

What's in the Sky At IISAC2007?

<u>Sundown</u>

Uranus- appears low in the west. Uranus is one of the four gas giants of the outer solar system and the second planet discovered to have rings. Not in a favourable position for observation, Uranus may pose a challenge to identify during twilight
 RA: 22h 55m 46s
 DEC: -07° 38' 43"
 Apparent magnitude: 5.9
 Angular size: 3.3 arcseconds

Distance from observer: 20.7919 au

• Don't forget to watch for visible satellites (see separate information).

<u>9pm-10pm</u>

- <u>Pleiades</u>, Seven Sisters (M45) appears in the north north west. RA : 3h 47.165m Dec : 24° 12.585' Distance from observer: 400.00 ly Apparent magnitude: 1.37 Angular size: 1.8 degrees
- <u>Taurus</u> Looking north Taurus the Bull is a zodiacal constellation containing the bright star Aldebaran and the beautiful Pleiades and Hyades clusters. Taurus also contains the Crab Nebula (M1), the brightest supernova remnant visible.
 RA : 4h 8.202m
 Dec : 17° 15.358'
- Crab Nebula M1 towards the north east. The Crab Nebula is the remnant of a star that exploded as a supernova in A.D. 1054.
 RA : 5h 34.870m
 Dec : 22° 1.210'
- **Orion.** Toward the **north east** Orion the Hunter is one of the oldest and most well recognized constellations in the sky. It contains the red supergiant star Betelgeuse and blue-white giant Rigel. The Great Nebula may be found in Orion's sword.
- Orion Nebula M42 Easily visible to the naked eye as a fuzzy patch in the middle of Orion's sword. RA : 5h 35.440m Dec : -5° 25.553'
- Large Magellanic Cloud in the south. Object type: Irregular Spiral Sm Galaxy Rises: Circumpolar RA : 5h 23.532m Dec : -69° 44.909'
- <u>Small Magellanic Cloud</u> in the south Object type: Irregular Spiral Sm Galaxy Rises: Circumpolar RA : 0h 52.989m Dec : -72° 47.728'



<u>11pm-12am</u>

- <u>Eta Carinae Nebula</u> can be found in the south east Rises: Circumpolar RA: 10h 45.279m DEC: -59° 42.933' Distance from observer: 7000.00 ly Apparent magnitude: 6.46 Angular size: 2.6 arcminutes
- <u>Rosette Nebula</u> NGC 2237 (in the north) is a diffuse nebula. A telescope is needed to observe almost all nebulae. Because nebulae are faint, extended objects with very low surface brightness, low magnification will often provide the best views. Catalogue number: RA: 6h 30.622m DEC: 5° 2.877'
- <u>Saturn</u> is approx 20° above the **north eastern** Horizon. Saturn is the second largest planet in the solar system behind Jupiter, but it is many amateur astronomer's favourite because of its beautiful ring system. Saturn's rings slowly but constantly change their appearance, seeming to disappear every 15 years.

RA: 9h 44m 29s DEC: 14° 55' 08" Distance from observer: 9.1820 au Apparent magnitude: 0.6 Angular size: 20 arcseconds

• <u>Beehive Cluster (M44)</u> Looking north east close to Saturn, is an open cluster, also known as a galactic cluster. Many open clusters have a relatively large angular size, so they are best viewed in binoculars or low-power telescope eyepieces. Some open clusters are visible to the naked eye, including the two most famous: the Pleiades and the Hyades clusters.

RA: 8h 40.302m DEC: 19° 39.162' Apparent magnitude: 3.10 Angular size: 1.6 degrees

<u>47 Tucanae (NGC 104)</u> Looking south west (221 degrees from north) is the second brightest and second largest globular cluster in the sky. It is visible to the unaided eye and makes an easy target for binoculars. A small telescope shows a beautiful sight as countless stars coalesce around a dense and bright core. This cluster contains several million stars and is approaching us at roughly 19 km/s.
 RA: 0h 24.383m

DEC: -72° 2.825' Apparent magnitude: 3.95 Angular size: 47 arcminutes

Jewel Box NGC 4755 The Jewel Box in The southern Cross is a fine open cluster for small telescope users. NGC 4755 is visible to the naked eye as a faint glow. Binoculars will resolve about ten of the brightest members. A telescope will reveal more than 50 colourful stars superimposed on the haze of fainter members. The Jewel Box is a very young cluster, only 7 million years old. Most of its members are hot, blue stars which shine with a very high luminosity.
 RA: 12h 53.965m

DEC: -60° 23.366'



<u>1am-2am</u>

- Sombrero Galaxy (M104) Looking east (85 degrees from north, 29 degrees from horizon) Field of View: 2.5 degrees (width) 2.2 degrees (height) Limiting Magnitude: 12.8 RA: 12h 40.209m DEC: -11° 39.478' Distance from observer: 34.791 Mly Apparent magnitude: 9.02 Angular size: 8.3 arcminutes
- <u>Omega Centauri (NGC 5139)</u> in the south east (128 degrees from north,34 degrees from horizon) The finest globular cluster in the night sky, first discovered by Edmond Halley in 1677. Omega Centauri is a blazing ball containing over one million stars in an area larger than the full moon. This cluster is visible to the naked eye and delightful in binoculars. Telescopically it is simply amazing with many bright stars resolved. Use low magnification to see the cluster in its entirety and then zoom in for a closer look.

RA: 13h 27.120m DEC: -47° 30.548' Apparent magnitude: 3.68 Angular size: 45 arcminutes

• <u>southern Pleiades</u> Looking south (158 degrees from north,55 degrees from horizon) southern Pleiades is an open cluster, also known as a galactic cluster. Many open clusters have a relatively large angular size, so they are best viewed in binoculars or low-power telescope eyepieces. Some open clusters are visible to the naked eye, including the two most famous: the Pleiades and the Hyades clusters.

RA: 10h 43.140m DEC: -64° 25.510' Apparent magnitude: 1.90 Angular size: 1.7 degrees

southern Pinwheel Galaxy NGC 5236

Looking east (108 degrees from north, 29 degrees from horizon).

Spiral galaxies consist of a bright central bulge surrounded by a thin disk made up of spiral arms. Some spiral galaxies have a bar running through the nucleus. The arms of a spiral galaxy are sites of star formation, and are filled with gas and dust. The older central region does not exhibit star formation. Our Milky Way is a spiral galaxy, slightly larger than average, with several hundred billion stars.

RA: 13h 37.340m DEC: -29° 53.969' Apparent magnitude: 8.00 Angular size: 13 arcminutes

Blue Planetary NGC 3918

Looking **south east** (141 degrees from north, 51 degrees from horizon).

NGC 3918 is a fine planetary nebula visible in binoculars as a small 'bluish' star. Through a small telescope it appears similar to the planet Uranus. The central star is listed at 13th magnitude but is difficult to detect. Use moderate to high magnification. Photographs reveal two distinct layers of gas: a spherical outer region and a vase-shaped interior bubble. The inner bubble is apparently moving faster and pushing through the outer shell.

RA: 11h 50.583m DEC: -57° 12.963' Apparent magnitude: 8.00 Angular size: 12 arcseconds



<u>3am-4am</u>

• Ghost of Jupiter NGC 3242

Looking **north** (347 degrees from north,74 degrees from horizon).

One of the finest planetary nebulae in the sky, NGC 3242 is a full magnitude brighter than the more famous Ring Nebula (M57). A small telescope reveals a pale blue disc with diffuse edges and the prominent 11th magnitude central star. The disc of NGC 3242 is about the same size as Jupiter-hence its popular name: The Ghost of Jupiter. Due to its high surface brightness, the ghost takes high magnification quite well. Photographs reveal conspicuous red "fliers" on both poles of the nebula. These mysterious objects are much younger and move much faster than the gas in the parent nebula.

RA: 10h 25.057m DEC: -18° 40.318' Distance from observer: 1400.00 ly Apparent magnitude: 8.58

• Blackeye Galaxy (M64)

Looking **north east** (35 degrees from north,26 degrees from horizon).

The Black Eyed Galaxy is named for the prominent dark lane near its centre. The dark lane is a dust cloud which hides the background stars, and is itself an area of active star formation. The dark lane may not be readily obvious through a telescope. A combination of dark skies and high magnification is needed to detect it. Locate the soft glow of M64 in binoculars before taking a closer look with a telescope.

RA: 12h 57.015m DEC: 21° 38.863' Distance from observer: 20.000 Mly Apparent magnitude: 9.00 Angular size: 17 arcminutes

Jupiter Looking east, Jupiter at its brightest is the third most brilliant object in the night sky, only the Moon and Venus outshine it. The largest planet, it is more massive than all the other planets and moons combined. Jupiter is composed mainly of hydrogen and helium gas, the same material in the same ratios as makes up the sun. Through a small telescope the bands in the clouds of Jupiter can be detected as can the persistent storm called the "Great Red Spot". Jupiter has a very fast 10 hour rotation rate, with the equatorial regions rotating slightly faster than those at the poles. In 1994 the many fragments of comet Shoemaker-Levy 9 bombarded Jupiter leaving bruise coloured marks in Jupiter's upper atmosphere that were visible for weeks afterwards. RA: 16h 41m 45s DEC: -21° 31' 09"

Apparent magnitude: -1.9 Distance from observer: 5.9779 au

M67 (King Cobra) In north west (311 degrees from north,29 degrees from horizon). Five billion year old M67 is one of the most ancient open clusters known. It is a bright cluster containing more than 500 stars, many of which are resolvable with binoculars, including a couple of prominent 8th magnitude stars and about 50 9th to 12th magnitude stars spread out over a 25' area. To appreciate this cluster's magnificence, a moderate sized telescope is required as it brings in the fainter members.

RA: 8h 51.706m DEC: 11° 48.439' Distance from observer: 2700.00 ly Apparent magnitude: 7.50 Angular size: 25 arcminutes



4am to sunrise

• <u>NGC 6067</u> Looking **south east** (135 degrees from north,43 degrees from horizon). NGC 6067 is a fine open cluster visible with small binoculars. It may also be visible to the unaided eye under a dark sky far from city lights. This cluster contains about 100 stars of 8th magnitude and fainter in a 20' area. Some cluster members are binary stars. Close by is another open cluster, NGC 6087.

RA: 16h 13.654m DEC: -54° 14.173' Apparent magnitude: 5.00 Angular size: 14 arcminutes

 <u>NGC 4945</u> Looking south east (150 degrees from north, 71 degrees from horizon) NGC 4945 is an edge-on spiral galaxy in the constellation Centaurus. Telescopically, NGC 4945 displays a very elongated halo with moderate brightening towards its middle region. A larger telescope will reveal this galaxy's mottled glow and irregular core. NGC 4945 is a possible member of a galactic group headed by M83 and Centaurus A. It is also a "Seyfert galaxy", a galaxy with an unusually bright nucleus. This nucleus may contain a black hole. NGC 4945 is a very dusty galaxy. This dust blocks much of the galaxy's starlight and re-emits the light at longer wavelengths, changing this galaxy's colour.

RA: 13h 5.755m DEC: -49° 30.172' Distance from observer: 13.000 Mly Apparent magnitude: 13.00 Angular size: 25 arcminutes

- <u>NGC 2516</u> Looking south west (216 degrees from north, 42 degrees from horizon). NGC 2516 is a large open cluster that is best viewed with binoculars and visible to the unaided eye. It contains about 100 stars spread out over an area equal to that of the full Moon. Of special interest are its two 5th magnitude red giants and its three double stars of 8th and 9th magnitude. A small telescope is needed to separate the double stars. This cluster is about 70 million years old. RA: 7h 58.211m DEC: -60° 46.071' Apparent magnitude: 3.00 Angular size: 21 arcminutes
- <u>Butterfly Nebula</u> Looking south west (218 degrees from north, 42 degrees from horizon). The Butterfly Nebula is a diffuse nebula. Nebulae are giant clouds of dust and gas. RA: 7h 56.961m DEC: -59° 8.377' Angular size: 6.0 arcminutes
- <u>M61 (Swelling Spiral)</u> Looking north (5 degrees from north,51 degrees from horizon). M61 lies in the galaxy rich region of the Virgo Cluster. It is a challenging object to detect in binoculars but a nice galaxy for small telescope users. M61 is a face-on spiral galaxy which brightens abruptly near its star-like core. Long exposure photographs show two very distinct arms that may be detected visually with a telescope and moderate magnification. Four supernovae have been detected in this galaxy.

RA: 12h 22.218m DEC: 4° 26.292' Distance from observer: 60.000 Mly Apparent magnitude: 10.50 Angular size: 9.7 arcminutes

Don't forget to watch for visible satellites (see separate information).