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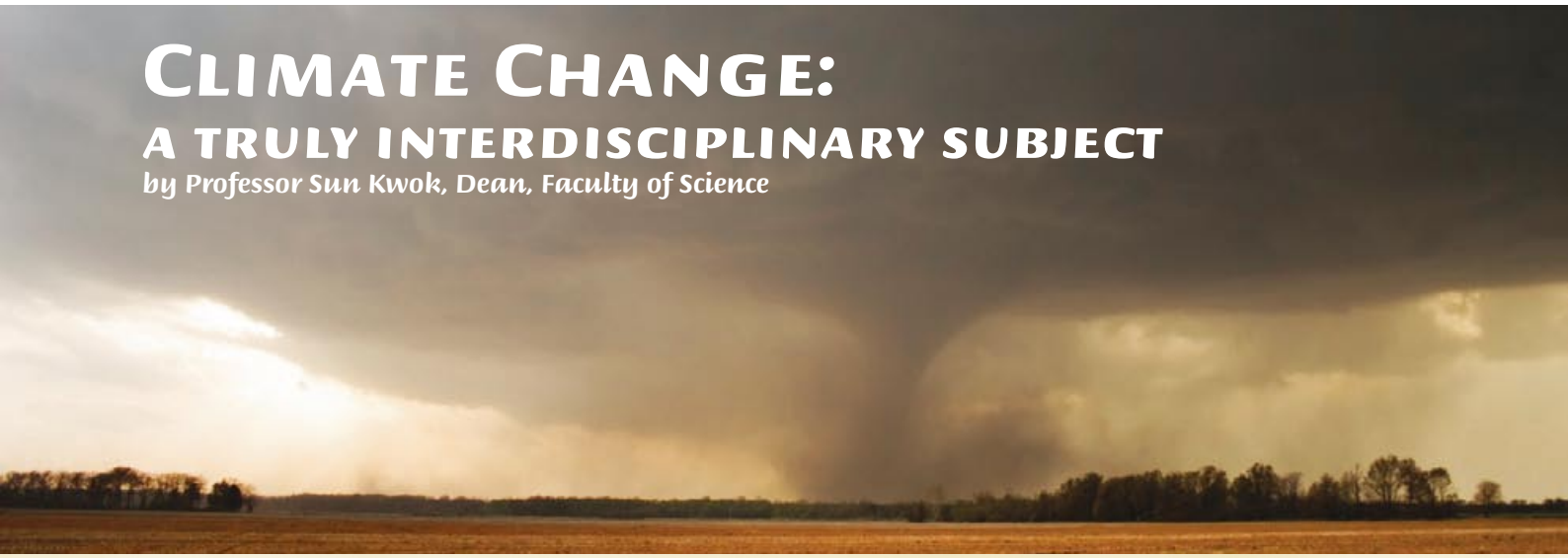

Climate Change:
A Truly Interdisciplinary Subject

by Professor Sun Kwok, Dean, Faculty of Science

Since the release of the report by the Intergovernmental Panel on Climate Change in February 2007, there has been a lot of press coverage both in Hong Kong and in the world on the possible adverse effects of climate change in the coming decades. The fact that we had the hottest Lunar New Year's day in record (25.3^{0}C) also heightened the local interest on this topic. Will the temperature get to unbearable levels? Will the rise in sea level resulting from the melting of polar ice destroy our habitat? Will Hong Kong be a livable place 50 years from now?

While there is almost indisputable evidence that human activities contribute to global warming, the predicted degree of temperature rise and the causes behind such rises remain uncertain. At a local level, the continuous rise in recorded temperatures has a variety of factors behind it, and to accurately assess the cause and corrective actions required is not a trivial matter.

From the Editor

Dear readers,

According to the National Oceanic and Atmospheric Administration in USA, the Earth experienced the warmest January ever recorded. In fact, global warming is an indisputable phenomenon. In this issue of science@HKU, we invite experts in our Faculty to share their views on global climate change and its consequences.

To help in protecting our environment, you are encouraged to receive this newsletter in PDF format on the web with the link http://www.hku.hk/scinews or by informing us at scinews@hku.hk. Last but not least, you may win a HK$50 book coupon by correctly answering the one question on page 3. You will also find the answer to the quiz in the last issue there.

Yours sincerely,
Dr H F Chau
Chief Editor

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Our current appreciation of the importance of carbon dioxide (CO_2) on global temperatures began with the space probe to the planet Venus, where astronomers discovered that large amount of atmospheric concentration of CO_2 is responsible for Venus' high surface temperature (700^{0}Celsius). Like a greenhouse, CO_2 allows the sunlight to come in but blocks 99% of all infrared radiation emitted from the surface of Venus. This provides us with an important lesson; we can learn a lot about the Earth by observing other planets and satellites in the solar system.

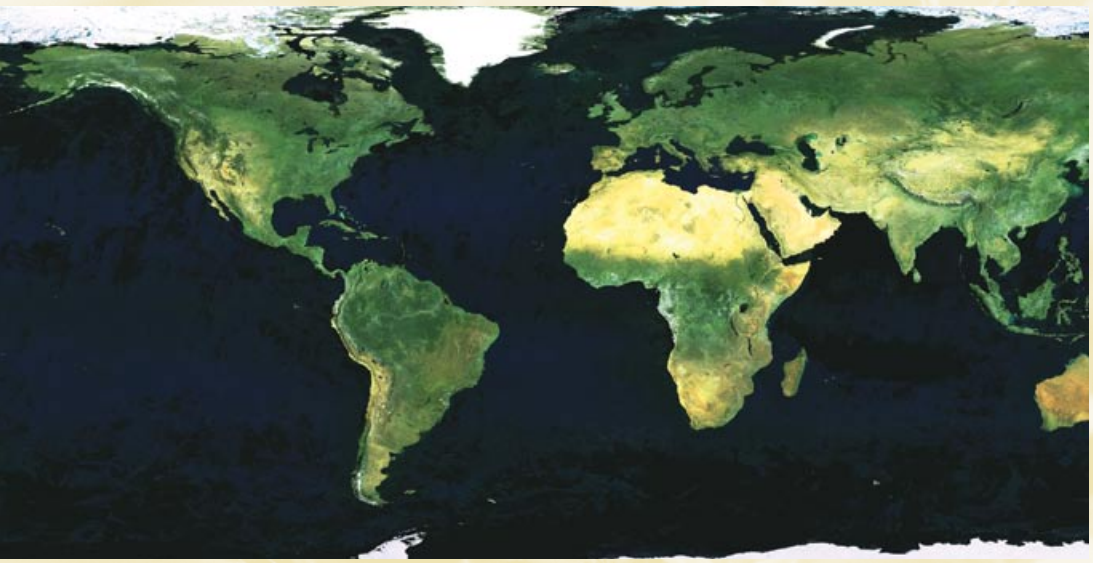


Photo credit: European Space Agency

A color mosaic of the Earth built up from 1561 orbits of observations by the Envisat satellite. The oceans, ice caps, vegetation, and deserts can easily be seen in this picture

The Earth is an integrated system consisting of its solid crust, oceans, and the very thin and fragile atmosphere. The increased amount of CO_2 in the atmosphere will warm the ocean, which can lead to increased frequency of calamities such as typhoons, and change the pattern of ocean currents that permit the high latitude European countries to have mild winters. The oceans also absorb much of the CO_2 in the atmosphere, and interactions between the atmosphere, oceans, and the solid crust can be very complicated. In order for us to have a full understanding of climate change, we need to study the physical, chemical, and biological processes at work in all these three components.

We also have to recognize and learn from the fact that our Earth has undergone drastic changes in climate over its history. Our current atmosphere is made up of nitrogen and oxygen molecules, with small amounts of argon, CO_2 and water vapor. However, this was not the way it was at the beginning. Our primordial atmosphere consisting of hydrogen, helium, methane, ammonia and water was totally lost through evaporation, and was replaced 4 billion years ago by a secondary atmosphere of gases released from the interior. The emergence of life and the onset of photosynthesis by microbes 3.5 billion years ago introduced oxygen to our atmosphere, which has later become the essential element for animal life.

About 4 billion years ago, the impact of a Mars-sized object on Earth created the Moon, and bombardment by comets introduced steam which cooled to form (or at least contributed to the formation of) the oceans. At various times, impacts from extraterrestrial objects such as asteroids and comets created so much dust and debris that they shielded the Earth from sunlight, leading to significant cooling and causing mass extinctions of living species. The most well-known event was the impact near Yucatan Peninsula in Mexico 65 million years ago that killed off the dinosaurs. Our fluctuating climate was modulated by the recycling of CO_2 and water trapped in carbonates in the Earth's crust through movement of continents (plate tectonics) on time scales of tens of millions of years. On shorter time scales, the variations of the orbital and spin motions of the Earth have led to major episodes of glaciations and large changes in global temperatures.

There is no doubt that recent human activities have had an impact on our environment. In a short period of only a hundred years, human beings have managed to significantly alter our surroundings. The burning of fossil fuels has enhanced the greenhouse effect through the release of CO_2, and the injection of chemicals have led to ozone depletion in the stratosphere, resulting in increased exposure to solar ultraviolet radiation. Factory emissions have produced large amounts of acid precipitation which has undesirable effects on living things.

In summary, there has been significant climate change over the history of the Earth due to internal and external factors. These changes are accelerated in recent times by human activities. In order for us to make the correct economic and political responses to these changes, we need to have a comprehensive understanding of the forces at work. We need to study all components of the Earth, and to learn lessons from other planets (e.g., Venus and Mars) and satellites (e.g., Titan and Europa) in the solar system.

The fundamental element of good science is observation. We need to monitor our home planet by keeping track of the radiation flux of the Sun, changes in chemical composition of the atmosphere, changes in snow, ice, and cloud cover, changes in temperature on land, in the seas, and in the atmosphere, as well as changes of the biosphere. All these observations are now being undertaken from space, the only place one can have a global perspective.

An understanding of physics, chemistry, biology, ecology, geology, palaeontology, as well as astronomy is required to tackle these problems. Only with an interdisciplinary approach and using space-observations as a platform, can we correctly predict our future. We, at the University of Hong Kong, can play a role in this worthwhile venture by building on our existing expertise and collaborating with each other to learn more about the planet we live in. There is not a more pressing problem facing the world today.

Climate change and human survival

by Professor WWS Yim, Department of Earth Sciences

From the emergence of early humans to the present day population of 6.5 billion, human action has drastically changed planet Earth. This includes impacts on the atmosphere (air), the hydrosphere (oceans, rivers, lakes and groundwater)/cryosphere (frozen earth), pedosphere (soils including sediments), biosphere (animals and plants) and lithosphere (solid earth). Of greatest concern at present is the climate forcing caused by the most important greenhouse gas carbon dioxide which is the result of fossil fuel consumption. Based on the measurement of carbon dioxide trapped in air bubbles in ice cores in Antarctica, the present day concentration is the highest in the past 0.45 million years. Because of this, climate change is increasingly recognized as a threat to our future survival.

A jackup rig used for offshore drilling in Hong Kong. The study of sediment cores has revealed a 0.5-million year record of climate and sea-level changes.

In Hong Kong, the study of sediment cores collected from the coastal waters has revealed a 0.5-million year record of climate and sea-level changes. This record shows five interglacial-glacial cycles of approximately 0.1-million year duration which can be attributed to natural cyclic changes in earth's orbit around the sun. Based on evidence found in Hong Kong and elsewhere, the termination of each glacial period or ice age was assisted by the natural release of carbon dioxide and methane produced from sub-aerially exposed continental shelves. However, the largely unanswered but important science question is whether the dramatic increase of carbon dioxide through fossil fuel consumption since industrialization in the 18th century is causing an irreversible change to this natural cycle. Ironically, it is becoming clear that population growth and economic development especially in megacities such as Hong Kong are directly in conflict with nature and are contributing the most to carbon dioxide production.

The human race needs its planet. We depend on it completely, because we evolved from it, remain forever part of it, and can exist only by courtesy of the self-sustaining earth system. Earth scientists have unraveled many of the Earth's secrets and have made great progress in understanding how our planet works. Can we not learn from the causes of extinction of the life forms in the past? More Earth Scientists will be needed to assist society to ensure that there is a future for our children, for their sake.

See the downloadable brochure Climate Change - the 'stone tape' at http://www.esfs.org for further details. Professor Yim is a member of the Climate Theme Science Implementation Team of the United Nations' International Year of Planet Earth 2008.

Make a Guess:

Do you know how the feature pointed by an arrow in the picture of the moon was formed?

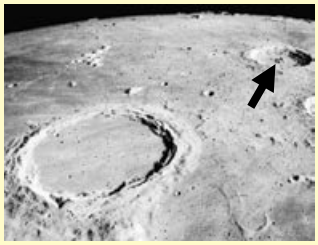
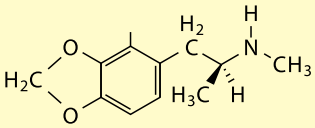


Photo credit: NASA

Prize: $50 book token Deadline: Friday, May 25, 2007

Please email your answer together with your name and school (for students), to scinews@hku.hk. FIVE winners will be drawn randomly from the contestants who give the correct answer.

Answer to Last Issue's Quiz:



The chemical name of this molecule is 3,4-methylenedioxymethamphetamine (MDMA), but it is more commonly known by one of its street names - Ecstasy. It is an illegal drug, which also has other street names including Adam, XTC, hug, beans, love drug, or in Chinese: 狂喜, 忘我, "Fing" 頭丸. MDMA is an illegal drug that acts as both a stimulant and psychedelic, producing an energizing effect, as well as distortions in time and perception and enhanced enjoyment from tactile experiences.

The compound belongs to a class of drugs collectively known as the Amphetamines. It is generally regarded as a drug associated with a sub-culture known as "RAVE". The drug is addictive and can cause health hazard including fatigue, loss of appetite, depressed feelings, and trouble concentrating. In high doses, the drug can interfere with the body's ability to regulate temperature. This may result in organ failure and even death.

Winners of the last issue's quiz will be informed individually.

Lessons from the past, clues for the future: What can we learn from quaternary science?

by Dr Adam D Switzer, Department of Earth Sciences

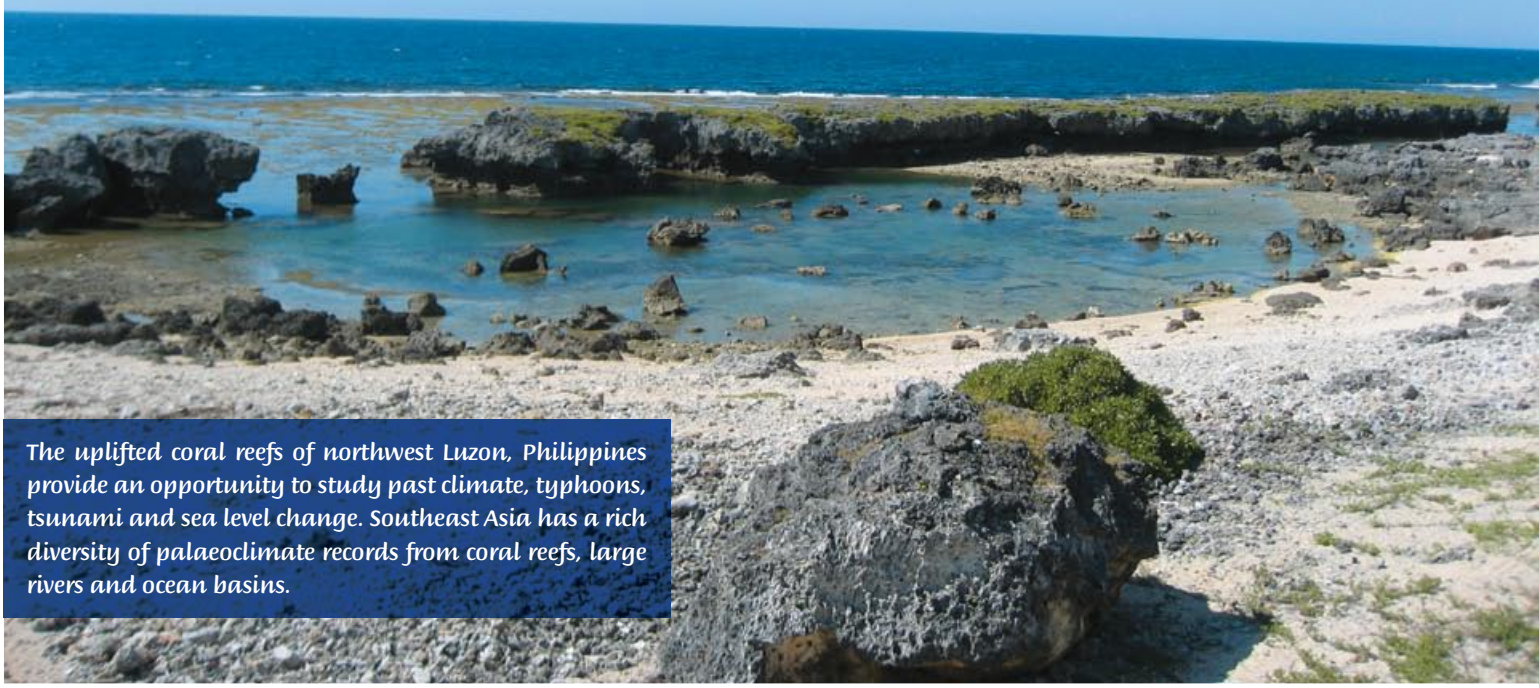
Earth's climate is constantly changing through time. The system is never static and all analysis of climate change must consider this background fluctuation. Over geological time scales' a shift in global temperature of 2°C or a sea-level change of 2-3m cannot be considered a large event. Such events have been numerous in the geological past and are often very rapid.

The quaternary sub-era covers the last 2.6 million years of Earth history. This is a period of extraordinary climatic change and its study constitutes a dynamic, multidisciplinary field of research that has been growing in scientific and societal importance in recent years. One important reason to understand past climate changes is to assist the predictions for the future, a concept that is broadly accepted in both academia and the mainstream media. In many cases, quaternary terrestrial and marine sediments contain the fossil remains of existing species of flora and fauna, and their immediate predecessors. Such records provide valuable insights into extinctions, recent evolution and the ability of organisms to adapt to climate change. In addition modern quaternary science also plays an integral part in important issues for modern society such as groundwater resources and contamination, sea level change, geohazards (severe weather, earthquakes, volcanic eruptions, tsunami), and soil erosion.

Interdisciplnary research requires considerable time frames funding and collaboration. The results although scientifically important are rarely embraced with any vigour outside the research community unless the direct impacts to society are of immediate consequence. There are a variety of reasons why this happens; the dramatic differences in timescales i.e. millions of years compared to decades or years, disagreements on the validity and interpretation of proxy data and the inherently different aims of the quaternary geologists, paleoecologists and modeling communities. That said, there are, however, examples where these groups can, have and continue to come together. Programmes like the International Geosphere-Biosphere Programme (IGBP) bring together scientists from many fields with the aim of providing information to policy makers globally.

Marine and terrestrial palaeoenvironmental records provide valuable insights into the dynamics of climate change. Of particular focus recently has been the concept of climatic thresholds, which, when breached can and do dramatically change the Earth climate over very short periods of time. The dramatic changing or slowing of ocean currents such as the 'Gulf Stream' and increased storminess are two issues recently occupying considerable space in the Media.

Understanding the evolution of quaternary environments in southeast Asia is fundamental to understanding global climate. Predictions for the future must take into account the concept of thresholds and rapid change and be tested against the record of events in the past. The interaction of human actions, climate, geology and oceanography in southeast Asia remains understudied and the many knowledge gaps mean making accurate predictions for the future remain inherently speculative. With a broad range of expertise across many disciplines HKU sits in a great position to contribute significantly to this global debate.



The uplifted coral reefs of northwest Luzon, Philippines provide an opportunity to study past climate, typhoons, tsunami and sea level change. Southeast Asia has a rich diversity of palaeoclimate records from coral reefs, large rivers and ocean basins.

Climate change and biodiversity in Hong Kong

by Professor Richard T Corlett, Department of Ecology and Biodiversity

The Hong Kong Observatory is forecasting an increase in Hong Kong's average temperature of around 3.5°C by the end of the century. This is going to be unpleasant for people, particularly in summer, but how will it affect the wild plants and animals living in Hong Kong?

At present, about half of Hong Kong's land area has a climate that can be defined as "tropical", because the temperature never falls below zero, while the remainder can be considered non-tropical. Temperatures decline by about 0.6°C for every 100 metre increase in altitude, so at Hong Kong's highest point, the summit of Tai Mo Shan (957 m), frosts occur most winters and the mean January temperature is only 11°C. This gradient in temperature - particularly minimum temperature - provides a high-altitude "refuge" for non-tropical plants and, to a lesser extent, animals from competition by the tropical species that dominate in the lowlands.

The predicted 3.5°C increase in temperature over the next 100 years will be the climatic equivalent of cutting about 600 metres off the top of Tai Mo Shan and every other mountain in Hong Kong. Alternatively, the projected warming can be seen as "lifting the lid" on the tropics by about 600 metres. Either way, the cold refuge for non-tropical species will be eliminated and tropical plants and animals will be able to occupy all habitats in Hong Kong. There is evidence that this is already happening on Tai Mo Shan, where tropical plant species have spread some way up the mountain since the last severe frost in 1991.

In theory, warming will also allow more tropical species to invade Hong Kong from warmer climates to the south, but only the most mobile organisms, such as some birds and butterflies, will be able to move the long distances needed to do this. The most successful invaders will be weeds, pests and diseases that are dispersed accidentally by people. Similarly, although non-tropical species from Hong Kong could, in theory, migrate north to compensate for rising temperatures, the fragmentation of natural ecosystems in South China means that this migration will be impossible for all but the most mobile species. Overall, therefore, Hong Kong is likely to end up with fewer wild species by the end of the century.

Climate change will also affect freshwater and marine ecosystems in Hong Kong, although the impacts are more difficult to predict. Freshwater organisms may be more affected by changes in rainfall - which is expected to become more variable over the next century - than those in temperature. Coastal and marine ecosystems will be influenced by changes in temperature as well as the associated rise in sea-level and a possible increase in storm intensity. The major cause of climate change - the rising concentrations of carbon dioxide in the atmosphere - will also have a direct effect on the surface acidity of the oceans, with potentially drastic impacts on the many marine organisms that use calcium carbonate to make an external skeleton.

Climate change is bad news so the obvious next question is, can we prevent it? It is almost certainly too late to stop it altogether, since greenhouse gas concentrations are already the highest they have been for millions of years. However, a concerted international effort to switch to "carbon-free" power sources could still keep the changes within manageable limits. This means replacing coal and oil by renewable power sources, such as wind, hydropower, biomass and, more controversially, nuclear power. It is also theoretically possible to remove the carbon dioxide produced by burning fossil fuels in power stations and then store it underground. Halting deforestation and restoring forests, particularly in the tropics, will also help to remove carbon dioxide from the atmosphere.

While melting icebergs have received most attention, climate change will be also significant in the tropics.

The issues are complex so it is not surprising that the urgent need to understand the mechanisms and impacts of climate change, and how to prevent it, has now become a major driver of scientific research across the spectrum, from physics and chemistry to earth science and biology. The Faculty of Science at HKU sees this as an opportunity to do research that is both regionally relevant and globally significant, and also to integrate teaching across difference branches of Science. Climate change is not going away and all scientists have an obligation to understand the issues and communicate to the public.

My own view of Pluto's status as a planet

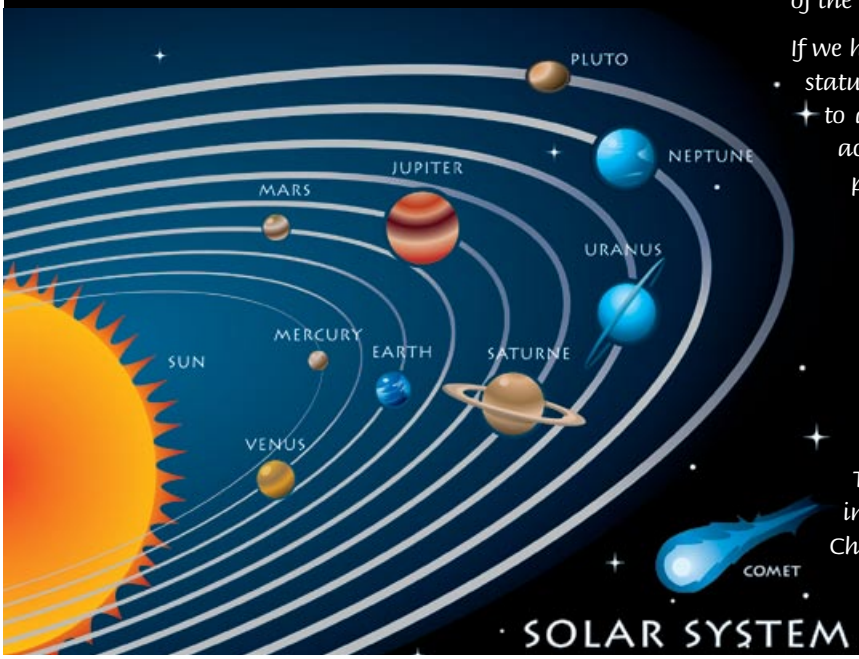
by Professor Sun Kwok, Dean, Faculty of Science

The decision of the International Astronomical Union to remove Pluto from the list of planets was a surprise to the general public. Students have been taught since elementary school that the solar system has nine planets. While many people can accept the idea of new planets being discovered, most have difficulty in understanding why Pluto, which has been designated as a planet for 70 years could lose this status.

However, this development did not come as a surprise for professional astronomers, who have known since the discovery of the first Kuiper Belt Object in 1992 that Pluto has much more similarity to Kuiper Belt Objects than to the other planets.

This also did not come as a major surprise to scientists, who are accustomed to objects being re-classified into different categories as their properties are better known. For example, there has been many changes in the classification of living things over the years, the last major change occurred as the result of using genomic technique for classification.

For thousand of years, our ancestors knew of five planets and they are Mercury, Venus, Mars, Jupiter and Saturn. Planets were defined as objects (other than the Sun and the Moon) that move at a fast rate across the sky from day to day. They are different from the thousands of stars in the sky which only change their rise and set positions by a small amount each night. About five hundred years ago, after the heliocentric model of Copernicus was accepted, we realized that the Earth, instead of occupying a special place at the center of the Universe, is in fact is no different than the other five planets. Earth was accepted as a planet, and the number of planets in the solar system changed from 5 to 6. There was no observational discovery of a new object, but only a re-interpretation of known observational facts.



Accordingly, planets are re-defined as objects that revolve around the Sun, reflect visible light from the Sun, but do not radiate in visible light on their own. They are distinguished from stars not only on their apparent motions in the sky, but also on their location. Planets are nearby objects in the vicinity of the Sun whereas stars are self-luminous objects outside of the solar system.

The invention of telescopes and careful observing led to the discovery of two more planets: Uranus was found in 1781 and Neptune in 1846. The number of planets changed from 6 to 8. There was no re-definition of planets although it was later recognized that Uranus and Neptune are physically different (they are icy) from Jupiter and Saturn (gaseous), and are different from Mercury, Venus, Earth and Mars (rocky).

Because of the movement of the Earth around the Sun, stars appear to rise in the east 4 minutes earlier every day, and they appear to drift across the sky over the course of one year. However, from the point of view of the Sun, the stars are not moving. It is for this reason, they are referred to as "fixed stars", but their distances from the Sun were unknown.

In 1838, Friedrich Wilhelm Bessel made the first accurate measurement of the distance to the nearby star 61 Cygni using the method of parallax. It turns out that stars are located very far away. The nearest star to the Sun is Alpha Centauri, which is 4 light years away. If we adjust for the decrease in apparent brightness with increasing distance, it turns out that if we place the Sun at a distance of light years away, it would look no different from other stars. This proves without doubt that the Sun is a star; our nearest star.

Consequently, the Sun has also lost its special significance. It is no different from any one of the thousands of stars in the sky. Instead of an object in a class of its own, it is one of the many stars.

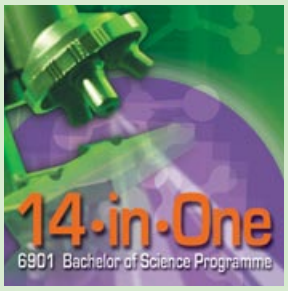
If we have survived the cultural shock of losing the special status of the Earth and the Sun, the former being demoted to a planet and the other demoted to a star, we can accept the demotion of Pluto. Instead of the smallest planet, it is in fact one of the largest among the millions of objects in the Kuiper Belt.

Science is not about fixed facts to be memorized. Science is an evolving subject. We learn and we evolve. Change is good and inevitable in science. This is the message that we should send to our students on the topic of the loss of planetary status of Pluto.

This article is based on my interviews given to CNN international on August 24, 2006 and to the South China Morning Post on September 4, 2006.

A Faculty Academic Advisory System under Development

by Dr Ann SN Lau, Faculty of Science



In September 2007, the Faculty of Science is going to have it's first batch of students admitted under the new "**14-in-One**" single admission policy. Students will all be admitted under a common "Bachelor of Science" programme while declarations of major/minor options will be made only after their admission. Students are given greater flexibility in choosing their major/minor, and are allowed to change their major/minor during their study. A systematic and effective academic advising system is therefore important and necessary to provide students with guidance in making sound decisions in their academic pursuits, while at the same time ensuring the flexibility of our new curriculum structure.

The Faculty is currently refining the framework of an academic advisory system with inputs from members of different departments of the Faculty. The academic advisory system will involve departmental and Faculty members providing academic advice on course selection and choice of major/minor. These members will coordinate with other professionals in the University to provide further advice on personal development and career information. While it is understandable that students seek advices from peers and existing students, more communication between students and the Faculty is anticipated with the launching of the new academic advisory system..

With the principle to tailor-make an advisory system focusing on the needs of the students, a discussion group with current undergraduate students of the Faculty has been organized to understand the rationales and mechanisms that the students use when making academic decisions. A group of Secondary School teachers have also been invited to join another discussion group to share their views and experiences in providing academic advice to their students. "We are delighted that the teachers share our view that **individual advising at the Faculty level is very important under the single admission policy to provide advice based on backgrounds of individual students**," said Dr JCS Pun, Associate Dean (Student Affairs) of the Science Faculty, "and we are also in total agreement that ultimately it would be of the greatest benefits to students to base their academic choices on a combination of their **interests and ability**, rather than merely considering what is in vogue or something that seemingly provides a better career prospect." The Faculty hopes that under proper guidance, students can broaden their horizon of study while fully realizing their potential.

Living in a Warmer World: a Workshop at HKU

by Professor Richard T Corlett, Department of Ecology and Biodiversity

In the last few years, human-caused climate change has gone from being an obscure scientific problem to an accepted fact of everyday life. So far, however, this widespread acceptance that we have a problem has not resulted in any significant movement towards a solution. Unless the scientists are very badly wrong, we must all adjust to living in a warmer world. The likely impacts of future climate change on Hong Kong were the subject of a recent Workshop hosted by the Faculty of Science, entitled "Living in a Warmer World: Climate Change and Hong Kong", on December 11-12th, 2006. The 21 invited speakers included three from Beijing (headed by Professor and Academic Ding Yihui from the China Metrological Administration), one from Japan, one from the USA, seven from HKU, and the rest from other universities, government departments and non-governmental organizations in Hong Kong. In addition to the speakers, 220 people attended turned up on one or both days. We had an extremely positive response from all participants and the Workshop must be counted as a great success. It also attracted considerable media attention. Overall, the Workshop has helped establish HKU and the Faculty of Science as local leaders in climate change research.

Congratulations...

To our teachers

- **Professor C M Che**, Hui Wai Haan Chair of Chemistry, Department of Chemistry of the University of Hong Kong (HKU), received the First Class Prize of the State Natural Science Award (SNSA) for 2006 from Premier Wen Jiabao in the Great Hall of the People in Beijing on February 27, 2007.

  Professor Che, with his research in "reactive metal-ligand multiple bonded complexes", is the first Hong Kong scientist to win the First Class prize of the State Natural Science Award since Hong Kong's participation in the awards in 1989.

  Details of the award can be found at www.hku.hk/eroesite/che

- Croucher Senior Research Fellowship 2007-08
  Professor M L Chye, Department of Botany
  Professor Z D Wang, Department of Physics

- University's Research Awards 2006
  Outstanding Young Researcher Award:
  Dr A B Djurišić, Department of Physics
  Dr T W Ng, Department of Mathematics
  Outstanding Researcher Award:
  Professor D L Phillips, Department of Chemistry
  Research Output Prize (Faculty of Science):
  Professor N Mok, Department of Mathematics
  Outstanding Research Student Supervisor Award:
  Professor S F Chen, Department of Botany

- Faculty's Award for Service Contribution:
  Dr Billy C H Hau, Department of Ecology & Biodiversity

- Faculty's Award for Teaching Excellence:
  Dr Jimmy S H Tsang, Department of Botany

- Guy Medal in Silver 2007:
  Professor H Tong, Department of Statistics and Actuarial Science

To our students

- Three Chemistry students: **To Wai Pong** (year 3), **Leung Shu Wai** (year 2) and **Lee Wing Chi** (year 1) won the 2nd runner up prize in the 18th Hong Kong Chemistry Olympiad on February 24, 2007 at the City University of Hong Kong.

- Two Science students together with two BBA students were presented with the Case Study Competition Outstanding Award and the Case Study Presentation Grand Award in the "Ethical Leadership for the New Generation" Training Programme on March 10, 2007.

The team members are as follows:
Chen Ru Hong Antony, year 1 BSc student in Biology
Huang Wen Xin Venus, year 1 BSc in Animal & Plant Biotechnology
Wang Ting Shen Meredith, year 1 BBA(Acc&Fin) student
Yang Hao Elsa, year 1 BBA(Acc&Fin) student

Outreach

Public Lectures

- November 10, 2006: "The Use of Viruses as Anti-cancer Agents" by Professor Patrick Lee

- December 11, 2006: "The New Solar System" by Professor David Jewitt, Professor of Astronomy in the University of Hawaii

- January 23, 2007: "Space Weather Research" by Dr Anthony Lui, The Johns Hopkins University Applied Physics Laboratory

- March 19, 2007: "Solar Eclipses and Transit of Venus and Mercury" by Professor Pasachoff, Director of Hopkins Observatory, Field Memorial Professor of Astronomy, Williams College

- April 3, 2007: "A Gentle Giant Heading for Extinction? The Life and Previous Times of the Napoleon Fish" by Dr Y J Sadovy, Department of Ecology and Biodiversity

Event

- 3rd International Junior Science Olympian, December 2-13, 2006

  The Faculty of Science has been selected to undertake the training of 6 young science students to join the event. The students won 3 bronze medals out of 180 participants from 31 countries, all with age under 16.

  The bronze medal winners are:
  Sung Hoi (SPHRC Kung Yik She Secondary School 十八鄉鄉事委員會公益社中學)
  Wong Yin Wai (Ying Wa College 英華書院)
  Cheung Siu Long (Ying Wa College 英華書院)

Upcoming Events

- Interview of JUPAS Applicants will be arranged in mid May. All students who have put our programmes in their Band A choices will be invited to attend the interview.

- Public Lecture "The Sequence 1, 2, 3, 5, 8, 13, ..., and the Mystery of Patterns in Plants"
  Speaker: Dr N K Tsing, Department of Mathematics
  Date: May 3, 2007 (Thursday)
  Time: 6 -7 pm (Light refreshment from 5.30pm)
  Venue: Lecture Room P3, Chong Yuet Ming Physics Building, The University of Hong Kong
  Website: www.hku.hk/science/thesequence

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