KOSMANDU
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Kosmandu Astronomical Society is one such group of amateur astronomers mostly undergraduate, junior high and senior high school students from Nepal and abroad who share common interest in astronomy and the space sciences, and want to share that interest with others. This society was founded on 23rd October 2003 by some of the high school students interested in Astronomy and has an objective of developing the astronomical studies in Nepal.

Our Society has received a Meade ETX 90mm telescope from a charity program called Permission To Dream of the US. And we are using it to show the celestial wonders to the school and college students of the valley and outside. We also organise observation sessions for the public.

'Da Cosmic Calendar

Featured Space Mission
LCROSS: Water On The Moon

The Observation of Variable Stars
Colin Henshaw

Do you still read your Horoscope?
Pradipta Shrestha

The Red Planet in history
Exploring a world of puzzles

Important Dates
A glimpse

Stargazing
Kedar P Badu

Classifieds

Astro-poetry
from an unknown dark abyss

Lookout
Anything goes

I N S I D E

ED

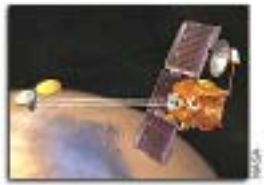
I had made a design probably 1 or 2 years ago to publish a full color magazine in glossy paper, which I never completed. Well some design come from it but now the size is different, changed for screen viewing. I spent day and night altering breakfast, lunch and dinner times, and sleeping at odd times to complete this. (I thought I'd show this first to my best friend but everything has changed. I am late in publishing this and we are no more together.)

If you have any write up consider sending them in for coming issues. Please refer to your friends and relatives about this ezine. Who knows they might find it more useful than you do. I hope to come up with a printed version of this magazine working with my friends in Kosmandu.

Thanks to Colin Henshaw and Kedar Badu for their articles. Thanks all others for their support in bringing out this freezine.

And don't forget to write to us about your first issue. Clear skies!

Pradipta Shrestha
pradiptashrestha@gmail.com



Retrograde motion of Mars suggested disorder and anarchy

Page 10 and 14

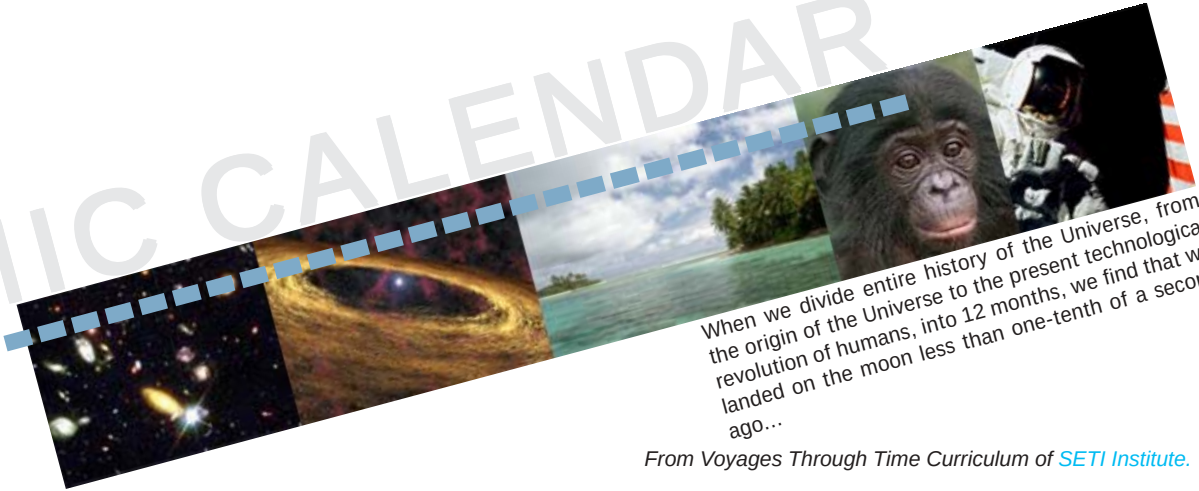
Watch for Andromeda at midnight, the 31st object in Messier Catalog

Page 17 & 18

'DA COSMIC CALENDAR

If we relate the life of a star to the life of a man...the Sun is but a week old...Life has existed on this planet for two or three days of the week that has passed; the whole of human history lies within the last second, and there are eighty years to come.

Arthur C. Clarke (1917 -) British writer and scientist. By Space Possessed.



When we divide entire history of the Universe, from the origin of the Universe to the present technological revolution of humans, into 12 months, we find that we landed on the moon less than one-tenth of a second ago...

From Voyages Through Time Curriculum of SETI Institute.

JAN | **FEB** | **MAR** | **APR** | **MAY** | **JUN** | **JUL** | **AUG** | **SEP** | **OCT** | **NOV** | **DEC**

January 1
Cosmic Evolution:
Big Bang 15 billion years ago

September 13
Planetary Evolution:
Earth and planets form 4.6 billion years ago

September 30
Origin of Life:
Life appears on Earth 3.8 billion years ago

December 7
Evolution of Life:
Multi-celled Eukaryotes 1 billion year ago

December 31
Last 4 hours
Hominid Evolution:
9:33 pm Bipedal Hominids 4.2 million years ago

Last 20 seconds
Evolution of Tech:
11:59:59.94 pm First Moon Landings 37 years ago

LUNAR CRATER OBSERVATION AND SENSING SATELLITE

WATER ON THE MOON

Lunar Prospector, 1988, provided the estimation of 6 billion metric tons of water ice in the polar craters. To detect the ice, for a hard proof, scientists are anticipating an impact early 2009 by a spacecraft named LCROSS. The impact will create plumes of dust and probably lunar ice that anybody on earth can observe with a backyard telescope. To know if the plume contains water ice only the scientists at NASA Ames Research Center will use special techniques and equipments.

Spectrometers will search for signatures of water in the plume in the infrared part of the spectrum. Spectra and images of the plume will be sent right from inside the plume by one of the two parts of the LCROSS spacecraft.

LCROSS will have two parts: Shepherding spacecraft and Centaur Second Stage. The Centaur Second Stage will first make the impact and Shepherding spacecraft will record and send the data with its infrared cameras and spectrometers then making another impact. So there will be two great opportunities for ground based telescopes and probably the HST too to observe the impact. First impact will primarily be observed from inside the plume itself but for the second impact there will be no instruments left to fly around the plume so it must be observed from the ground, here on Earth or from orbiting satellites.

Scientists from different universities in the US and the SETI Institute are now trying to figure out how bright the initial flash will be and how long the dust will linger above the surface and how long it will be visible to earthlings. They are testing here on earth with simulated impacts and high speed imaging.

One thing is yet to be decided: which pole will be impacted with the LCROSS? But we may not have to wait longer. There's a workshop to decide this on Oct 16-17 this year hosted by Ames Research Center. The spacecraft will be launched October 2008 as a secondary payload in Atlas V Rocket from Cape Canaveral along with Lunar Reconnaissance Orbiter (LRO), another ambitious Moon Mission. LCROSS will reach Moon in 80 days for impact in January of 2009 after orbiting Earth twice while LRO will reach the Moon in just a few days. These two missions are however independent of each other. After the mission concludes we will be sure of if we could use the water in future missions to Moon and beyond. The water could be used for astronauts to drink or make it into rocket fuel. This would of course save a lot of money as for anything blown up to space costs more than $10,000 per pound.

And why would we find water on the Moon? Because its poles have some craters which never get the sunlight and are cold like hell. Where would the water come from anyways? From similar impacts on the poles by some comets that made these shadowy craters.

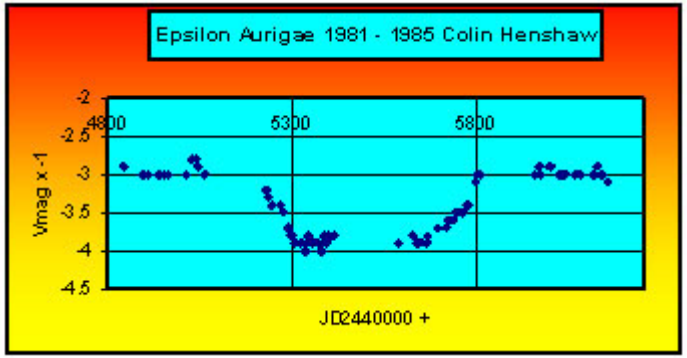
Much of the text is based on NASA Ames Research Center news article. For more information on LCROSS visit our website.

This shows the moon is basically right there as a stepping stone, and calling us.

Rick Tomlinson, U.S. campaigner for space exploration.Referring to the discovery of large deposits of ice at the moon's poles by the NASA space probe Lunar Prospector.Guardian (London)

THE OBSERVATION OF VARIABLE STARS

-COLIN HENSHAW



1) Types of Variable Star

A variable star can be defined as any stellar object that changes in brightness. There are numerous kinds of variable star, which can be broadly divided into three different categories: extrinsic variables, intrinsic variables, and eruptive variables.

Extrinsic variables are those stars that appear to change in brightness due to geometric factors. They usually consist of binary stars whose orbital plane lies along the line of sight, consequently the observer experiences periodic eclipsing phenomena. Included in this class are the Algol, â Lyræ, and W Ursæ Majoris eclipsing binaries, and Ellipsoidal Binaries. Algol stars consist of binary systems in which mutual eclipsing phenomena occur when one star passes in front of the other. Eclipses of the brighter star by the fainter produces a deeper minimum. Shallower minima occur when the brighter star eclipses the fainter, and these may only be detectable photoelectrically. In â Lyræ stars two closely orbiting stars are tidally distorted by gravity into an oval shape and the surface area presented to the observer is constantly changing. Consequently the brightness of the system is always changing. Again, eclipses occur when one star passes in front of the other, with deeper eclipses occurring when the fainter star passes in front of the brighter. in front of the brighter.

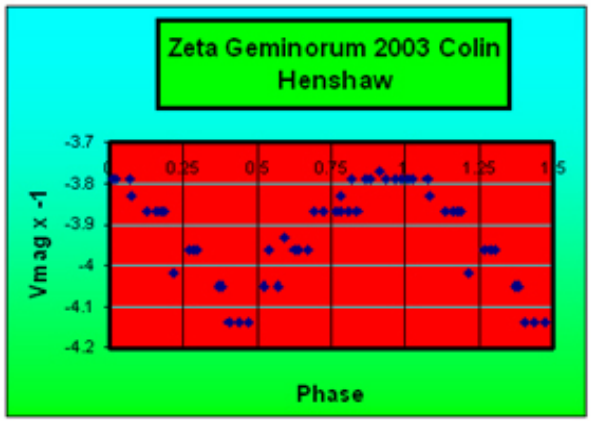
W Ursæ Majoris stars are similar, except that the stars are almost evenly matched, are smaller, and have shorter periods. Ellipsoidal Binaries are stars in which two closely orbiting stars, distorted from a spherical into an oval shape by gravitational forces, are changing in brightness entirely due to the constantly changing surface area presented by the two stars to the observer. Their orbital plane does not lie along the line of sight, so the two stars do not eclipse each other.

Intrinsic variables change in brightness due to physical changes inside the star itself. There are numerous kinds of intrinsic variables, but the majority of them show some kind of pulsating phenomena. The Cepheid Variables make up one well-known group, which pulsates with periods ranging from about three to 120 days. The diameter of the star changes with the period, and as it shrinks, it gets hotter and shines more brightly. There are corresponding changes in spectral type and radial velocity. Mira stars are supergiants that pulsate with much longer periods. They get brighter as they inflate, due to the fact that the star presents a greater surface area when larger.

Other pulsating stars include the RV Tauri stars, which have a secondary maximum, usually on the declining branch of the light-curve, Delta Scuti stars, which have early spectral types, short periods and small amplitudes, and RR Lyræ stars, which resemble Cepheids but have shorter periods and earlier spectral types. Cepheids and RR Lyræ stars are notable in that they obey a period-luminosity relationship that enabled them to be used as distance determinants within our galaxy. They have helped to refine the scale of the universe, and Cepheids observed by the Hubble Space Telescope in neighbouring galaxies have enabled their distances to be determined more accurately. RR Lyræ stars obey a different period-luminosity relationship to Cepheids, and are numerous in globular clusters, enabling their distances to be determined quite accurately. The lob-sided distribution of globular clusters around the sky has enabled astronomers to confirm that the Sun was not located at the centre of the galaxy, but off to one side. One notable class of pulsating variable star is the SX Phœnicis variables, which have moderate amplitudes, and very short periods, so short, that

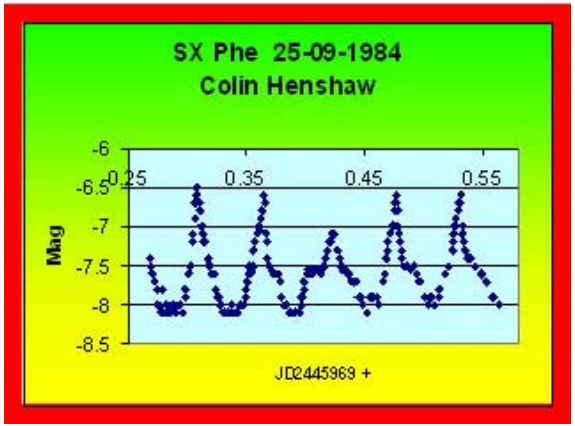
several cycles can be followed during a single night.

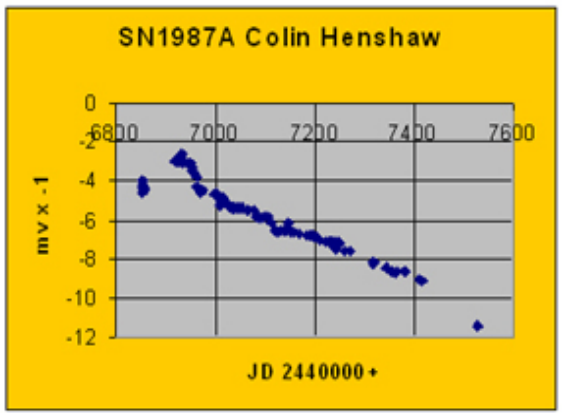
Eruptive variables include novæ, nova-like variables, dwarf novæ,
supernovæ, R Coronæ Borealis stars, and flare stars. All show semi-periodic or irregular erruptive behaviour, whilst in supernovæ the explosion is a one-off, never to be repeated. Novæ, nova-like variables, dwarf novæ, and type Ia supernovæ are all binary systems in which mass exchange has led to instability in the system.



One star in the system may fill its Roche Lobe and dribble mass onto its companion, which accumulates to form an accretion disc around the companion star. In dwarf novæ, matter from the primary star forms a bright hot-spot where it joins the accretion disc, and variability during the quiescent phase will be due to eclipses of this region by the two stars. Amplitudes in these eruptive stars are often many magnitudes.

Type Ia supernovæ occur when matter dribbling from a red giant onto a white dwarf causes the white dwarf to exceed the Chandrasekhar Limit. The companion star becomes unstable and self destructs in a catastrophic explosion. Because the mass at which this occurs is always the same, the luminosity of Type Ia supernovæ supernovæ is also the same, so these events have proved extremely useful in determining the distances of remote galaxies. This has lead to the realisation that the expansion of the universe is actually accelerating. Type II supernovæ occur usually when a red supergiant runs out of nuclear fuel, and its core collapses. This forms a neutron star in the course of a fraction of a second, and the outer layers implode onto it. This leads to the copious formation of neutrinos. Even though the neutrino has little interaction with matter, they are produced in such large quantities that the outer layers are blown away in the supernova explosion. Supernova 1987A was an unusual Type II supernova because the progenitor star was a rejuvenated blue supergiant. It is believed that it resulted from the merger of a close binary system containing a red giant which was rejuvenated by matter acquired from the companion star. This converted the red supergiant into a blue supergiant and caused the final explosion to be sub-luminous. R Coronæ Borealis stars are unusual in that the stars fade at irregular intervals due to the stars squirting out clouds of carbon particles that obscure the stars from view. Amateurs can play a very important rôle in determining when these stars are fade, so that professionals can then observe them in more detail.





2) Why Observe Variable Stars?

The observation of variable stars is a very rewarding activity in which the contribution of an amateur observer can still play a valuable rôle in our understanding of these objects. Variable stars are so numerous that professional astronomers do not have the time to monitor each and every one. Many tens of thousands of variable stars have now been identified, so it is often left to amateurs to document the changes in these objects. Some sophisticated amateurs are now using CCD cameras to monitor these stars, and are producing observations that match those of the professional. However, the number of amateurs working in this way is still very small, as the equipment is expensive. Consequently, observations made by traditional methods are still valuable, as it is by these methods that the majority of variable stars are followed. Observations can be made with any kind of astronomical equipment. One does not need a large telescope to make a significant contribution, as observations made with the naked-eye or binoculars can still prove valuable. Once the observations have been made, they need to be collected together and reported to one of the major astronomical organisations that archive observations of these objects. These will include the Variable Star Section of the British Astronomical Association, the American Association of Variable Star Observers, the Association Française des Observateurs des Étoiles Variables, and the Variable Star Section of the Royal Astronomical Society of New Zealand. The satisfaction gained by the observer is immense, as he is able to follow a star through all its changes, and know, that when the observations have been reported, they will contribute to an improved understanding of what has been happening in that particular object. There is always the possibility of discovering something new. A case in point is the southern hemisphere star UY Centauri, which for years was thought to be an unassuming low amplitude variable observable throughout its range with binoculars. It is a very unusual kind of star, but because its amplitude was small most amateur astronomers neglected it. Then in 2002 it was found to have faded down to tenth magnitude, and a small telescope was needed to see it. This fade was reported, and as a result professional astronomers in the southern hemisphere were able to obtain detailed spectra. Papers have since appeared in professional journals. Had amateur astronomers not monitored this star, the professional astronomers would have lost the opportunity to observe it and our understanding of the mechanisms behind its variability would be less. As stated earlier, even a naked-eye observer can make a significant contribution. In 1982, the bright eclipsing binary Epsilon Aurigæ underwent one of its rare eclipses, and this was extensively followed by amateur observers. This star is unusual in that it only eclipses once every 27 years, so any one observer can only expect to follow two eclipses in a lifetime. Maybe three if he's lucky! Amateur observers made numerous observations of this object which were subsequently correlated with photoelectric and spectral observations made by professionals.

3) How to Observe Variable Stars

There are several methods of observing variable stars, but the one recommended for beginners is known as the Fractional Method. In this method, the brightness of a variable is estimated as a fraction of the brightness between two constant comparison stars. The method is a form of interpolation.

How to estimate the brightness of a variable star, using the Fractional Method:

an estimate may be recorded thus:

A(2)v(3)B
which can be represented diagrammatically by:

```
A . . v . . . B
12      345
```

Here, two stars of known brightness, labelled A and B were selected as comparison stars. The brightness interval between A and B was arbitrarily divided into five grades. Had the decided, he/she could have divided the brightness interval into 2, 3, 4, 6, 7, or 8 grades, if this more accurately represented the situation as he/she found it. During this observation, however, the observer decided that a five point scale was most appropriate. It was found that on this occasion the star was two grades fainter than star A, and three grades brighter than star B. If the cata-

logue values of both comparison stars are known, then the magnitude of the variable at that time can be calculated. For example, if star A was listed at 5m·0, and star B at 5m·5, then it follows that the variable would have been at 5m·2. If at any point, a variable star is seen to be equal to one of the comparisons, the following observations could be recorded:

=A

in which case the star is recorded as being at 5m·0, or:

=B

in which case the star is recorded at 5m·5.
What if the star is either brighter or fainter than both comparisons? In this situation, extrapolation can be used. Consider the following two possibilities:

v(4)A(3)B

A(1)B(4)v

In the first instance, the variable is brighter than both comparisons. The estimate was made by dividing the brightness interval between the variable and the fainter comparison (B) into seven grades, and positioning star A on that scale. If the magnitudes of A and B are known, then the brightness of the variable can again be calculated. In the second instance the variable is fainter than both comparisons. The estimate was made by dividing the brightness interval between brighter comparison (A) and the variable into five grades, and positioning star B on that scale. If the magnitudes of A and B are known, then the brightness of the variable can be calculated yet again.

Once the observation has been made, certain other details need to be recorded, otherwise the observation is useless. No observation will of any value unless the time {in either Universal Time [UT], or the older convention of Greenwich Mean Astronomical Time [GMAT (= UT – 12 hours)]} is recorded. Some astronomical societies require the Julian Date, which is a dating system with the day starting at 12hrs UT. It consists of a large number, with the zero point was set in remote antiquity so negative numbers need never to be used. 12·00 UT on February 17th 2006 would be recorded as JD2453784·0. If Julian Dates are used, then time intervals between two observations can easily be calculated. The reliability (or class) of the observation should also be recorded, on a scale of 1 = reliable, 2 = mediocre, 3 = poor, as should the sky conditions, again on the same scale. Perfect sky conditions without a Moon would be regarded as Sky = 1, average conditions (perfectly clear, but with moonlight, moderate light pollution, or haze interfering), as Sky = 2, and if conditions were poor (intense light pollution, auroræ or thin cloud) then that would be Sky = 3. Factors affecting both reliability and sky conditions should be recorded in the notes column:

This version:
has links that can be clicked.
can be printed
is promoted through media

(M = Moon, AL = Artificial Light, H = Haze, L = Low Altitude, C = Cloud). The instrument and magnification should always be recorded, as should any change of instrument. (B = binoculars, OG = refractor, Spec = Reflector, etc.)

The following would be a typical extract from an observer's notebook:

Observer: Colin Henshaw, Eminence International College, 108, Gulshan Avenue, Gulshan-2, Dhaka 1212, Bangladesh.
Location: Roof of Park Pride Apartments, House No 5, Road 109, Gulshan-2, Dhaka 1212, Bangladesh.

Julian Date	Calendar Date	Sky	Class
JD 2453793	*26-02-2006*	*2*	*2*

GMAT	Star	Estimate	Mag	Instrument	Notes
03·52	SS Lep	X(3)v(5)B	5·2	12x45B	H
03·54	X Cnc	E(4)v(3)P	6·6	12x45B	H
04·02	RS Cnc	J(4)v(3)L	6·7	12x45B	H

The observer should always record his name, address, and observing location (if different).

Once the observers has collected all his observations together, he/she can plot them as a graph called a light-curve, that plots brightness against time. The light-curve shows how the star has varied during the time it has been kept under observation. In the case of regular variables such as eclipsing binaries or Cepheids, the phase can be plotted, in which the time of an observation is expressed as a decimal fraction of the star's period. If, for example, a Cepheid variable is behaving perfectly, maximum will occur at phase 0·0. In the case of an eclipsing binary, this would apply to a minimum. If the maximum or minimum is off-set from this phase, say occurring at 0·9 or 0·15, then there has been a change in the period since the last time the star was reliably observed. This would give an O – C (observed – corrected) residual in each case of -0·1 and +0·15 respectively. From such results a new value for the period can be calculated. This is one of the rewards of observation – seeing the results of one's labours come to fruition. If others can make use of the observations, then so much the better, and this adds to the satisfaction.

The author is associated with Manchester Astronomical Society of the UK.

related links

Information on Type Ia Supernova
http://www.pbs.org/wgbh/nova/universe/supernova.html

AAVSO - American Association of Variable Star Observers
http://www.aavso.org/

Center for Backyard Astrophysics, photometric studies of cataclysmic variable stars with CCDs and amateur telescopes
http://cba.phys.columbia.edu/

Finding Extra-Solar Planets
http://cfa-www.harvard.edu/planets/

In a sense human flesh is made of stardust. Every atom in the human body, excluding only the primordial hydrogen atoms, was fashioned in stars that formed, grew old and exploded most violently before the Sun and Earth came into being.

Nigel Calder (1931 -) British science writer and broadcaster. Originally broadcast. The Key to the Universe

FEATURE

BY PRADIPTA SHRESTHA

The returning of a planet to a constellation or staying in it for a longer time is not due to some supernatural/mystical reasons that some people believe are the reasons for most activities on earth. It happens just due to some physical laws and has no effect on us.

Do you still read Your Horoscope?

ASTRONOMY HAS ALWAYS BEEN CONFUSED WITH ASTROLOGY IN NEPAL. BUT HOW MUCH CORRECT ARE those people who believe the planets affect their day-to-day life in a pre-destined-like-manner? Man has advanced scientifically and technologically to a great extent but their biggest blunder was to believe in superstitions.

THE SIGNS ARE WRONG:

For Hindu *Jyotish sastra* prevalent in India and Nepal, most of the sign-givers don't know what they are calculating. They have a method that some astrologers developed hundreds of years ago by tracking the celestial wanderers (the five planets seen with naked eye, the sun and the moon). And some are even using the modern astronomy techniques and are even taught at different universities in Nepal and India. The zodiac sign given to a man by Nepali *jyotishes* is the zodiac constellation where Moon is positioned at the time of the man's birth. Even if they are accurate in calculating the position with ancient mathematics, the same man is given two different signs, if consulted with two different *jyotishes*. How can the moon be in two constellations at the same

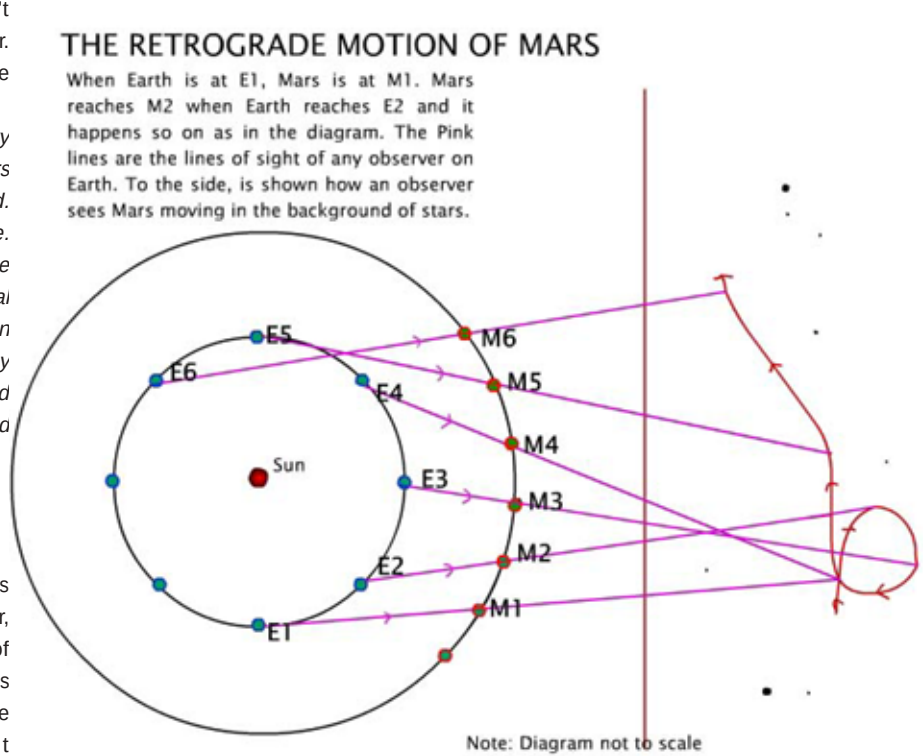
time?

Unlike Eastern *jyotishes*, Western astrologers use solar positions to give the zodiac sign to a man. They had calculated the dates for how long the sun would stay in each constellation (those we see in Horoscopes in newspapers) more than two thousand years ago. They used the same dates everyyear not knowing that in future the position of sun would be completely different because of a phenomenon described by modern astronomy as the precession of the equinoxes[1]. For example if you were born in between August 23 and September 22 of 1980 you are given the sign Virgo. But in fact you wouldn't belong to Virgo until you were born after the mid-September. From mid-August to mid-September the sun appears to move along the Leo constellation.

[[1] :The Earth's wobbling motion causes this. This is a very slow motion and is hard to detect. It takes hundreds of years of observation if no modern instruments and techniques used. This is the motion that changes the position of celestial pole. Note that some people argue that these dates need not be updated because the Gregorian Calendar is based on Tropical year (based on position of Earth in its orbit around the Sun that positions of stars are not taken into account). But if they believe the position of stars and planets affect our lives and are talking about the zodiac constellations its gotta be based on the position of stars]

THE PLANETARY EFFECT:

The planets moving in the sky, crossing the stars that do not change their position with respect to each other, do not have any effect in our day-to-day life. The returning of a planet to a constellation or staying in it for a longer time is not due to some supernatural/mystical reasons that some people believe are the reasons for most activities on earth. It happens just due to some physical laws and has no effect on us. The planets move in their orbits with different speeds according to the laws of gravity. The nearer to the sun the faster they would move. In their elliptical orbits they sweep away equal areas in equal times. As observed from the Earth, the planets, as small as a dot in the night sky, move along the line of ecliptic (the plane of solar system), which is divided into 12 different parts called the zodiac constellations. With the different speeds of planets, all moving around the sun, earth moves faster to some and slower to some. So from earth we see a planet sometimes reverse its direction back to the same constellation (as Earth overtakes the outer planets and inner planets overtake Earth). One example is of Mars, which reverses its direction twice in limited time making a loop-the-loop motion also called the retrograde motion. *See diagram.*



There are manyother bigger objects outside the solar system and still Uranus, Neptune, Pluto, Quaoar, Xena, etc inside the Solar System that these astrologers are unaware of, just because they cannot see them with their naked eyes like the other five 'visible' planets. Their list of planets do not include the Earth itself but include the sun, the moon, and their so-called imaginary planets *Rahu and Ketu*, (along with the five that can be seen with an unaided eye: Mercury, Venus, Mars, Jupiter and Saturn) making it to number nine. Because the number is 'nine' many astrologers and their followers claim that they were aware of the nine planets even before their discovery by astronomers; now how do you define *'planet'*?

WHY DO I FIND MY DAILY HOROSCOPE SO RELIABLE?

Do you still think they are? If your sign is wrong how can you rely on descriptions for that sign?

Instead of predictions, most of the horoscopes are designed to give advices that can work on anybody. Keep in mind that a man does not have only one character. There can be a set of character descriptions that when told Arians are like this-that, it simply looks as if it is working. If the same is told to Cancerians, again it looks as if it works.[2]

One idea to reject astrology is by taking an example of twins. Identical twins of same mother are born at the same place and at the same time. It means the planetary positions are same for the two, so the horoscope for both should be the same. But we have seen cases when one of them dies prematurely or dies soon after birth. [3]

DEVELOPMENT: THE HISTORY

So what came first? Astronomy or Astrology?

Of course astronomy came first! People used the moon phases to record time and make calendars long before they started relating the sky bodies with day-to-day life. Even the hunters could tell when the spring will return by recording the moon phases. Egyptians knew the Nile river would flood after one bright star rose in the evening, that told them that one year had passed by since the last flooding. Only later some people started blaming that star for the flooding. The word disaster is itself another word for *bad star*. These people may have observed that certain astronomical bodies, particularly the sun, affected the change of seasons and the success of crops. Based on such observations, they may have developed a broader system by which the movements of other bodies such as the planets affected or represented additional aspects of life. Also, for example, the connection with moon's phases with the rhythms of nature (the tides) and humans (menstruation) has been recognized in almost all civilizations and cultures.

The zodiacal signs originated in Mesopotamia around 4000 years ago. Later the Greeks adopted them (in around 500BC, where such philosophers as Pythagoras and Plato incorporated it into their study of religion and astronomy.), which were later passed on to other civilizations. Egyptians and Chinese devised other names and symbols. In the 2nd century BC, Ptolemy gave names to the twelve zodiacal signs for the constellations that lied in the ecliptic. The construction of the horoscope is based on the Ptolemaic system in the west as well as in the east, in which the earth is stationary and the heavenly bodies move around it in fixed patterns.

References: Cosmos (Carl Sagan), Britannica Encyclopedia, Encarta Reference Library

2: **ON STATISTICAL GROUNDS:** From *The Himalayan Times*, letters to the editor section, Monday, October 31, 2005, letter titled Wrong Prediction by Colin Henshaw, Manchester Astronomical Society.

I read with interest the news "Astologers blame disasters on Mars' proximity" published in THT on October 29. I would like to reassure the people that there is nothing sinister in this and it is an event that happens every 23 months. Planetary alignments have no effect on events on Earth, and anyone who suggests to the contrary is advocating superstitious nonsense. This can easily be dismissed on statistical grounds. There are 12 zodiacal constellations, and about 6,000 million people living on Earth; so, that should mean that there are about 500 million born under each one. So if an astrologer makes a prediction about, lets say, Cancerians, then with 500 million Cancerians to choose from, he is guaranteed to be correct with some of them. If, as they said, the recent Pakistani earthquake was predictable, and their predictions so reliable, then why didn't they forewarn about it before the event and evacuate the people? They are always wise after the event. A notable example of this was a set of astrological predictions for everyday in 2003, in which many weird and wonderful things were predicted; yet they failed to predict the invasion of Iraq!

3: There was a news. There were identical twin sisters who gave birth to their first child both at the same time. Because nothing was preplanned everybody wondered the coincidence. I found that one of them had given birth to a boy and another had given birth to a girl. It was merely a coincidence that they gave birth the same time, a rare one.

Notes:

In January 13th 2005, on the day of Saturn opposition (when Saturn was nearest to Earth after a little more than a year), I received a group-mail from an Indian Astronomer Ajay Talwar. He was going to be interviewed that evening on NDTV India along with a noted astrologer. I mailed everybody here in Nepal of the Astronomy community and sent text message to some about that. I was myself eager to see the TV program.

The astrologer was saying that Saturn's opposition had caused the Tsunami . He said he was a doctor later changed into an astrologer with years of research. He also said that this opposition would badly affect the lives of Cancerians because the planet resided in Cancer constellation. But in fact Saturn was not even in Cancer but in Gemini. Right then Talwar asked why nothing had happened the year before when Saturn was even nearer? And were all those dead in Tsunami disaster Cancerians? All who lost their homes also Cancerians? Of course it can't be true that all of them were born in the same date. Also if they could predict things why didn't they forewarn about it before the disaster and save thousands of lives?

The Sun remains fixed in the centre of the circle of heavenly bodies; and the Earth, turning upon itself, moves around the Sun.

Galileo (1564 - 1642) Italian scientist. Letter to Cristina di Lorena, Grandduchess of Tuscany.

MORE NOTES:

From Qs and As on Astronomy, Encarta Reference Library 2005:

Q: How were the sages of India able to accurately calculate eclipses and even the presence of nine planets without the help of the sophisticated equipment we have today? I have heard other non-industrialized societies such as the Dogon of Mali were also excellent astronomers.

A: There are periodicities in the recurrence of eclipses that allowed scientists as far back as 2,000 years ago to predict them, or at least to predict the seasons when they could occur. The best known of these periodicities is the "saros," named by Halley around 1700. Certainly the ancient Indian sages did not know about nine planets. Indeed, even today we are debating whether Pluto is a planet, so any non-telescopic information about the number of planets past Saturn was not based on reality. The Jantar Mantar in Jaipur, as well as several other observatories constructed in the 18th century by the Maharaja Jai Singh, have giant instruments that measure the positions of objects in the sky and give time on giant sundials. But the emissaries the Maharaja sent to the Western world were misled by the people they consulted, and they did not bring back news of the telescope, even though it had been invented and Jai Singh would surely have had one built, due to his great interest in modern science. There was a flurry of interest about the astronomical knowledge of the Dogon of Mali some years ago, but the report they had strangely acquired modern astronomical knowledge turned out to be false. The interest originally dealt with a report that they knew Sirius had a companion, but it turns out contact with travelers in the late 19th century could easily have brought knowledge of that widely reported telescopic discovery.

Q: My astronomy professor said that due to the Sun's cyclical orbit around this arm of the Milky Way, the Earth's perspective regarding the Sun's apparent transit through the heavens has changed since 2,000 years ago when the "science" of astrology was formulated. As a result of this quarter-turn shift, the Sun is no longer moving through the same constellations of the zodiac as it was before, and calculations are off by one constellation. Thus, instead of being a Cancer, am I actually a Gemini?

A: Yes, it is true the "signs" you see in the newspaper are not the constellations where the Sun actually is at those times of year, because of the precession of the equinoxes. And the Sun goes through parts of 13 constellations in the course of the year.
Furthermore, the idea that there are 12 "signs of the zodiac" is completely arbitrary—other cultures had different numbers of constellations filling the same space. There is simply nothing to astrology, and I hope that readers of this reply will spend their time on the fascinating topics in the science of astronomy instead of wasting time on the pseudo-science of astrology.

An excerpt from the Book 'Cosmos' written by astronomer and popularizer of science Dr. Carl Sagan (published in 1980):
Astrology contends that which constellation the planets are in at the moment of your birth profoundly influences your future. A few thousand years ago, the idea developed that the motions of the planets determined the fates of kings, dynasties, empires. Astrologers studied the motions of the planets and asked themselves what had happened the last time that, say, Venus was rising in the constellation of the Goat; perhaps something similar would happen this time as well. It was a subtle and risky business. Astrologers came to be employed only by the State. In many countries it was a capital offense for anyone but the official astrologers to read the portents in the skies: a good way to overthrow a regime was to predict its downfall. Chinese court astrologers who made inaccurate predications were executed. Others simply doctored the records so that afterwards they were in perfect conformity with events. Astrology developed into a strange combination of observations, mathematics and careful record keeping with fuzzy thinking and pious fraud...

Mars has always played a significant role in human society. The early Greeks noted that unlike the other planets, Mars sometimes seemed to reverse its direction.

Mars Odyssey Spacecraft: an orbiting spacecraft designed to determine the composition of the planet's surface, to detect water and shallow buried ice, and to study the radiation environment near Mars. The mission will last for at least two Martian years, or almost four Earth years.

the red planet in history

This "contrary" motion suggested disorder and anarchy to the Greeks, which, along with its reddish color, led them to name the planet after Ares, their god of war. The Romans later changed the planet's name to that of their god of war, Mars, and the name has remained ever since.

Mars has attracted the attention and imaginations of observers for thousands of years. The first serious observations of the Martian surface were conducted by Schiaparelli in 1877, whose work was expanded upon by Lowell in 1890. Until the dawn of the space age in the early 1960's, telescopic observations were the only way we could study Mars. Even the best telescopes, however, must still look up through the Earth's atmosphere in order to see out into space. It's a lot like trying to watch clouds from the bottom of a swimming pool: the objects are there, but they are fuzzy, wavering, and hard to make out. If we want to conduct serious observations of another planet, we need to go there.

Mars is a world of puzzles. It is both very similar to and very different from our own Earth. Mars is the fourth planet from the Sun and orbits at a distance one and a half times that of Earth's orbit. As a result, Mars receives much less light and heat from the Sun than the Earth does, so it is much colder. Also, unlike the Earth, Mars has a very thin low-pressure atmosphere which is unable to retain what heat it does receive. Because of the temperatures and pressures on the Martian surface today, water cannot exist in liquid form. Mars today is therefore a dry, frozen desert.

Mars is similar to earth in a number of important ways. It has an axial tilt of 23.98 degrees, very similar to Earth's 23.44 degrees. Mars therefore has seasons, just like Earth, with cold winters and warm summers. mars' rotation period, its "day", is 24 hours, 37 minutes again almost exactly the same as Earth's. Like Earth, Mars has ice caps at both poles. It has clouds, winds, dust storms, volcanoes, and channels. For many years, Venus was considered as twin of Earth. Unlike Mars, Venus is very similar in size and mass as Earth and therefore has very similar gravity. But Venus is a hot-house, with temperatures soaring to hundreds of degrees centigrade and atmospheric pressures high enough to crush our toughest metals like tin cans. Mars, on the other hand, could one day conceivably be changed to be more like Earth through advanced engineering known as "terraforming". In many aspects Mars is a much hospitable environment than Venus, making it an obvious target for our imaginations.

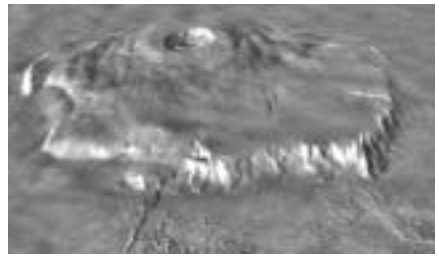
But Mars is very different from Earth as well. Surface temperatures on Mars range from hundreds of degrees centigrade below zero in winter to nearly freezing (0° C) in the summer. Because Earth's orbit is nearly circular, our seasons are virtually the same in both hemispheres. Mars travels in more elliptical orbit around the sun than does the other planets, so it is 20% closer to the Sun during southern summer than it is in Northern summer. This results in very long, relatively warm southern summers and very long, cold northern winters. Mars has an atmospheric pressure less than seven -tenths of one percent of Earth's, far too low to sustain most forms of life as we know it. The Southern ice cap is mostly of frozen Carbon dioxide (dry ice), not water. Much of the sur-

face of Mars is covered with craters much like the Moon. All of these differences make Mars a world unto itself, rather than twin of Earth or other planet.

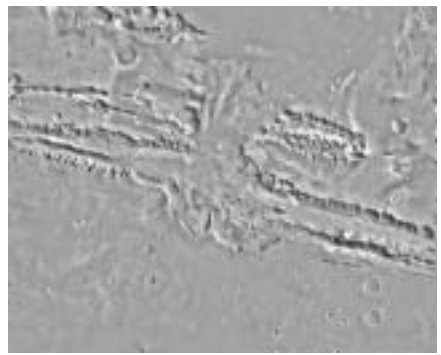
The northern and southern hemispheres of Mars are very different. In general, the south is heavily clustered, while the north is made up mainly of smooth dark plains. There are many exceptions to this general rule, for example, Hellas Planitia (planitia are smooth, low plains or basins) lies in southern hemisphere and, at 3 km below "datum", is the deepest basin on Mars.

The word "datum" is used rather than "sea level" because, obviously, mars currently has no seas! the datum is defined as the altitude at which the atmospheric pressure is 6.1 millibars (6.1 thousandths of the sea level pressure on Earth). The planet isn't either. There is a very large bulge in the crust located around 113º west longitude. This region, called the Tharsis Bulge, is home to the largest volcanoes on Mars – and in the entire Solar System. The southern hemisphere reveals the ancient cratering record of impacts early in the Solar System's history. On Earth, this record has been virtually erased by the effects of volcanoes, wind, and water. Planets such as Mercury died young, ceasing geological activity not long after the period of major impacts. Mars, however, was geologically active for most of the life of the Solar System – the great volcano Olympus Mons was probably active just thirty million years ago – so has examples of young terrain in the north right alongside the ancient cratered terrain in the south. In many ways, Mars uniquely records the history of the Solar System in its surface features.

The Southern Ice Cap of the red planet: There is also the Northern Ice Cap larger than this. These polar caps grow and shrink throughout the Martian year, just as the polar caps of Earth do. Credit- Malin Space Science Systems



Mt. Olympus Mons: Mars has the largest volcanoes in the Solar System. Olympus Mons is 22 kms high and 550 km in diameter, the largest in the Solar System.



Central Valles Marineris
The largest Canyon in the Solar System, it is even visible from Earth.
Credit: NASA

USEFUL MARTIAN LINKS

Mars Society
http://www.marssociety.org
NASA Mars Homepage
http://mars.jpl.nasa.gov
Atlas of Mars
http://www.msss.com/mars_images
A Mission To Mars Project NHS&DSFC Astro Club, UK
http://astronomy.neatherd.org/missionmars/default.htm

Article and photos from Mars Student Imaging Project Resource Manual, JPL, ASU

"Since the Martians were evidently intelligent creatures it had been resolved to show them, by approaching them with signals, that we too were intelligent."

From *War Of The Worlds* by H. G. Wells

FROM WAR OF THE WORLDS

channel

web

Download Sky Maps

http://www.geocities.com/kosmandu/sky2006.htm

Skyline "The Astronomy Newsletter"
http://www.sudburyastronomyclub.com/
To subscribe Skyline mail to hhealy@sympatico.ca with subjectline "add me" and tell where you are from. [Harold Healy]

The Citizen Scientist
http://www.sas.org/tcs/index.html

StarDate: Stargazing guide by McDonald Observatory and UT Austin
http://stardate.org

Max Planck Institute For Extraterrestrial Physics News
http://www.mpe.mpg.de/news.html

IMPORTANT DATES THIS YR

Nov 08 - Mercury Transits the Sun
Sep 7 - Partial lunar Eclipse
Sep 14 - Lecture: The Discovery of 2003 UB313, Pasadena, California
Sep 22 - Annular Solar Eclipse
Sep 25-28 - Transiting Extra-Solar Planets Workshop, Heidelberg, Germany
Oct 23-27 - Conference on Black Holes, Kathmandu, Nepal
Oct 04-10 - World Space Week
Oct 09 - Draconids Meteor Shower Peak
Oct 13 - Kuiper Belt Object 2003 UB313 (The Largest Dwarf Planet) Closest Approach To Earth (95.883 AU)
Oct 21 - Orionids Meteor Shower Peak
Oct 24 - MESSENGER, 1st Venus Flyby
Nov 03 - Taurids Meteor Shower Peak
Nov 10-19 - 11th International Astronomy Olympiad, Bombay, India
Nov 17 - **Leonids Meteor Shower Peak**
Dec 13 - Geminids Meteor Shower Peak
Dec 22 - Ursids Meteor Shower Peak

For more dates and information on the events listed visit JPL's Space Calendar or log on to ***www.kosmandu.org****.*

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Go to http://www.contact-themovie.com/main.html

popular

NOVEMBER 2006

STARGAZING

BY KEDAR P BADU

Balmiki's Young Astro Guru

There are some young astronomers in Nepal, who are highly committed to take the astronomical science to the ordinary citizens. One such person is ***Jayanta Acharya***, 31, the young Guru of astronomy at the Balmiki College in the heart of Kathmandu.

The college is the only place in Nepal where ancient sciences are taught. Jayanta says that there are two types of shastras (ancient knowledge) being taught there: the Falit Jyotish (which is pure astrology) and the Siddhanta Jyotish (astronomy). Jayanta teaches the Siddhanta Jyotish and gives knowledge to the students on the works of modern and ancient astronomers like Copernicus, Galileo, Ptolemy, Bhaskaracharya, Bramhagupta, Aaryabhatta etc.

Jayanta got the inspiration to study astronomy from his father, Prof. Dr. Shamba Raj Acharya, who is the Head of Jyotish Faculty of the Balmiki college. "I remember, when I was a young boy, my father used to show me the stars and planets in the starry night from the balcony of our house" recalls Jayanta.

Jayanta is very active to organize public observations of celestial events using a telescope in the college. He believes that these observations have triggered the interest among general public on the importance of astronomical science. Whether it is the Solar Eclipse or the Transit of Venus, Balmiki College is the only place where general public have access to observe the event through a modern telescope. And Jayanta is the person who organizes these events.

One of the most memorable moments for Jayanta was when he participated in the 26th Conference of International Astronomical Union (IAU) in Prague, Czech Republic, last August. He approached different agencies (RONAST, Mahendra Sanskrit University, UGC etc) to sponsor his visit to Prague, but no one supported him. Finally, Jayanta made a courageous decision to visit Prague on his own. It was a big embarrassment for Jayanta to see that he was the only person from Nepal to attend the conference and that no one participated from Nepal government on such an important conference that redefined the Solar System by disqualifying Pluto as a planet.

Prof. Jayanta Acharya, Balmiki's Young Astro Guru (with Nepali cap behind the telescope) showing Venus Transit to local people in June 2004 at Balmiki Campus premises.

Jayanta feels that the conference was highly useful to establish contacts with astronomers from other countries. He says that the astronomers from China, Japan and USA (NASA) are highly interested to establish observatories in Nepal if the government adopts appropriate policies to develop astronomy.

When asked about his future plans, Jayanta says that he wants to build a sundial at the college to teach the students how ancient scientists kept time. He will continue organizing public observation programmes in 2007 to observe the 50 years of International Heliophysical Year (IHY), an organization committed to take astronomy to the general public worldwide.

If the government is serious to develop the astronomical science, it should find ways to support the initiatives of people like Jayanta and stop pampering scientific burocrats at the Ministry of Science & Technology (MoST) and the RONAST.

November highlights:

The Sun is in Libra for most of November but crosses to Scorpius on 23rd before moving to Ophiuchus on 30th.

Transit of Mercury will take place on the night of 8-9 November, when the planet will be seen crossing the disk of the Sun. The "greatest transit" happens at 21:41:04 UT. Folks in the Americas and the Pacific will be positioned correctly to see the Transit.

Venus is very close to the Sun all this month. But, late in the month you might see the "Evening Star" following the sunset.

Mars is a morning object, in Libra, but difficult to see in the predawn glow although by the end of the month you might see Mars rising almost an hour before the Sun.

Jupiter is at conjunction (behind the Sun) on 21 November to become a morning object. So Jupiter will be invisible this month.

Saturn, in Leo, is the only planet well placed for viewing this month. It rises in the east late in the evening, and by dawn it's high in the south. Saturn will meet moon on the night of 12-13 November.

Meteors: The ***Taurids*** meteor shower reaches its peak on 3 November but you'll see less than ten an hour. The ***Leonids*** should be more interesting. It starts on 15 November, peaking on the 17th with a rate of one meteor every five minutes, and tailing off by the 19th. The ***Leonids*** tend to be fast-moving, and the brighter ones often leave persistent trains. Train your binoculars to the radiant point, the "sickle" of Leo.

The writer has a column called 'Stargazing' in Nepali Times National Weekly (English) that appears in the last Friday of each month for the coming month highlights. This November Stargazing article will appear 3rd of November in Nepali Times. The writer can be reached at kedarbadu@yahoo.com

StarGazing

MORE STARGAZING ARTICLES IN COMING PAGES...

"I remember, when I was a young boy, my father used to show me the stars and planets in the starry night from the balcony of our house"

Kosmandu's events. Pictures Copyright © Kosmandu Astronomical Society

OnTheWeb

Pictures of Messier objects
http://seds.lpl.arizona.edu/messier/
Learning the sky move
http://www.geocities.com/kosmandu/sky_chart.htm

MoonMadness

New Moon on September 22 (Autumn Equinox)
September 30 **First Quarter**
October 7 **Full Moon**
October 14 **Last Quarter**
October 22 **New Moon**
October 29 **First Quarter**
November 5 **Full Moon**
November 12 **Last Quarter**
November 20 **New Moon**
November 28 **First Quarter**

Moon at Apogee September 22
Moon at Perigee October 6
Moon at Apogee October 19
Moon at Perigee November 3
Moon at Apogee November 15

Watch out for Crescent Moon-Mercury-Jupiter conjuction on **October 24th** in the evening after sunset (low horizon).
On November 9 Moon will occult the **Pleiades (M 45)** cluster at 21:10 Watch from 7:15 pm to midnight.

skygazing

SkyGazing Highlights by Pradipta Shrestha. Software used (for maps and generating values): Cartes Du Ciel

MessierWatch

Brightest Messier Object For the Month:

M 45 Pleiades (The Seven Sisters), NGC 1952
Magnitude: 1.2 **Constellation:** Taurus
Size: 2° **RA:** 03h47.0m **DE:** +24°07'

Messier of the Month:

M 31 Andromeda Galaxy, Naked eye galaxy
This is the nearest spiral in the Local Group, shining with a visual magnitude of 3.4 covering 4 times the area of the sky covered by the moon.
RA: 0h42m42.00s DEC:+41°16'00.0"
Early November watch it at 11 when it is very close to the zenith.

Also look for the **Pinwheel Galaxy (M 33)** in Triangulum. Visual mag*: 5.70*

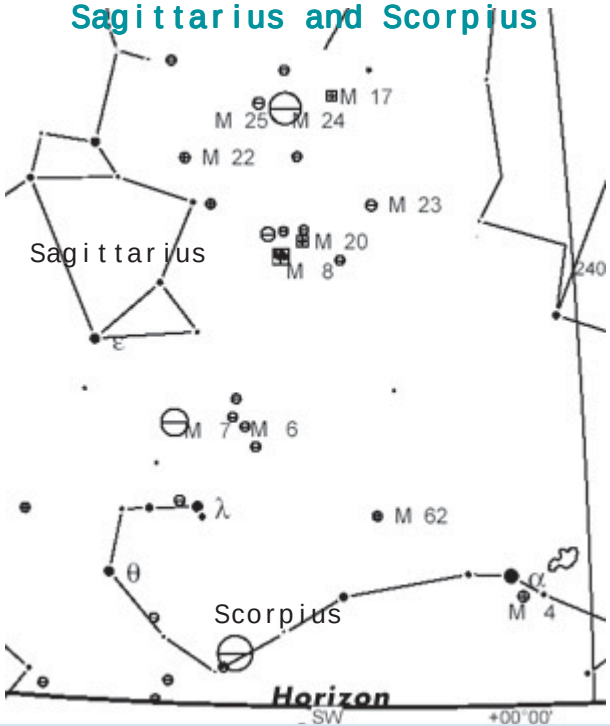
Other Evening Messiers to watch (In order of Brightness):

M44 Beehive Cluster (Globular Cluster) 3.1 Cancer RA:08h40.1m DE:+19°59' Size: 1.2° (Late Night)
M 7 Fine Naked Eye Open Cluster 3.3 Scorpious
M 6 Butterfly Cluster (Open) 3.3 Scorpius
M 42 Great Orion Nebula (Diffuse Nebula) 4 Orion RA:05h35.4m DE:-05°27' Size:1x1.5° (Late Night)
M 24 Rich Star Cloud 4.5 Sagittarius ****
M 25 Open Cluster 4.6 Sagittarius
M 39 Loose Open Cluster 4.6 Cygnus
M 22 Crackerjack (Globular Cluster) 5.1 Sagittarius
M 23 Open Cluster 5.5 Sagittarius
M 8 Lagoon Nebula (Diffuse) 5.8 Sagittarius ***
M 4 Bright Globular 5.9 Scorpius
M 17 Omega (Swan) Nebula (Diffuse) 6 Sag
M 29 Open Culster About 20 stars 6.60 Cygnus
M 20 Trifid Nebula 8.5 Sag

***** 1°x2° *** 90'x40'*

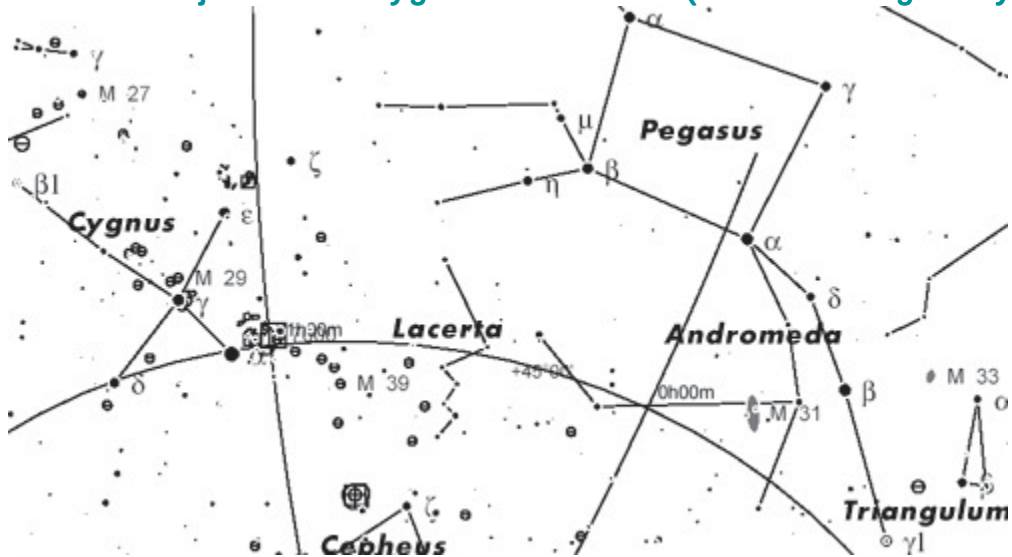
Note: Messiers in Sag and Scor will be low on horizon and not good enough to watch.

Messier objects in Sagittarius and Scorpius



MessierWatch

Messier objects in Cygnus and M 31 (Andromeda galaxy)



StarGazing

TwilightPlanets

EARLY NOVEMBER Saturn rises at midnight with visual magnitude +0.9 and covering 18' of the sky. It won't reach its culmination before twilight but its good to look at it while it is in the Leo constellation.

LATE OCTOBER Jupiter and Mercury set at nearly the same time while Mercury will slowly enter into the glare of the sun to finally transit in November 9. Jupiter with visual magnitude of -1.7 sets at about 06:00 in the evening so you can't expect a clear view of this planet. It will be a morning planet by December.

LATE OCTOBER evening, the Summer Triangle is nearly directly overhead. Altair, to the South, Deneb, to the North, and Vega, to the Northwest, make up the Summer Triangle. Altair belongs to Aquila constellation, Deneb belongs to the Swan (Cygnus) and Vega belongs to Lyra constellation. This triangle totally sets beyond the horizon only after the midnight. If you plan going out at 9, it will be hanging a little further to the West. At this time the great square of Pegasus will reach the zenith. And soon Andromeda will take its place.

At ten, you will find Capella of Auriga, Aldeberan of Taurus and the Orion Constellation already risen from the Northeast, East and Cassiopeia will be high to the North while Gemini is just rising.

Early to Mid-November, Sagittarius will be hanging low in the horizon after the twilight. So you can expect a good view of the MilkyWay if you are in a dark sky site, far from city lights and air pollution. Try some clusters and nebulae in Sagittarius. Check MessierWatch in previous page. Clear Skies!

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JokIng ArOunD! What Are YoU? A Red Giant?

:: Because deers look beautiful people put their heads on the walls. My wife is beautiful but I have only photographs of her on the walls.

:: A clinic in a remote village in Nepal read in English: 'Specialist in children and other diseases.'

:: Heard in a color TV shop: 'Sir do you have a red one?'

1. Jay and his three friends were on the rooftop with their binoculars in the night of Leonid Meteor Shower Peak. All of them saw at least 100 meteors that night except Jay. Why?

2. What did Saturn say to Jupiter?

3. What did Neptune say to Pluto?

Answers: 1. Because he was blind! 2. I am engaged! 3. Find another dwarf, kid!

M E S S A G E B O A R D

Hey Chara
After all I have completed my job. Keep smiling.
Musa

O Prashant
ke chha yaar? Hamilai birsane hoina hai. America kasto chha? ramro chha?
Nishan

Mom and dad,
Thanks for your support. Here is the magazine.
Your son.

Pragya, Abina, Reb
Missin' you here. My prayers are always with you. Take care.
Brother

Hey friends
Love you all for being there...
Ruby

Rujina, Alina,
My good good sisters, Dashain ra Tihar ko subhakamana.
Timro didi

Happpy Dashain & Tihar everybody,
Pradipta

Friends of Classic College (Batch 2062),
Ke ho guys? Aren't you planning any gettogether?
Sagun

Sangam dai,
I hope you're having a great time in China.
Shankar

Email your messages to kosmandu@yahoo.com with subject Messageboard.

cosmictripcomicstrip

POETRY

Twinkle twinkle

Ashok Gurung, Class 5

The twinkling stars above the sky
And the birds so sweet that fly
And Mr. Moon producing light
They all make my heart fly

'Twinkle twinkle' I sing
For the stars and Mr. Moon up above the sky
'Thank you thank you' I say
For making the night beautiful
And for the lights in the sky

http://www.geocities.com/bhrikuti_school

Up in Space

Up in space, like a ball
Planets fly about over all
Some chemicals cause planets to be blue
I wonder if there's only a few
Some are red by getting rusty
I wonder if they're very dusty?
Some look huge, some look small
And I know they're very tall.
But overall they're all like this
They're all **from an unknown dark abyss.**

by Seamus Garner aged 11
http://astronomy.neatherd.org/poetrycorner.htm

Look at the stars! look, look up at the skies!
O look at all the fire-folk sitting in the air!
The bright boroughs, the circle-citadels there!

Gerard Manley Hopkins (1844 - 1889)
British poet, priest, and classicist.

The mass starts into a million suns;
Earths round each sun with quick explosions burst,
And second planets issue from the first.

Erasmus Darwin (1731 - 1802)
British physician, biologist, and poet.
The first proposal of a "big bang" theory of the universe.
The Botanic Garden

The moon is up, and yet it is not night;
Sunset divides the sky with her; a sea
Of glory streams along the Alpine height
Of blue Friuli's mountains; Heaven is free
From clouds, but of all colours seems to be,
Melted to one vast Iris of the West,
Where the day joins the past Eternity.

Lord Byron (1788 - 1824), British poet.
Childe Harold's Pilgrimage

I stood upon that silent hill
And stared into the sky until
My eyes were blind with stars and still
I stared into the sky.

Ralph Hodgson (1871 - 1962), British poet.
Poems, "The Song of Honour"

A broad and ample road, whose dust is gold
And pavement stars, as stars to thee appear,
Seen in the galaxy, that Milky Way
Which nightly as a circling zone thou seest
Powdered with stars.

John Milton (1608 - 1674), English writer.
Paradise Lost

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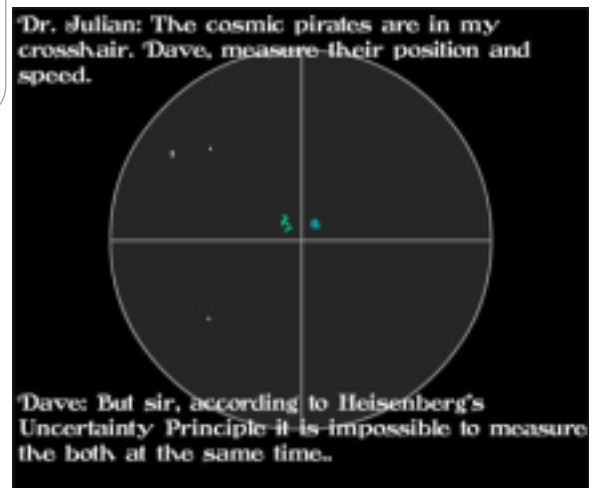
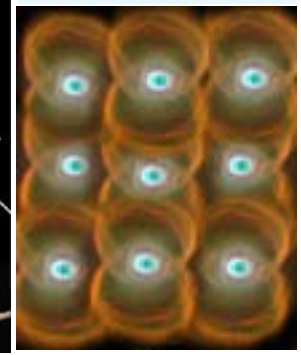


Shallow Space Pictures by Trouble Space Telescope



Eye eye eye eye eye eye eye eye eye nebula = 3x3 eye Nebula

A crab in Space???

Credit: JPT, KhASA

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Code: 555-KTN-PSN

SPACE CONTEST

Win a CD containing:

The Astral Journal (PDF)
Moon Map (PDF)
Planishphere lessons (PDF) and PDF planispheres
Cartes Du Ciel (Free sky charts software)
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Space Wallpapers

Answer these questions and win a CD!

Only for school going students (Grade 1-12) of Kathmandu Valley. Entries should be sent by email (kosmandu@yahoo.com) before the end of November along with your name, email, class, school, address and phone in the body and the code in the upper left corner of this page in the Subject line. Two winners will be chosen by lucky draw in case of multiple correct entries. Winners will be announced online in the first week of December and will be notified by email. We will also have a nice star party at the school where the winner studies. Kosmandu's decision will be final.

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How many degrees does the sky shift in one month?

What is the source of Leonid Meteor Shower?

Note: The freewares included in the CD can be freely distributed for non-commercial purposes.

LOOKOUT

R.I.P PLUTO, WELCOME ERIS

They could have made it to 53, or just added Eris to the list. 12 was not a good idea. Strictly speaking the most scientific definition would for sure strip Pluto from it's 'Planet' status. People have now started questioning why Pluto had to be taken off of the list. What's the problem with these guys anyways?

To learn more on this issue click here...

WriteToUs

What do you think about the latest IAU definition of Planets and stripping of Pluto's status as a full fledged 'Planet'?

NextIssueHighlights

Take our Survey: To participate email kosmandu@yahoo.com Subj: TAJSV
All level and all faculty students are encouraged to participate
The Number Of Planets: Why did we choose 8?
Reader's forum: On IAU definition and Pluto's planetary status
Everyone is encouraged to write
From Nepalese Astronomy Community: Who are watching the skies?
Star parties, food and music on the rooftop

Well Aastha band is my favorite and I am a great great fan of Vanessa Carlton. Now you can figure out why they are here...
Send tributes to kosmandu@yahoo.com *-Ed*

Our Meade ETX 90 mm telescope donated to us by Permission To Dream of the US.

Pictures taken using Olympus X100 3.2 megapixel digital camera and Meade ETX 90 mm telescope with Super Plossl 26mm eyepiece
10/30/2006 9:24 pm and 9:26 pm Waxing gibbous Moon
By Pradipta Shrestha

MORE PICTURES ONLINE AT OUR YAHOO! GROUPS WEBSITE