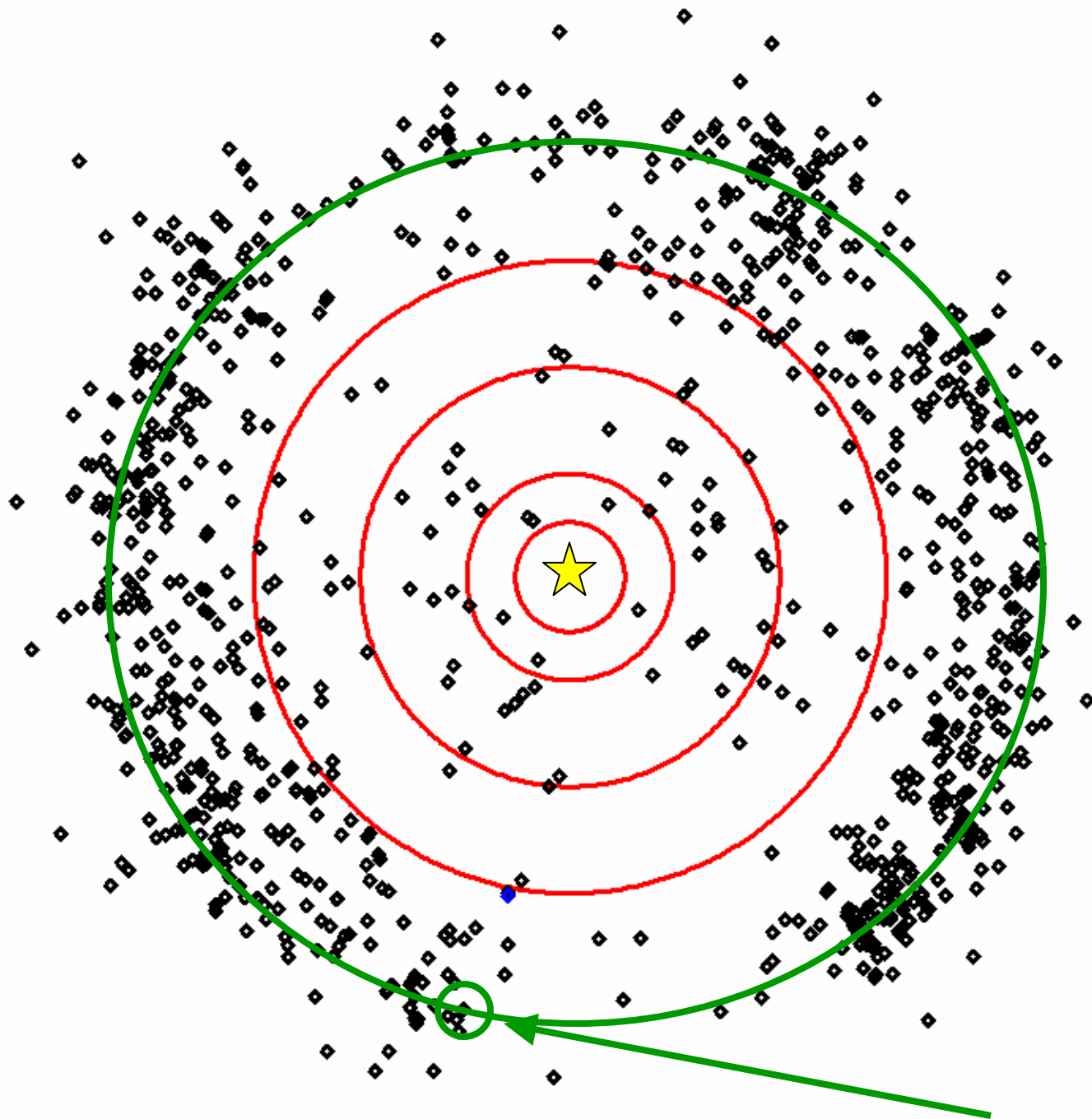


**Samuel Oschin telescope
Palomar-Quest CCD system**











Quaoar
(800 miles)



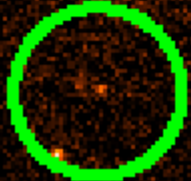
Pluto
(1400 miles)

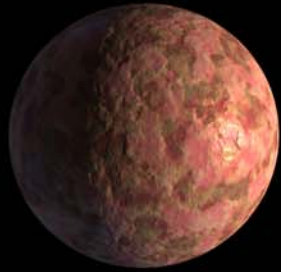


Moon
(2100 miles)



Earth
(8000 miles)





Sedna
800-1100 miles
in diameter



Quaoar
(800 miles)



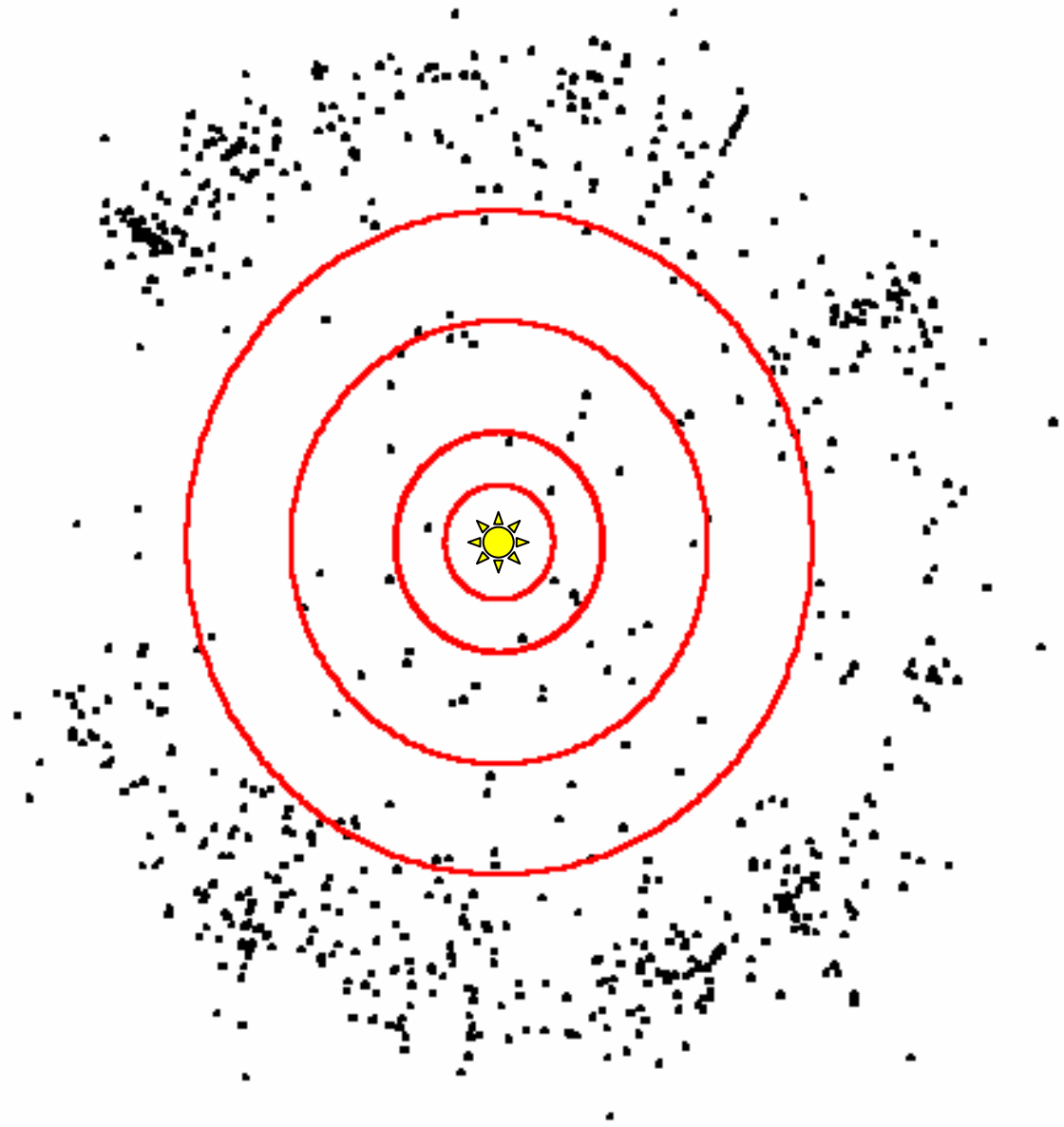
Pluto
(1400 miles)

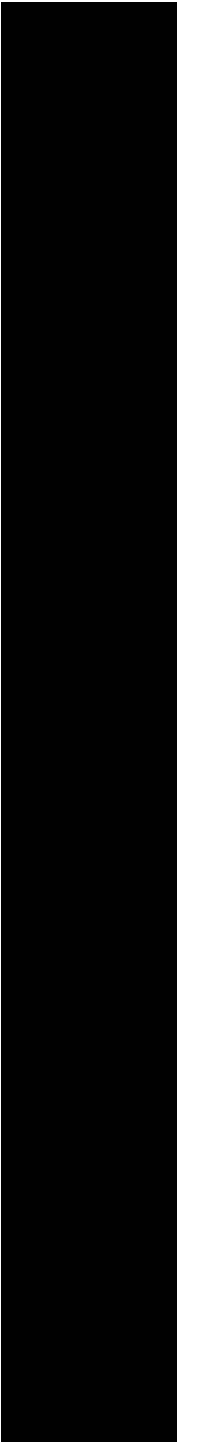
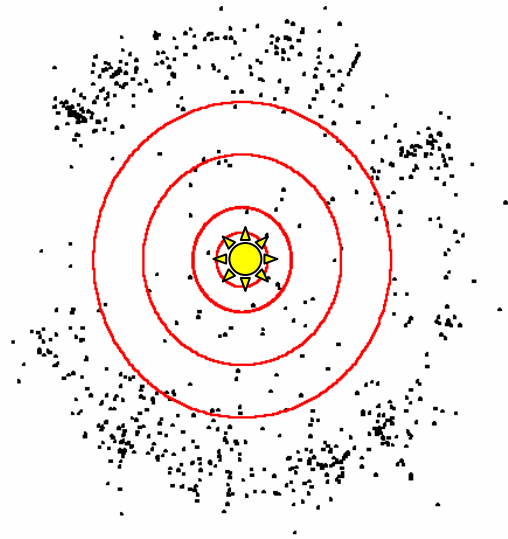
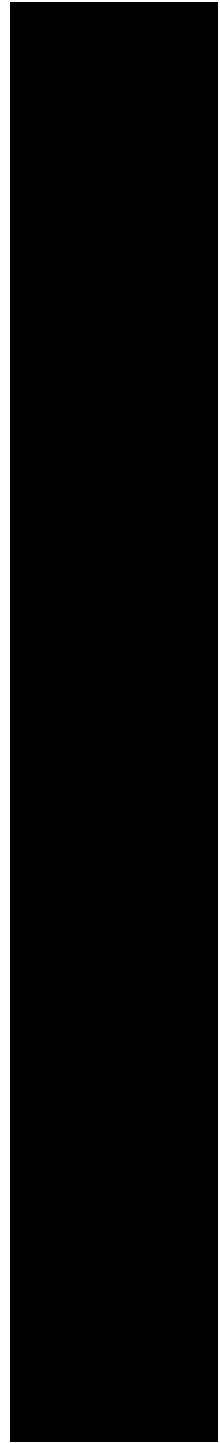


Moon
(2100 miles)



Earth
(8000 miles)





$a=509$ AU

$e=0.851$

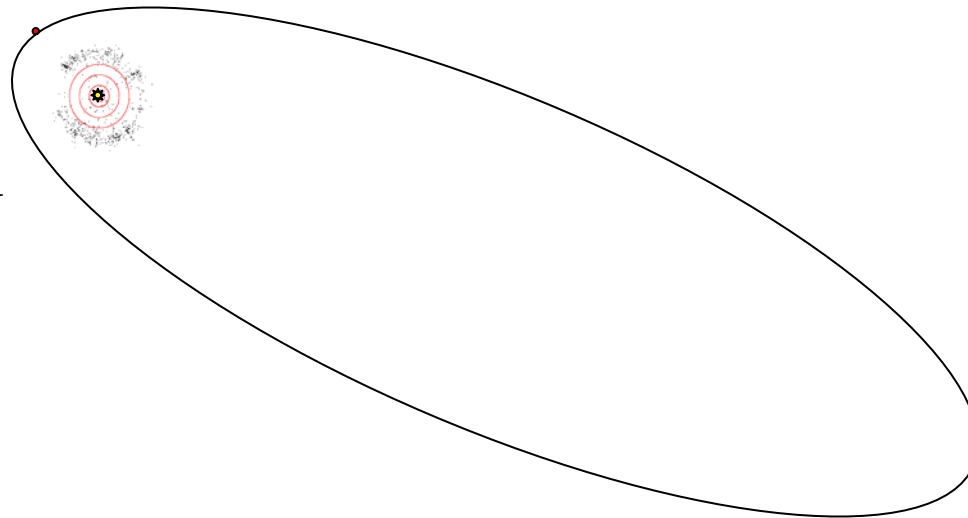
$q=76$ AU

$Q=950$ AU

$i=11.9$

$P=11,500$ yr

$T= 2076$ July 7

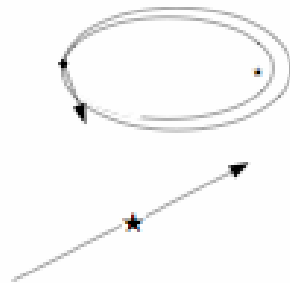


Formation scenario:

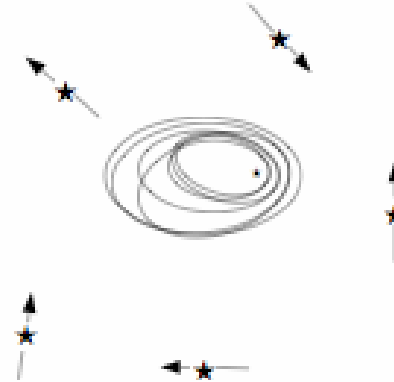
Planet X



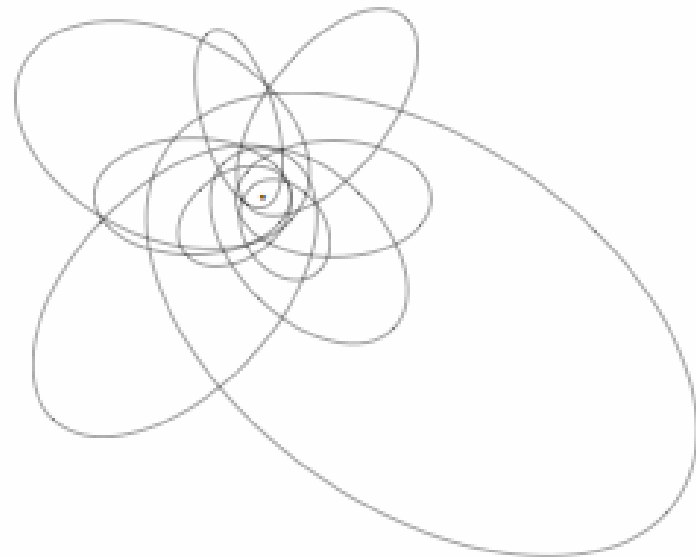
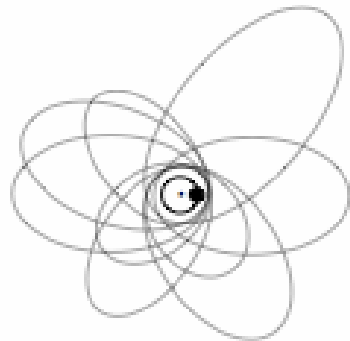
Rogue Star

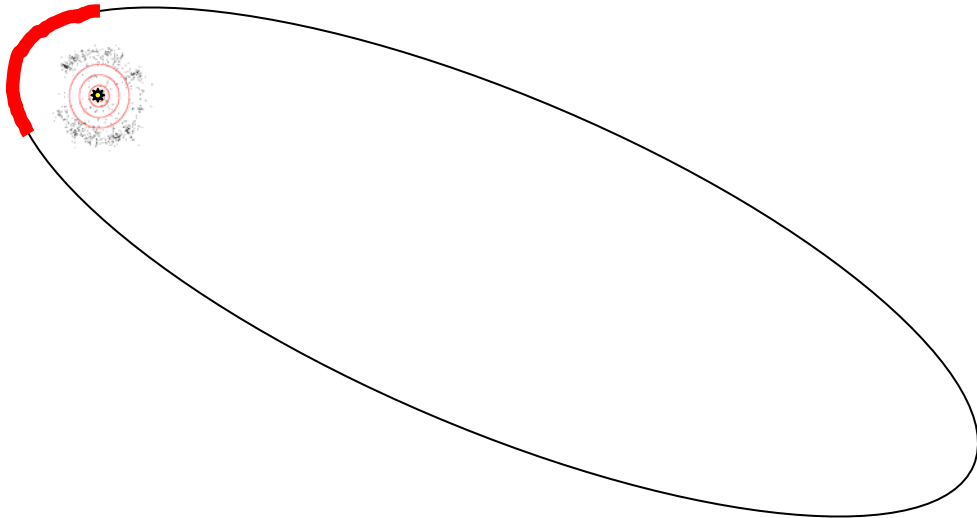
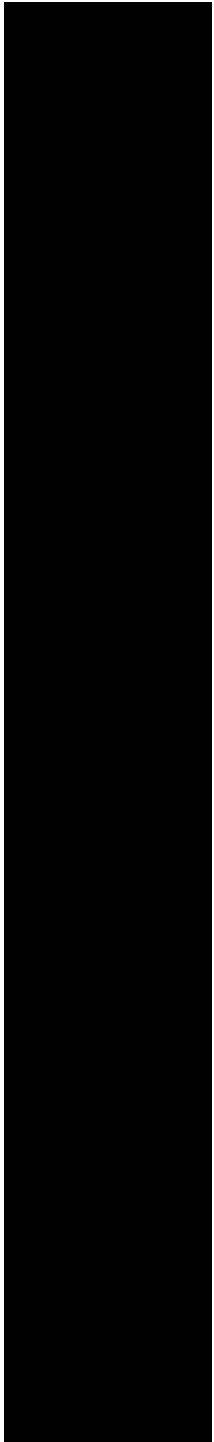


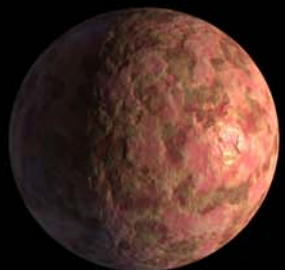
Cluster Birth



Expected population:







Sedna
800-1100 miles
in diameter



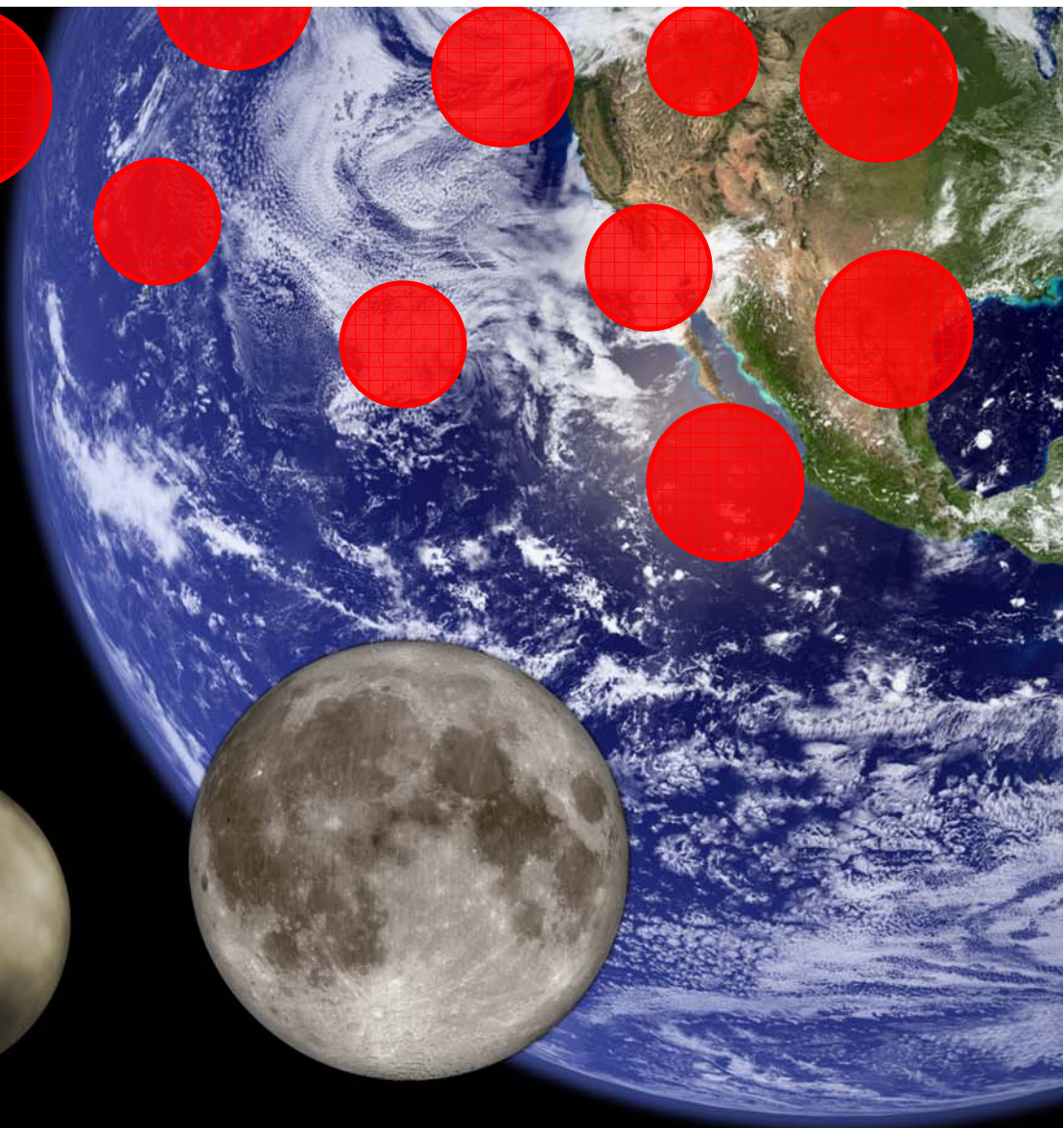
Quaoar
(800 miles)



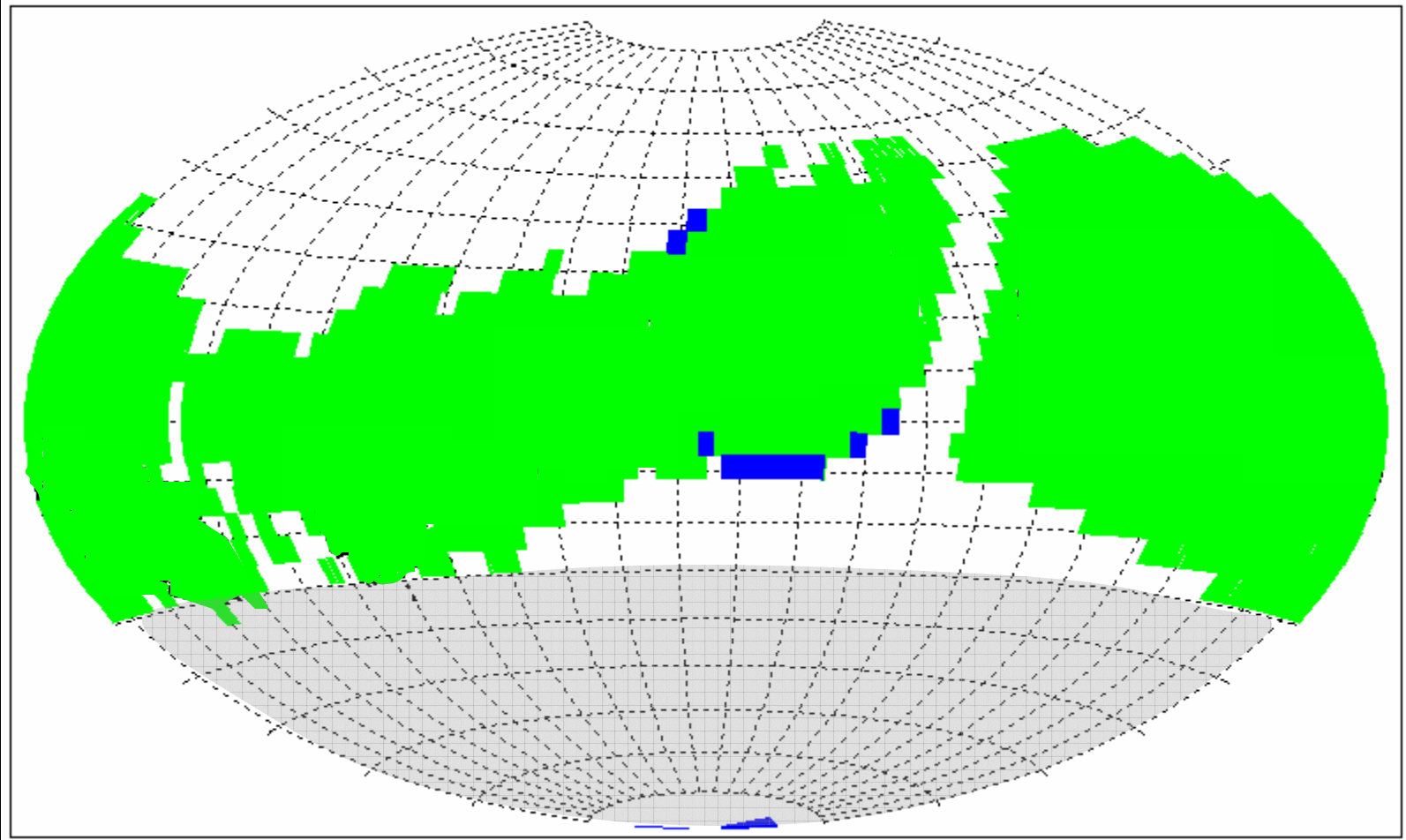
Pluto
(1400 miles)



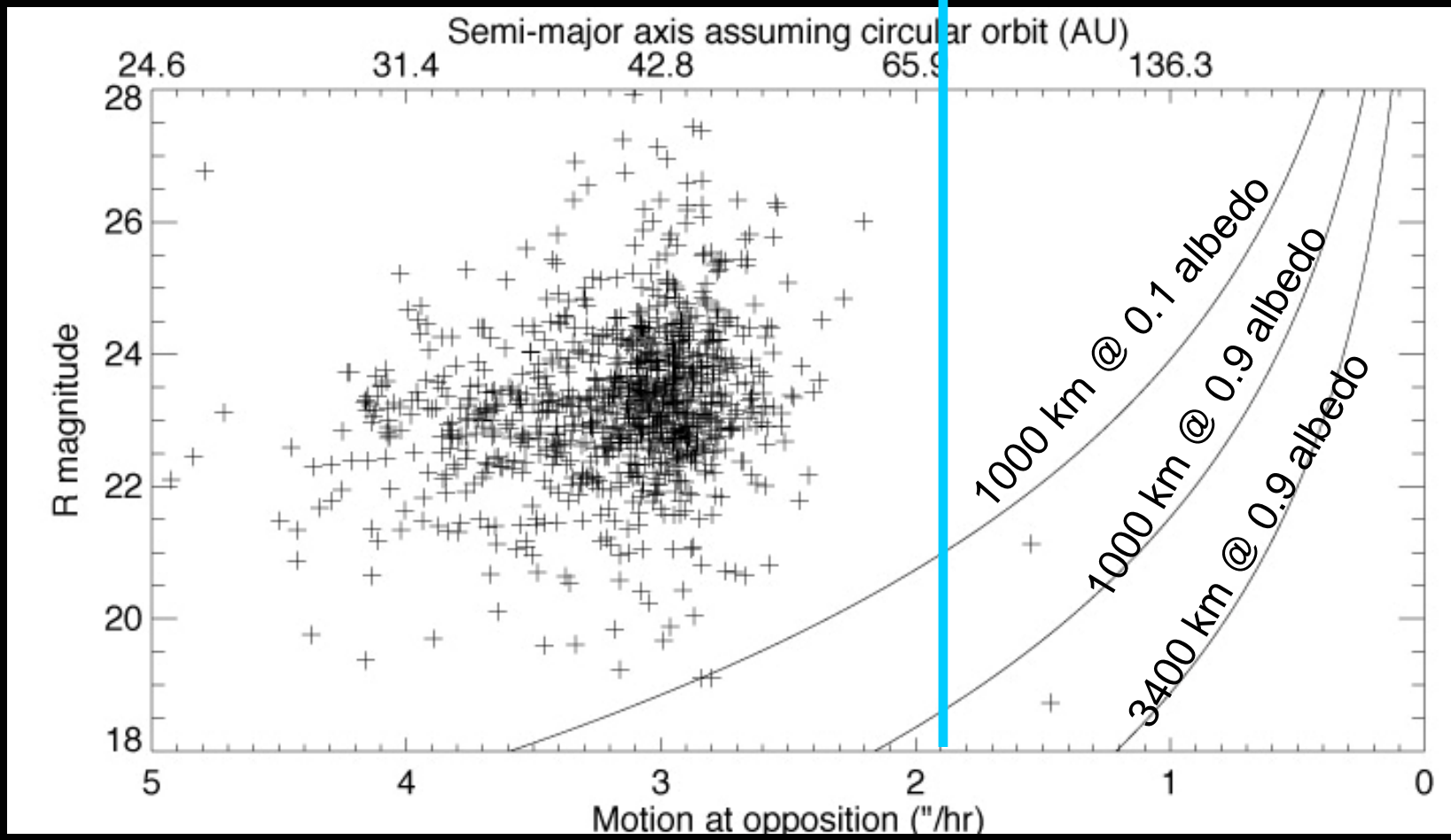
Moon
(2100 miles)



Earth
(8000 miles)



~motion limit of previous surveys



Sedna
800-1100 miles
in diameter

Quaoar
(800 miles)

Pluto
(1400 miles)

Moon
(2100 miles)

Earth
(8000 miles)