



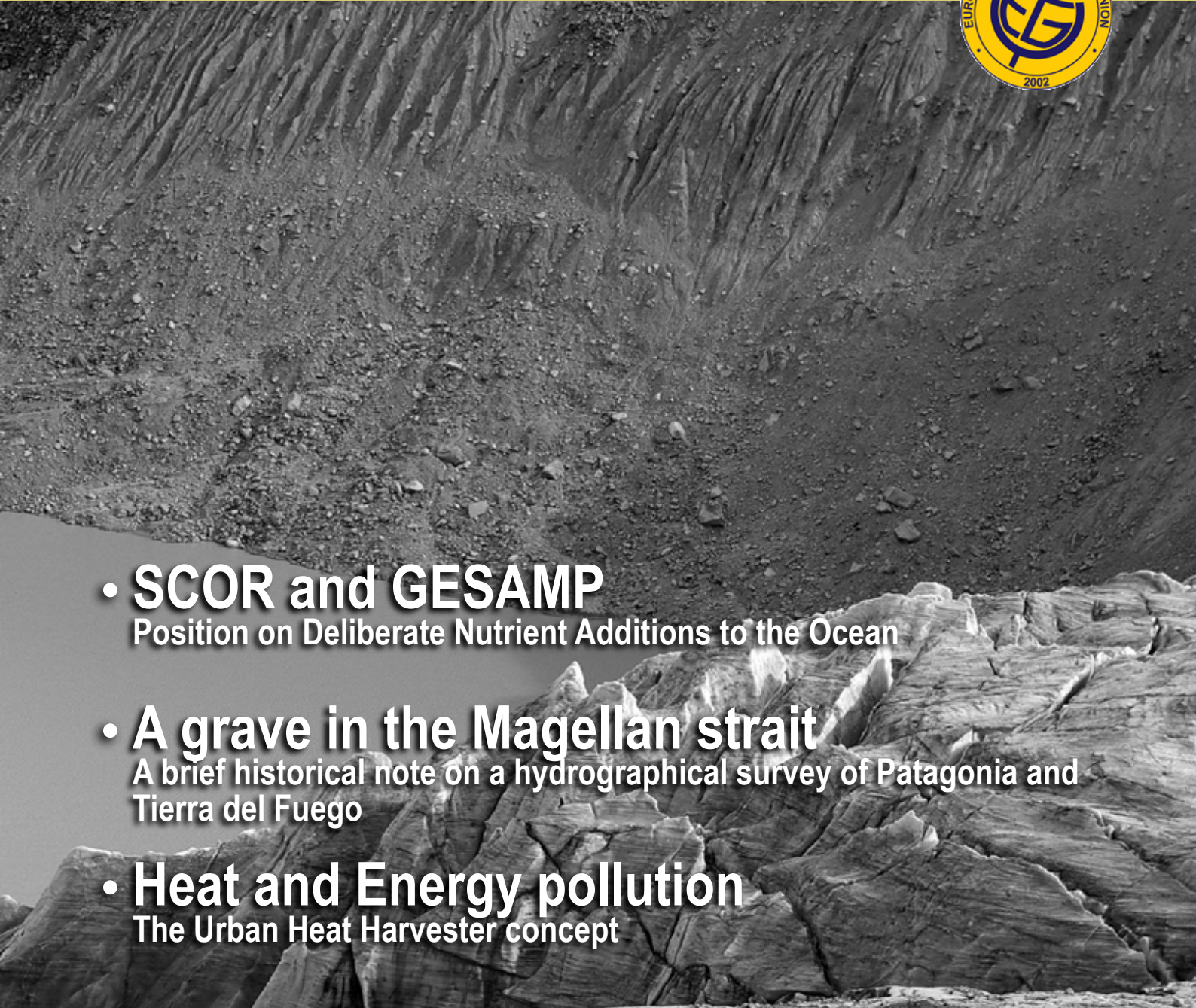
the eggs

E.G.U. NEWSLETTER

ISSUE 23, APRIL 2008

AVAILABLE ON-LINE AT www.the-eggs.org



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- **SCOR and GESAMP**
Position on Deliberate Nutrient Additions to the Ocean
 - **A grave in the Magellan strait**
A brief historical note on a hydrographical survey of Patagonia and Tierra del Fuego
 - **Heat and Energy pollution**
The Urban Heat Harvester concept



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THE EGGS | ISSUE 23 | APRIL 2008

3 EGU News

4 News

10 Journal Watch

13 SCOR and GESAMP Position on Deliberate Nutrient Additions to the Ocean

15 A grave in the Magellan strait A brief historical note on a hydrographical survey of Patagonia and Tierra del Fuego

17 Heat and Energy pollution The Urban Heat Harvester concept

20 Education

21 New books

23 Events

30 Job Positions

Cover photo: Mouth of the receding Zongo Glacier near the Huayna Potosi. In the background one can see the proglacial lake and the moraine deposits. Credit: Simon Gascoin, University Pierre et Marie Curie, Paris - France, distributed by EGU via www.imaggeo.net.

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EGU Election results 2007/2008

Tuija Pulkkinen elected new President

Tuija Pulkkinen was elected EGU President during the recent Union elections. She got her PhD degree at the University of Helsinki in 1992. She is currently a research professor in space physics at the Finnish Meteorological Institute (FMI), where she has worked since her graduate studies with the exception of extended visits to the US: Goddard Space Flight Center in Maryland (1990,1992), University of Colorado (1996-1997), and Los Alamos National Laboratory in New Mexico (2005-2006). At FMI, she has led the Space Research Unit and taught numerous students within the national graduate school for Astronomy and Space Physics.

Prof. Pulkkinen's research interests concern the entire chain of processes that starts from the solar surface, propagate with the solar wind through the interplanetary space to the Earth's space environment, the magnetosphere, ionosphere, and middle atmosphere. She has especially concentrated on energy flow from the solar wind to the near-Earth space environment and the energy dissipation processes in the magnetosphere. She has worked with data from multiple international space missions as well as from ground-based instrument networks monitoring the ionosphere. In recent years, she has been active in developing global space environment simulation tools especially concentrating on quantitative analysis of the simulation results. Her publication record includes over 160 peer-reviewed articles and several encyclopaedia articles.

Prof. Pulkkinen has been a member of the European Space Agency Solar System Working Group, and is currently a member of the Space Research Advisory Committee of the Swedish National Space Board and the Research Council for Natural Sciences and Engineering of the Academy of Finland. She has been active at both AGU (several committee memberships) and EGU (ST division secretary and president, *Annales Geophysicae* editor). She has been the organizer, convener, or programme committee member of over 20 scientific meetings.

Tuija Pulkkinen has been granted the James B. Macelwane

Medal and American Geophysical Union fellowship. She is a member of the Finnish Academy of Sciences and an associate member of the Royal Astronomical Society.

Personal Statement

The EGU exists first and foremost to serve the scientific community by promoting Earth, space, and planetary sciences and fostering international and interdisciplinary collaboration. The annual meeting has grown to a vast happening involving over 8000 participants. Our journals are widely read and the EGU has been a leader in the field of open access publishing. It is important to foster this positive development; continuing success will require evolution of both what we do and the way we do things. The strength of the EGU is its bottom-up structure that allows rapid implementation of new ideas and timely response to the needs of the scientific community. More and better membership services will tighten our sense of belonging to the union.

It is also important that the EGU is a strong and competitive counterpart to our US sister organization, the AGU, as well as other regional and national organizations. Collaboration will enable us to learn from those more knowledgeable as well as to give to those less advantaged especially in the developing world.

The impact of geosciences to the society at large has probably never been as high as it is today, when the IPCC receives the Nobel prize and governments take mitigation of climate change in their policy programmes. This is an immense challenge and opportunity to our geosciences community and the EGU in particular. We will strive to maintain and improve EGU as a forum where a variety of scientific results can be openly presented and debated. EGU should be a forum where the decision-makers can get objective, balanced information based on solid scientific research.



New results show that Mars possesses high-level clouds

New results show that Mars possesses high-level clouds that are sufficiently dense to cast a shadow on the surface

16 January 2008 .- The results were obtained by the OMEGA Visible and Infrared Mineralogical Mapping Spectrometer instrument on board ESA's Mars Express.

Clouds of water ice particles occur on Mars, for example on the flanks of the giant Martian volcanoes. There have also been hints of much higher, wispy clouds made up of carbon dioxide (CO₂) ice crystals. This is not too surprising, since the thin Martian atmosphere is mostly made of carbon dioxide, and temperatures on the fourth planet from the Sun often plunge well below the 'freezing point' of carbon dioxide.

Now, a team of French scientists has shown that such clouds of dry ice do, indeed, exist. Furthermore, they are sometimes so large and dense that they throw quite dark shadows on the surface.

Data from the SPICAM Ultraviolet and Infrared Atmospheric Spectrometer indicated that any high altitude clouds

are not very thick and made up of much smaller particles, but the CO₂ clouds detected by OMEGA are very different. They are surprisingly high – more than 80 km above the surface – and several hundred kilometres across. They are also much thicker than expected. Instead of looking like the wispy ice clouds seen on Earth, they resemble tall convectional clouds that grow as the result of rising columns of warm air.

The CO₂ ice clouds are made of quite large particles – more than a micron across – and they are sufficiently dense to noticeably dim the Sun. Normally, particles of this size would not be expected to form in the upper atmosphere or to stay aloft for very long before falling back towards the surface.

The clouds imaged by OMEGA can reduce the Sun's apparent brightness by up to 40 per cent.

Since the CO₂ clouds are mostly seen in equatorial regions, the OMEGA team believes that the unexpected

shape of the clouds and large size of their ice crystals can be explained by the extreme variations in daily temperature that occur near the equator.

The results were published in the 13 November 2007 issue of the *Journal of Geophysical Research* in a paper entitled "Hyperspectral imaging of convective CO₂ ice clouds in the equatorial mesosphere of Mars" by F. Montmessin (Service d'Aéronomie, CNRS / IPSL / Université Versailles Saint-Quentin en Yvelines, France), B. Gondet, J.-P. Bibring, Y. Langevin (Institut d'Astrophysique Spatiale, Orsay, France), P. Drossart, T. Fouchet (Laboratoire d'Etudes Spatiales et d'Instrumentation en Astrophysique, Observatoire de Paris, France), and F. Forget (Laboratoire de Météorologie Dynamique, CNRS / IPSL / Université Pierre et Marie Curie, Paris, France).

ESA

WMO marks World Meteorological Day with call to strengthen climate observations

The theme of this year's World Meteorological Day is Observing our Planet for a Better Future

GENEVA/WORLDWIDE, 23 March 2008 (WMO) – With World Meteorological Day taking place worldwide on 23 March, the World Meteorological Organization is marking the annual event with a global call for increased investment in weather, climate and hydrological observation technologies to help populations and economies adapt to climate change and climate variability and to prepare for extreme weather.

The theme of this year's World Meteorological Day is "Observing our Planet for a Better Future," which underscores the importance of monitoring meteorological and hydrological phenomena to help countries achieve sustainable economic development. Virtually every socio-economic sector and human ac-

tivity are influenced by weather, climate and water and actions are increasingly being taken to respond to risks. Predictions with higher levels of accuracy and lead-time can radically improve people's chances of living in relative safety, building more comfortable lives and protecting precious natural resources more effectively.

WMO comprises 188 countries and territories and works closely with their National Meteorological and Hydrological Services, particularly in developing countries, to strengthen their abilities to better observe weather, climate and water-related phenomena, to produce forecasts and to make this information widely available on a timely basis.

Nine out of 10 natural disasters are

linked to hydro-meteorological hazards, which between 1980 and 2000 killed 1.2 million people and caused more than US\$900 billion in economic losses.

"National Meteorological and Hydrological Services can significantly reduce the impact caused by such extreme weather events by providing appropriate services and information, including forecasts and early warnings, to governments, the public and the media," WMO Secretary-General Michel Jarraud said. "It is not possible to prevent natural hazards, but the loss of lives and the damage that they cause can be minimized through risk management based on better observations."

Key reasons why better observations of climate, weather and water are

needed include:

Millions of people today are more vulnerable to extreme weather events due to increased urbanization, large-scale population movements and expansion of communities into arid zones.

To support key socio-economic issues, e.g. agriculture and food security, water resource management, health, energy production and safe transportation.

State-of-the-art equipment and capacity exists in various parts of the world today to make regular climate, weather and water-related observations and forecasts, but such resources often do not exist in the world's poorest countries. Such nations are also the most prone to natural hazards and desperately require enhanced information and forecasts to know when to plant crops, how to best use and preserve water and how to reduce disaster risks.

WMO leads major observational initiatives to integrate global observing systems for all countries to have timely access to better weather, climate and water-related data. WMO's observing and information systems are core components of the Global Earth Observation

System of Systems, an initiative to pool and strengthen all observations for multisectoral applications.

The importance of monitoring Earth's climate as well as scientific research and assessment was endorsed by last year's awarding of the Nobel Peace Prize to the Intergovernmental Panel on Climate Change, co-sponsored by WMO and the United Nations Environment Programme. Next year's WMO-organised 3rd World Climate Conference focuses on climate prediction for decision-making.

World Meteorological Day is traditionally celebrated by WMO and the National Meteorological and Hydrological Services of its 188 Members on 23 March to commemorate the 1950 entry into force of the convention that created WMO, which became a Specialized Agency of the United Nations a year later. As 23 March this year falls on Easter Sunday, followed by a public holiday Monday, WMO's headquarters in Geneva will host its World Meteorological Day ceremony on Tuesday 25 March, from 3 to 4.30 p.m. A press conference has been scheduled for 12.15pm that same day at the Palais des Nations Press

Room 1.

The day's programme, the message by WMO Secretary-General Mr Jarraud and an information kit in multiple languages on the theme, Observing Our Planet for a Better Future, is available at http://www.wmo.int/pages/wmd/index_en.html

A film to mark World Meteorological Day has been produced with the title "Observing Our planet. Securing our Future" (18 minutes). The film, drawing on the experience of Indonesia, illustrates the vital relevance of observations to provide forecasts and early warnings that save lives and livelihoods, and other information about weather, climate and water for our well-being.

The film is available in the six official UN languages and can be accessed via server <ftp.wmo.int> Folder: Documents/MediaPublic/WMD08/ Copies in DVD, Betacam and VHS formats can be obtained by contacting the WMO Information and Public Affairs Office (E-mail: cpa@wmo.int ; telephone +41 (0) 22 730 8314).

WMO Press Release No. 811

Announcement of Opportunity

The Indian Space Research Organisation (ISRO) have just released an Announcement of Opportunity for the Oceansat-2 mission, ISRO's second in the series of IRS satellites dedicated for ocean research

The Indian Space Research Organization (ISRO), Department of Space (DOS), Government of India, announces an opportunity to carry out scientific research for the utilization of Oceansat-2 data. Oceansat-2 is ISRO's second in the series of IRS satellites dedicated for ocean research. It will provide continuity to the services and applications of the Oceansat-1 Ocean Colour Monitor (OCM)

data along with additional data from a Ku-band pencil beam Scatterometer and Radio Occultation Sounder for the Atmosphere (ROSA) sensors. Oceansat-2 is scheduled to be launched during third quarter of 2008 onboard Polar Satellite Launch Vehicle (PSLV) from Sriharikota, India.

Oceansat-2 will carry three sensors onboard, viz., Ocean Colour Monitor

(OCM-2), Ku-band pencil beam Scatterometer and an Italian payload called Radio Occultation Sounder for the Atmosphere (ROSA). Data from these payloads are meant for addressing various research areas, primarily in oceanographic and atmospheric science. The data from the satellite is likely to be made available to the global scientific community after necessary post-launch sensor characterization, which is expected to be completed within 6 months from the launch.

This Announcement of Opportunity (AO) is open to global scientific community for submitting research proposals towards utilization of data from Indian Payloads i.e., OCM-2 and Scatterometer in the following broad categories:

- Development of retrieval algorithms and Cal/Val experiments

- Application of ocean colour and Scatterometer data for oceanographic and atmospheric research

- Synergistic studies using multi-sensor data to understand processes

- Techniques development for assimilation of derived geo-physical parameters in numerical models

It should be noted that this AO does not fund the 'projects', but only ensures that the selected Principal Investigators (PI) are provided with relevant, limited data sets at no cost.

Deadline for submission of proposals: June 30, 2008.

More info can be found at the website of ISRO, <http://www.isro.org/>

ISRO

European ice core project receives the EU Descartes Prize for Collaborative, Transnational Research

The project was successful in retrieving past climate records over up to the last 800 kyears

Bremerhaven, March 12, 2008.- The research project EPICA (European Project for Ice Coring in Antarctica) is one of this year's winners of the Descartes Prize for Research awarded by the European Union on the 12th of March in Brussels. The Descartes Prize for Research is endowed by 1.36 million Euro in total and is awarded to up to four European teams each year for outstanding transnational projects in natural sciences and humanities. The EPICA project - carried out by twelve partners from ten European nations - was successful in retrieving past climate records of great impact for the assessment of our current climate change. Temperatures and greenhouse gas concentrations over up to the last 800,000 years could be measured. Furthermore, the ice cores allowed to study in detail the coupling of the northern and southern hemisphere.

The results of the EPICA project summarize the work of scientist from ten European nations including Belgium, Denmark, France, Germany, Italy, the Netherlands, Norway, Sweden, Switzerland and the U.K. and, their expertise in different branches of ice core research and glaciology. The German partner within EPICA is the Alfred Wegener Institute for Polar and Marine Research in the Helmholtz Association, which was responsible for the deep drilling in Dronning Maud Land as well as for many of the analyses of this core. Prof. Heinrich Miller, deputy director of the Alfred Wegener Institute coordinated the EPICA project under the umbrella of the Euro-

pean Science Foundation (ESF). EPICA is funded by national contributions of the participating countries and by the European Union.

„Only in such a close collaboration between all European working groups has it been possible to carry out such a large-scale project logistically and scientifically“, says Dr. Hubertus Fischer, glaciologist at the Alfred Wegener Institute, who coordinated the EPICA application for the Descartes Prize. „Especially for young scientists and students EPICA is a unique possibility to perform top-level research together with colleagues from all over Europe and to establish their own scientific career. With the Descartes Prize we can intensify this tight networking and the close collaboration even further“, adds Dr. Fischer. To this end two deep ice core had to be drilled through the 3000 meters thick East Antarctic Ice Sheet over several years in remote regions far from any coastal research stations. Drilling operations took place under extreme climatic conditions at Dome C at 75°06'S, 123°24'E with a mean annual temperature of minus 54.5 °C. The second drilling was carried out by the Alfred Wegener Institute in Dronning Maud Land at 75°00'S, 0°01'E and a mean annual temperature of minus 44.6°C. After retrieval, the ice cores were shipped in frozen state to Bremerhaven, where they were cut and analyzed in the various European laboratories.

Based on the EPICA ice cores it was possible to measure temperature and precipitation rates, atmospheric aeo-

sol composition, solar activity, the flux of extraterrestrial dust onto the Earth as well as atmospheric greenhouse gas concentrations of the past. The results show, that the concentrations of the greenhouse gases carbon dioxide, methane and nitrous oxide have never been as high over the last 650,000 years as today, when human activities artificially emit those gases into the atmosphere. The carbon dioxide level in the past is tightly coupled to temperature changes in the Antarctic, respectively the Southern Ocean. Among others, warm periods prior to 450,000 years before present exhibited lower temperatures and greenhouse gas concentrations than our current warm period, the Holocene. Also the temperatures during the last ice age show this connection, where slower climate changes in the Antarctic are tightly coupled with rapid climate shifts in the North Atlantic region. This connection is caused by the oceanic heat transport between the North and South Atlantic. EPICA is one of the core projects within the Research programme „Marine, Coastal and Polar Systems“ of the Alfred Wegener Institute in the research field “Earth and Environment“ of the Helmholtz Association.

Results from EPICA were presented in this Newsletter at <http://www.the-eggs.org/articles.php?id=65>

AWI Press release, <http://www.awi.de/en/home/>

Jagadish Shukla awarded the IMO Prize

for outstanding work in meteorology and hydrology

April 2, 2008.- The Secretary-General of the World Meteorological organisation (WMO), Michel Jarraud, presented the 52nd International Meteorological Organization (IMO) Prize to Jagadish Shukla at an event hosted by the National Academy of Sciences on 28 March 2008, in Washington DC, USA.

The award recognizes outstanding work in meteorology and hydrology, as

well as contributions to international collaboration in both scientific fields.

Jagadish Shukla was born in 1944 in a small village in Uttar Pradesh, India. He went on to Banaras Hindu University (BHU) and received a B.Sc. and an M.Sc.

After working at the Indian Institute of Tropical Meteorology in Pune, he received a Ph.D. from BHU and then left

for the USA, where he received a Ph.D. in Meteorology at the Massachusetts Institute of Technology. Jule Charney, Ed Lorenz, Norman Phillips and Suki Manabe were his research advisers. That led to a career in the atmospheric sciences in the USA, including work at the NASA Goddard Space Flight Center and the University of Maryland.

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Observation of Regionally Elevated CO₂ from Manmade Emissions

for the first time, from the instrument SCIAMACHY onboard the ENVISAT satellite

March, 2008.- Using data from the SCIAMACHY instrument aboard ESA's Envisat environmental satellite, scientists have for the first time detected regionally elevated atmospheric carbon dioxide originating from manmade emissions. Dr Michael Buchwitz from the Institute of Environmental Physics (IUP) at the University of Bremen in Germany and his colleagues detected the relatively weak atmospheric CO₂ signal arising from regional anthropogenic

CO₂ emissions over Europe by pro-

cessing and analysing SCIAMACHY data from 2003 to 2005. The findings show an extended plume over Europe's most populated area, the region from Amsterdam in the Netherlands to Frankfurt, Germany.

The findings show an extended plume over Europe's most populated area, the region from Amsterdam in the Netherlands to Frankfurt, Germany.

Buchwitz says further analysis is required in order to draw quantitative conclusions in terms of CO₂ emissions.

"We verified that the CO₂ spatial pattern that we measure correlates well with current CO₂ emission databases and population density but more studies are needed before definitive quantitative conclusions concerning CO₂ emissions can be drawn."

Source: http://www.esa.int/esaCP/SEMZHVM5NDF_index_0.html#subhead1

Saturn's moon Rhea may also have rings

Cassini has found evidence of material orbiting Saturn's second largest moon.

7 March 2008.- The Cassini spacecraft has found evidence of material orbiting Rhea, Saturn's second largest moon. This is the first time rings may have been found around a moon.

A broad debris disc and at least one ring appear to have been detected.

Rhea is roughly 1500 km in diameter. The apparent debris disc measures several thousand kilometers from end to end. The particles that make up the disc and any embedded rings probably range from the size of small pebbles to boulders. An additional dust cloud may extend up to 5900 km from the moon's centre, almost eight times the radius of Rhea.

Simulations show that Rhea's gravity field, in combination with its orbit around Saturn, could allow rings that form to remain in place for a very long time. The discovery was a result of a Cassini close fly-by of Rhea in November 2005.

Evidence for a debris disc in addition to a tenuous dust cloud came from a gradual drop on either side of Rhea in the number of electrons detected by two of Cassini's instruments. Material near Rhea appeared to be shielding Cassini from the usual rain of electrons. Cassini's Magnetospheric Imaging Instrument detected sharp, brief drops in electrons on both sides of the moon, suggesting the presence of rings within the disc of

debris. The rings of Uranus were found in a similar fashion, by NASA's Kuiper Airborne Observatory in 1977, when light from a star blinked on and off as it passed behind Uranus' rings.

One possible explanation for these rings is that they are remnants from an asteroid or comet collision in Rhea's distant past.

These findings have been reported in 'The Dust Halo of Saturn's Largest Icy Moon, Rhea' by Jones et al. in today's issue of Science.

ESA

13th IOCCG Committee meeting

Highlights from the International Ocean Colour Coordinating Group meeting

The 13th IOCCG Committee meeting took place at UNESCO Headquarters in Paris, France from 12-14 February 2008. The meeting was well attended by a total of 37 Committee members and invited guests. All participants were invited to attend an elegant reception at the official residence of the Canadian Ambassador to France on the first evening. A few of the highlights from the meeting are given below.

Many of the space agencies displayed a high level of interest in ocean-colour observations from a geostationary platform. CNES is currently performing R&D activities for a GEOCO mission (GEO Satellite for Ocean Colour), ISRO has plans for a High Resolution GEO Imager (HR-GEO), and KARI plans to

launch their Geostationary Ocean Color Imager (GOCI) aboard the COMS-1 satellite in 2009. For this reason the IOCCG Committee unanimously accepted a proposal by David Antoine to form a new IOCCG working group to address ocean-colour observations from a geostationary orbit.

The new IOCCG BIO-Argo WG held its first meeting from 7-8 February 2008 in Villefranche. Argo floats with optical sensors have the potential to provide high density bio-optical-geochemical data and represent a promising avenue for synergetic applications with remote sensing of ocean colour. The working group recommended a preparatory phase for the "validation" of different floats, as well as a pilot study for the

anticipated BIO-Argo program. The new SAFARI Project (Societal Applications in Fisheries & Aquaculture using Remotely-Sensed Imagery), an element of GEO (Group on Earth Observations), was also highlighted at the meeting.

An advanced training course/workshop on "Inversion procedures in ocean-colour remote sensing" will be sponsored by the IOCCG. The course is being organised by Roland Doerffer (GKSS) and will take place in Oct/Nov 2008 in Hamburg, Germany. Further information about all the above activities will be provided in due course.

UNESCO

Canada launches Radarsat-2

on December 14, 2007 aboard the Soyuz from Baikonur Cosmodrome

March 13, 2008.- The Canadian C-band SAR (Synthetic Aperture Radar), Radarsat-2 satellite was launched successfully on December 14, 2007 aboard the Soyuz from Baikonur Cosmodrome, Kazakhstan. First image was acquired four days after the launch and several thousand images have been acquired so far. In addition to the standard modes which are common to RadarSAT-1, the Ultra-fine mode at 3m spatial resolution, Spotlight mode and fully polarimetric mode images were acquired and they show exceptional data quality, a sample

of which can be viewed at www.radarsat2.info.

The commissioning activities continued until mid-March, after which it is ready to provide data to operational and scientific users around the world. Through the contingency agreement signed between the European Space Agency (ESA) and the Canadian Space Agency (CSA), RadarSat-2 will provide backup service to ENVISAT's ASAR in case of its malfunction.

Based on an agreement between CSA and the private company MDA,

MDA owns the RadarSAT-2 satellite, and responsible for its operation and commercial distribution of the data. A proposed acquisition of MDA by ATK of US is currently under Canadian government review. If approved, the Canadian space operation will still be legally registered in Canada and subject to the same Canadian government controls and regulations as is currently the case and hence, change of company ownership is expected to have no impacts on RadarSat-2 data policy.

Ulysses mission coming to an end

Ulysses, the mission to study the Sun's poles and its influence on surrounding space

Ulysses is a joint mission between ESA and NASA. It was launched in 1990 from a space shuttle and was the first mission to study the environment of space above and below the poles of the Sun. Originally it was designed for a lifetime of five years.

Ulysses is in a six-year orbit around

the Sun. Its long path through space carries it out to Jupiter's orbit and back again. The further it ventures from the Sun, the colder the spacecraft becomes. If it drops to 2°C, the spacecraft's hydrazine fuel will freeze.

This has not been a problem in the past because Ulysses carries heaters

to maintain a workable on-board temperature. The spacecraft is powered by the decay of a radioactive isotope and over the 17-plus years, the power it has been supplying has been steadily dropping. Now, the spacecraft no longer has enough power to run all of its communications, heating and scientific equip-

ment simultaneously.

"We expect certain parts of the spacecraft to reach 2°C pretty soon," says Richard Marsden, ESA's Ulysses Project Scientist and Mission Manager. This will block the fuel pipes, making the spacecraft impossible to manoeuvre.

In an attempt to solve this problem, the ESA-NASA project team approved

a plan to temporarily shut off the main spacecraft transmitter. This would release 60 watts of power that could be channelled to the science instruments and the heater. When data was to be transmitted back to Earth, the team planned to turn the transmitter back on. Unfortunately, during the first test of this method in January, the power supply to

the radio transmitter failed to turn back on.

After many attempts, the Ulysses project team now consider it highly unlikely that the X-band transmitter will be recovered.

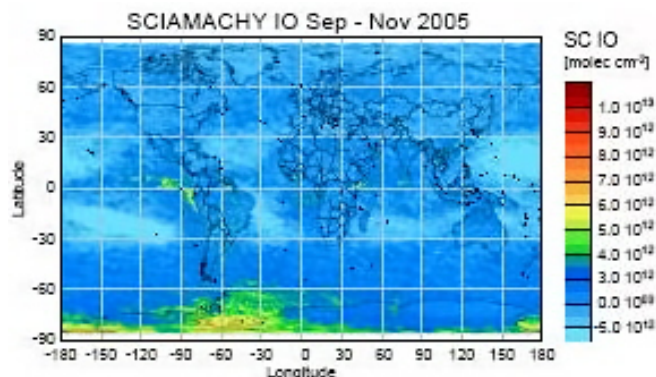
ESA



Observations of iodine monoxide columns from satellite

provide global picture while comparisons of IO columns with those of tropospheric BrO, and ice coverage are described and discussed

Iodine species in the troposphere are linked to ozone depletion and new particle formation. In this study, a full year of iodine monoxide (IO) columns retrieved from measurements of the SCIAMACHY satellite instrument is presented, coupled with a discussion of their uncertainties and the detection limits. The largest amounts of IO are found near springtime in the Antarctic. A seasonal variation of iodine monoxide in Antarctica



Iodine oxide slant columns as retrieved from SCIAMACHY nadir measurements averaged over three months (September to November 2005). The highest values are found close to Antarctica, especially in the Weddell Sea.

is revealed with high values in springtime, slightly less IO in the summer period and again larger amounts in autumn. In winter, no elevated IO levels are found in the areas accessible to satellite measurements. This seasonal cycle is in good agreement with recent ground-based measurements in Antarctica. In the Arctic region, no elevated IO levels were found in the period analysed. This implies that different conditions with respect to iodine release exist in the two Polar Regions. To investigate possible release mechanisms, comparisons of IO columns with those of tropospheric BrO, and ice coverage are described and discussed. Some parallels and interesting differences between IO and BrO temporal and spatial distributions are identified. Overall, the large spatial coverage of satellite retrieved IO data and the availability of a long-term dataset provide new insight about the abundances and distributions of iodine compounds in the troposphere.

The article is available free of charge at:

<http://www.atmos-chem-phys.net/8/637/2008/acp-8-637-2008.html>

Schönhardt, A., Richter, A., Wittrock, F., Kirk, H., Oetjen, H., Roscoe, H. K., and Burrows, J. P.: Observations of iodine monoxide columns from satellite, *Atmos. Chem. Phys.*, **8, 637-653, 2008.**

The Papua New Guinea tsunami of 17 July 1998

anatomy of a catastrophic event

The Papua New Guinea (PNG) tsunami of July 1998 was a seminal event because it demonstrated that relatively small and relatively deepwater Submarine Mass Failures (SMFs) can cause devastating local tsunamis that strike without warning. There is a comprehensive data set that proves this event was caused by a submarine slump. Yet, the source of the tsunami has remained controversial. This controversy is attributed to several causes. Before the PNG event, it was questionable as to whether SMFs could cause devastating tsunamis. As a result, only limited modelling of SMFs as tsunami sources had been undertaken, and these excluded slumps. The results of these models were that SMFs in general were not considered to be a potential source of catastrophic tsunamis. To effectively model a SMF requires fairly detailed geological data, and these too had been lacking. In addition, qualitative data, such as evidence from survivors, tended to be disregarded in assessing alternative tsunami sources. The use of marine geological data to identify areas of recent submarine failure was not widely applied.

The disastrous loss of life caused by the PNG tsunami resulted in a major investigation into the area offshore of the devastated coastline, with five marine expeditions taking place. This was the first time that a focussed, large-scale, internation-

al programme of marine surveying had taken place so soon after a major tsunami. It was also the first time that such a comprehensive data set became the basis for tsunami simulations. The use of marine mapping subsequently led to a larger involvement of marine geologists in the study of tsunamis, expanding the knowledge base of those studying the threat from SMF hazards. This paper provides an overview of the PNG tsunami and its impact on tsunami science. It presents revised interpretations of the slump architecture based on new seabed relief images and, using these, the most comprehensive tsunami simulation of the PNG event to date. Simulation results explain the measured runups to a high degree. The PNG tsunami has made a major impact on tsunami science. It is one of the most studied SMF tsunamis, yet it remains the only one known of its type: a slump.

The article is available free of charge at:

<http://www.nat-hazards-earth-syst-sci.net/8/243/2008/nhess-8-243-2008.html>

Tappin, D. R., Watts, P., and Grilli, S. T.: The Papua New Guinea tsunami of 17 July 1998: anatomy of a catastrophic event, *Nat. Hazards Earth Syst. Sci.*, **8, 243-266, 2008.**

Short- and medium-term atmospheric constituent effects of very large solar proton events

studied with the Whole Atmosphere Community Climate Model (WACCM3) for the period 1963–2005

Solar eruptions sometimes produce protons, which impact the Earth's atmosphere. These solar proton events (SPEs) generally last a few days and produce high energy particles that precipitate into the Earth's atmosphere. The protons cause ionization and dissociation processes that ultimately lead to an enhancement of odd-hydrogen and odd-nitrogen in the polar cap regions ($>60^\circ$ geomagnetic latitude). The authors used the Whole Atmosphere Community Climate Model (WACCM3) to study the atmospheric impact of SPEs over the period 1963–2005. The very largest SPEs were found to be the most important and caused atmospheric effects that lasted several months after the events. They present the short- and medium-term (days to a few months) atmospheric influence of the four largest SPEs in the past 45 years (August 1972; October 1989; July 2000; and October–November 2003) as computed by WACCM3 and observed by satellite instruments. Polar mesospheric NO_x (NO+NO₂) increased by over 50 ppbv and mesospheric ozone decreased by over 30% during these very large SPEs. Changes in HNO₃, N₂O₅, ClONO₂, HOCl, and ClO were indirectly caused by the very large SPEs in October–November 2003, were simulated by WACCM3, and previously measured by Envisat Michelson Interferometer for Passive Atmospheric Sounding (MIPAS). WACCM3 output was also represented by sampling with the MIPAS averaging kernel for a more valid comparison. Although qualitatively similar, there

are discrepancies between the model and measurement with WACCM3 predicted HNO₃ and ClONO₂ enhancements being smaller than measured and N₂O₅ enhancements being larger than measured. The HOCl enhancements were fairly similar in amounts and temporal variation in WACCM3 and MIPAS. WACCM3 simulated ClO decreases below 50 km, whereas MIPAS mainly observed increases, a very perplexing difference. Upper stratospheric and lower mesospheric NO_x increased by over 10 ppbv and was transported during polar night down to the middle stratosphere in several weeks past the SPE. The WACCM3 simulations confirmed the SH HALOE observations of enhanced NO_x in September 2000 as a result of the July 2000 SPE and the NH SAGE II observations of enhanced NO₂ in March 1990 as a result of the October 1989 SPEs.

The article is available free of charge at:

<http://www.atmos-chem-phys.net/8/765/2008/acp-8-765-2008.html>

Jackman, C. H., Marsh, D. R., Vitt, F. M., Garcia, R. R., Fleming, E. L., Labow, G. J., Randall, C. E., López-Puertas, M., Funke, B., von Clarmann, T., and Stiller, G. P.: Short- and medium-term atmospheric constituent effects of very large solar proton events, *Atmos. Chem. Phys.*, 8, 765–785, 2008.

Do supersonic aircraft avoid contrails?

model simulations show that the partial substitution of subsonic air traffic leads to a shift of contrail occurrence from mid to low latitudes, but the resulting change in contrail-induced climate impact is almost negligible.

The impact of a potential future fleet of supersonic aircraft on contrail coverage and contrail radiative forcing is investigated by means of simulations with the general circulation model ECHAM4.L39(DLR) including a contrail parameterization. The model simulations consider air traffic inventories of a subsonic fleet and of a combined fleet of sub- and supersonic aircraft for the years 2025 and 2050, respectively. In case of the combined fleet, part of the subsonic fleet is replaced by supersonic aircraft. The combined air traffic scenario reveals a reduction in contrail cover at subsonic cruise levels (10 to 12 km) in the northern extratropics, especially over the North Atlantic and North Pacific. At supersonic flight levels (18 to 20 km), contrail formation is mainly restricted to tropical regions. Only in winter is the northern extratropical stratosphere above the 100 hPa level cold enough for the formation of contrails. Total contrail coverage is only marginally affected by the shift in flight altitude. The model simulations indicate a global annual mean contrail cover of 0.372% for the subsonic and 0.366% for the combined fleet in 2050. The simulated contrail radiative forcing is most closely correlated to the total contrail cover,

although contrails in the tropical lower stratosphere are found to be optically thinner than contrails in the extratropical upper troposphere. The global annual mean contrail radiative forcing in 2050 (2025) amounts to 24.7 mW m⁻² (9.4 mW m⁻²) for the subsonic fleet and 24.2 mW m⁻² (9.3 mW m⁻²) for the combined fleet. A reduction of the supersonic cruise speed from Mach 2.0 to Mach 1.6 leads to a downward shift in contrail cover, but does not affect global mean total contrail cover and contrail radiative forcing. Hence the partial substitution of subsonic air traffic leads to a shift of contrail occurrence from mid to low latitudes, but the resulting change in contrail-induced climate impact is almost negligible.

The article is available free of charge at:

<http://www.atmos-chem-phys.net/8/955/2008/acp-8-955-2008.html>

Stenke, A., Grewe, V., and Pechtl, S.: Do supersonic aircraft avoid contrails?, *Atmos. Chem. Phys.*, 8, 955–967,

How quickly do cloud droplets form on atmospheric particles?

results indicate that for some air masses, accurate quantification of CCN concentrations may need to account for kinetic limitations

The influence of aerosols on cloud properties is an important modulator of the climate system. Traditional Köhler theory predicts the equilibrium concentration of cloud condensation nuclei (CCN); however, it is not known to what extent particles exist in the atmosphere that may be prevented from acting as CCN by kinetic limitations. The authors measured the rate of cloud droplet formation on atmospheric particles sampled at four sites across the United States during the summer of 2006: Great Smoky Mountain National Park, TN; Bondville, IL; Houston, TX; and the Atmospheric Radiation Measurement Program Southern Great Plains site near Lamont, OK. They express droplet growth rates with the mass accommodation coefficient (\dot{a}), and report values of \dot{a} measured in the field normalized to the mean \dot{a} measured for lab-generated ammonium sulfate (AS) particles (i.e., $\dot{a}' = \dot{a}/\dot{a}_{AS}$). Overall, 59% of ambient CCN grew at a rate similar to AS. They report the fraction of CCN that were “low- \dot{a}' ” ($\dot{a}' < 10^{-1}$, corresponding to $\dot{a} < 1.5 \times 10^{-2}$). Of the 16 days during which these measurements were made, 8

had relatively few low- \dot{a}' CCN (<16%), 6 had moderate low- \dot{a}' fractions (27% to 59%), and 2 had large low- \dot{a}' fractions (>82% during at least one ~30 min period). Day to day variability was greatest in Tennessee and Illinois, and low- \dot{a}' particles were most prevalent on days when back trajectories suggested that air was arriving from aloft. The highest fractions of low- \dot{a}' CCN in Houston and Illinois occurred around local noon, and decreased later in the day. These results suggest that for some air masses, accurate quantification of CCN concentrations may need to account for kinetic limitations.

The article is available free of charge at:

<http://www.atmos-chem-phys.net/8/1043/2008/acp-8-1043-2008.html>

Ruehl, C. R., Chuang, P. Y., and Nenes, A.: How quickly do cloud droplets form on atmospheric particles?, *Atmos. Chem. Phys.*, 8, 1043-1055, 2008.



SCOR and GESAMP Position on Deliberate Nutrient Additions to the Ocean

SCOR/GESAMP Joint position statement

To be scientifically credible the design and implementation of large-scale nutrient addition experiments must be transparent and the results must be clearly stated and made available to the scientific community and the general public. Carbon credits for fertilization should not be allowed unless and until reliable methods have been developed to estimate and verify the amount of carbon actually sequestered, and side effects have been properly understood and taken into account. It is essential that each stage of these experiments is reviewed by well-qualified experts free of vested interests. The goal of any new experiment on the effects of nutrient addition should be to increase our understanding of ocean processes at adequate spatial and temporal resolution.

The Scientific Committee on Oceanic Research (SCOR) and the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) released a position statement on 4 March 2008 on Deliberate Nutrient Additions to the Ocean (see <http://www.scor-int.org/SCOR-GESAMP.pdf>). This statement rose out of concerns by many in the international community of SCOR and GESAMP scientists about recent proposals to fertilize the ocean with iron and urea to promote new phytoplankton production and draw down atmospheric carbon dioxide. Many previous statements have been made by knowledgeable scientists in favor of or opposing nutrient additions to the ocean for climate mitigation purposes. Recognizing that greater understanding of fundamental ocean processes might be gained by non-commercial nutrient additions to the ocean, the focus of the SCOR/GESAMP statement is two-fold:

(1) the need for objective and transparent processes to plan, conduct, and evaluate any experiments that are approved, and (2) the kinds of parameters that should be measured to evaluate the effectiveness of nutrient additions and negative side effects of such additions.

The SCOR/GESAMP statement will feed into the ongoing discussions within the Scientific Groups of the London Convention and London Protocol.

Ed Urban, Scientific Committee on Oceanic Research
Fredrik Haag, Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection

Position of SCOR and GESAMP on Deliberate Nutrient Additions to the Ocean

Deliberate fertilization of the ocean, until recently a subject of mostly scientific interest, has caught the attention of the commercial sector because of its potential to sequester carbon and to increase the production of living marine resources. To be effective for either of these purposes, eventual fertilization would add iron or nitrogen to large areas of the world's ocean. Proposals to realize the potential of ocean fertilization on such scales suffer a major weakness: one does not know how the oceanic ecosystem will respond. Current understanding of how the ocean operates is increasing rapidly, but is still not sufficient to predict the effects of large-scale nutrient manipulations.

Field experiments, carried out in various parts of the world ocean to study the role of iron in ocean ecosystems, have not been able to demonstrate a significant net increase in carbon export to the deep ocean on short or long time scales. These experiments have also raised important and, as yet, unanswered questions about changes in community structure. Ocean fertilization on any significant scale will (by design) impact the species succession and the ecosystem structure and function in the affected areas. Furthermore, the impacts of fertilization are unlikely to be confined to the specific region that receives the fertilizer. Ocean currents mix and move water continuously and so can transport nutrients, the resulting biomass, and decomposition products beyond the target areas,

with unknown consequences. Inadvertent anthropogenic additions of nutrients to the coastal ocean are presently causing significant problems such as hypoxia, anoxia and harmful algal blooms. At the present, the long-term consequences of ecosystem alterations from nutrient additions are unforeseeable and may be harmful. The effects of deliberate large-scale nutrient addition may therefore range from the desired and positive to the unintended and negative.

The Scientific Committee on Oceanic Research (SCOR) of the International Council for Science and the Joint Group of Experts on the Scientific Aspects of Marine Environmental Protection (GESAMP) of the United Nations agree that any deliberate large-scale addition of nutrients to the ocean must be conducted in such a way that the outcomes of these experiments are statistically quantified and independently verified with respect to but not limited to:

- o Changes in new primary production and total community respiration rates at the fertilization site and “downstream” of the site;
- o Assimilative capacity of selected ocean regions;
- o Changes in the drawdown of carbon dioxide from the overlying atmosphere, and carbon dioxide and essential macro-nutrients (P, N, and Si) from the surface waters;
- o Changes in the production of carbon dioxide and other gases relevant to climate change (e.g., nitrous oxide, methane, and dimethyl sulfide) in surface and mesopelagic waters;
- o Changes in denitrification rates within the oxygen minimum zone;
- o Changes in the production of toxins that might be detrimental to other organisms, for example, by harmful algal blooms;
- o Changes in the export of carbon to a depth where se-

questration for at least 100 years is likely;

- o Changes in pH and oxygen concentrations in the water column;
- o Changes in biomass, composition, and biodiversity of phytoplankton, bacteria, and zooplankton, and recruitment of fish and shellfish; and
- o Changes in food web structure.

To be scientifically credible the design and implementation of large-scale nutrient addition experiments must be transparent and the results must be clearly stated and made available to the scientific community and the general public. Transparency is essential, because any appearance of lack of independence from vested interests lowers the credibility of the results among ocean scientists, environmental organizations, policymakers, and potential investors in carbon credits. Carbon credits for fertilization should not be allowed unless and until reliable methods have been developed to estimate and verify the amount of carbon actually sequestered, and side effects have been properly understood and taken into account. We commend efforts by some commercial ventures to create codes of conduct and obtain outside reviews. It is essential that each stage of these experiments is reviewed by well-qualified experts free of vested interests. The goal of any new experiment on the effects of nutrient addition should be to increase our understanding of ocean processes at adequate spatial and temporal resolution; experiments should build on the lessons and the insights of previous experiments.

SCOR/GESAMP Joint position statement
<http://www.scor-int.org/SCOR-GESAMP.pdf>

A grave in the Magellan strait

A brief historical note on a hydrographical survey of Patagonia and Tierra del Fuego

by Carlo Laj and Catherine Kissel

To almost everyone, the name H.M.S. Beagle is invariably connected to the Charles Darwin. But Darwin's voyage was the second voyage of the Beagle, not the first. The first mission of beagle was to participate in a hydrographical survey of Patagonia and Tierra del Fuego, accompanying the larger 380 ton ship, Adventure. The Beagle sailed from Plymouth on May 22, 1826.



Figure 1: The English cemetery. (Photo by the authors)

To almost everyone, the name H.M.S. Beagle is invariably connected to the description of the "Voyage of the Beagle" written by Charles Darwin in 1845. But this was the second voyage of the Beagle, not the first.

H.M.S. Beagle was a 235-ton, 10-gun sloop of the Royal Navy, launched on May 11, 1820 from the Woolwich Dockyards on the river Thames. On July 19 that same year, she participated in a fleet review celebrating the coronation of King George IV, and on that occasion she was the first ship to sail

under the newly constructed London Bridge.

The Beagle was then kept in reserve for five years, because no immediate use had been found for her. But on September 27, 1825, the Beagle was docked at the Woolwich Dockyards, where she had originally been built, for repairs and mostly for fitting her out for her new duties. Her guns were reduced from 10 to 6 and a new mizzenmast was added to improve her speed and maneuverability.

The new mission was to participate in a hydrographical

survey of Patagonia and Tierra del Fuego, accompanying the larger 380 ton ship, Adventure.

The Beagle sailed from Plymouth on May 22, 1826, under the command of Captain Pringle Stokes, while the Australian Captain Phillip Parker King, aboard the Adventure, took overall command of the expedition.

The Beagle was assigned the most difficult part of the expedition, the survey of the dangerous and desolate waters of the Magellan Strait and Tierra del Fuego. Captain Pringle Stokes, convinced that he had not fulfilled the objectives of his mission, progressively fell into a deep depression. In the second part of July 1828, he locked himself in his cabin in deep despair. Finally, on August 2, 1828, he shot himself in the head with a pistol. He failed to kill himself immediately and unfortunately agonized 10 days in delirium, before dying of gangrene on August 12.

He was buried in the cementerio ingles (Figure 1), a few hundred meters from Puerto del Hambre (Famine Harbour), a Spanish settlement founded in March 1584 as the City of Rey Don Felipe by Pedro Sarmiento de Gamboa, which was tragically uninhabited after all the settlers starved or froze to death. The name Port Famine, later changed into Puerto del Hambre, was given by Sir Thomas Cavendish, an English navigator, who found only ruins of the settlement in 1587.

The grave of the unfortunate Captain Pringle Stokes is still marked on nautical maps. A plate and the inscription on the cross of his tomb (Figures 2 and 3) remind visitors of his unfortunate expedition and tragic death.



Figure 2: The grave of Captain Pringle Stokes. (Photo by the authors)



Figure 3: Details of the cross over the grave of captain Pringle Stokes. (Photos by the authors)

H.M.S. Beagle made a second voyage starting in Plymouth on December 27, 1831 under the command of Captain Fitz Roy, and with Charles Darwin as a gentleman passenger. After completing some extensive surveys along South American coasts she returned to Falmouth, Cornwall, on October 2, 1836, after circumnavigating the globe via New Zealand. After her third voyage, the Beagle was refitted in 1845 as a coast guard vessel, was renamed the "Southend W.V. No.7" in 1851, and finally sold to local scrap merchants in 1870.

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Heat and Energy pollution

The Urban Heat Harvester concept

by **Robert Samuels**

Many human activities are heat producing, from industrial processes to household activities and urban lifestyles in general including all forms of transportation, and, of course, any use of energy irrespective of its source which deposits waste heat in the environment. It is essential to develop strategies to capture waste heat before it is emitted into the atmosphere where it contributes to the urban and global warming effect.

The debate surrounding global warming is currently focused on CO₂ emissions and considerable effort is being put into reducing fossil-fuel greenhouse gases by developing renewable energy sources and reducing carbon concentrations in the atmosphere. However, global warming and the climate changes it produces is the result of the heat trapped by these greenhouse gases, and dealing with this heat pollution is generally overlooked in the debate.

Current levels of the heat-trapping gases in the atmosphere, and their longevity, means that even reducing emissions to zero now is unlikely to stop the temperature rising for at least the next 100 years. Only by reducing the amount of heat pollution emitted into the atmosphere can we have sufficient impact to moderate climate change extremes. Many human activities are heat producing, from industrial processes to household activities and urban lifestyles in general including all forms of transportation, and, of course, any use of energy irrespective of its source which deposits waste heat in the environment.

One of the key thermal sources is the urban heat island phenomenon which traps heat in thermal mass like concrete and black roads which absorb, store and then re-emit this heat to the urban air at night. This hot city phenomenon has far-reaching environmental sustainability and human livability implications, ranging from the aggravation of health problems such as heat stress, increasing the intensity of urban air pollution, and contributing to extreme weather events - in addition to the everincreasing use of air-conditioners, with flow-on impacts for energy supply, brownouts and greenhouse gas emissions. Because most people on earth live in cities, and each city is also substantially hotter than its natural surroundings, urban contributions to global warming are significant.

Proposed solutions to cool cities include urban greening and low-emission surfaces and cool colors on buildings, rooftops and roads. However, these have had minimal apparent affect to date, and given the rapidly developing and urbanizing nations worldwide, addressing the urban heat island phenomenon is of increasing importance. Urban greening is not a simple affair: it involves major infrastructural, management, maintenance and watering complexities.

It is essential to develop strategies to capture waste heat before it is emitted into the atmosphere where it contributes to

the urban and global warming effect. One strategy is to target the heat emitted at air-conditioning outlets, which essentially concentrate heat from the building, human occupants, machinery, lights, etc, and shift it outside the building -where it adds to the urban heat load (Figs 1&2).



Fig 1a. Rooftop heat waste in New York.



Fig 1b. Rooftop heat waste in New York. In a summer's day in NYC when the air temperature is 32C, the waste heat at street-level air-conditioner exhausts of CBD buildings is ±58C – substantially hotter than the ambient temperature.

International efforts to mitigate global warming now rely on Kyoto targets which are however so low and unenforceable as to be of little utility except to salve political conscience in the short term, besides earning greening corporations energy dollars from selling carbon credits. However, if capturing and sequestering heat was similarly recognized and rewarded, a rapid amelioration in urban and global climates could result.

Comparison between urban air temperatures and temperatures at air-conditioner outlets

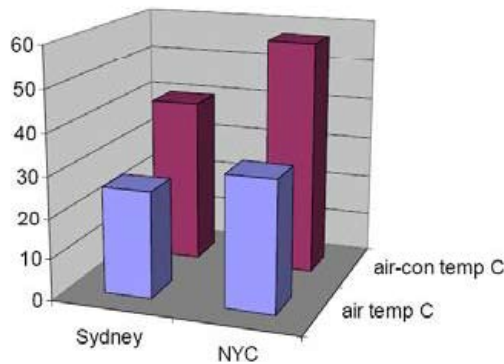


Figure 2a: Comparison between urban air temperatures and temperatures at air- conditioner outlets.

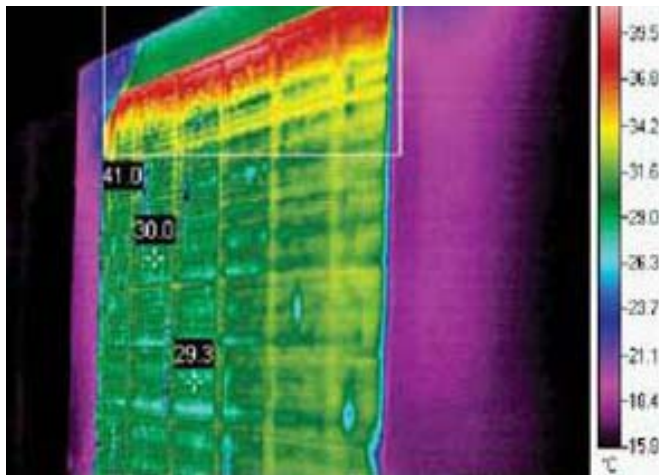


Figure 2b: Effects of air conditioning on air temperature. The thermal image, is of air conditioning heat waste on mild autumn day.

An urgent paradigm shift is necessary, recognizing that energy-emissions and heat-emissions are both forms of pollution, which work in unison to bring about climate change - at global and urban scales. Unless the amount of heat pollution emitted into the atmosphere is reduced, it will continue to silently and invisibly change the climate, beneath the consciousness of the world energy and environmental community.

The Urban Heat Harvester is an innovative concept which aims to cool cities by harvesting waste heat, withdrawing thermal pollution from the urban atmosphere via city buildings, utilizing their air-conditioning systems. Thus, moderating urban climate extremes and heat-stress experiences, increasingly liveability, and reducing energy use for cooling; while simultaneously recycling the heat as energy equivalence (to heat water). The ultimate goal is to transform the waste heat stream to zero-emission renewable energy - and proof-of-concept research will determine this feasibility in due course.

How can heat pollution be captured and re-used?

1. Capture the heat pollution: Draw waste heat from Urban Heat Island via building air-conditioning systems and capture at rooftop outlets of: offices; high-rise residential buildings; hospitals; shopping malls; cinemas; libraries; sport arenas; train and bus stations and airports (Fig. 3).

2. Convert or transform the heat pollution: The Urban Heat Harvester technology converts and transforms waste heat into electrical energy, and captures the remaining heat to warm water. Heat extracted from inside buildings via air conditioners is not removed from the city but simply concentrated and displaced: from the inside to the outside.



Fig 3a. Individual dwelling air conditioning units in Hong Kong.



Figure 3b: Rooftop building units in New York (from Google Earth). There are in NYC alone, 6000 high rise, and 10 000 medium rise (approx 10 stories) buildings that are all pumping out such concentrated heat, not to mention all the individual window air conditioners.

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Samuels, R. (2007) "The Urban Heat Harvester," IAU
Newsletter No. 25 (October 2007) pp.7-8 (<http://www.urban-climate.org/IAUC025.pdf>). Reproduced with permission.



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Introduction to GIFT-2008

The 6th Geophysical Information for Teachers (GIFT) Workshop, taking place during the EGU 2008 Assembly, focuses on the carbon cycle

Seventy teachers from 19 countries will attend the GIFT-2008 workshop and we hope that this will result in international collaborations among teachers and schools in the different nations.

The general theme of the 2008 GIFT workshop is "The Carbon Cycle" – a theme that is central to the study of greenhouse gases and the topic of global warming. The carbon cycle is actually so important to our life that many European Community scientific research programs have been investigating its different aspects: CarboEurope, CarboOcean, EPOCA (European Project on Ocean Acidification), EPICA (European Project of Ice Coring in Antarctica) and the new project ICOS (Integrated Carbon Observation System) are significant examples.

In this GIFT-2008 workshop, all of our speakers are leading research scientists participating in these different projects. Their presentations will make the most recent developments regarding the atmospheric, biologic and oceanic aspects of the carbon cycle available to the teachers.

But, as in the preceding GIFT workshops, we have reserved time not only for scientists but also for poster and oral presentations by teachers to their fellow teachers. A highlight on this will be the report by the three European teachers who have participated to the GIFT workshop in December 2007 at San Francisco, invited by the American Geophysical Union.

In addition, in close collaboration with Philippe Saugier, educational coordinator of the CarboSchools program, we have invited 6 teachers already involved in CarboSchools to come and share their experience in this program with all the teachers present at the 2008 GIFT workshop. In the CarboSchools program, scientists from CarboEurope and CarboOcean have joined forces to form partnerships between scientists and secondary schools in order to explain the critical carbon cycle research questions, methods of investigating these questions and make the latest scientific results of these investigations available to teachers and their students. Thanks to this program, many teachers have already taken part in active collaborations and participate in workshops, field investigations and laboratory experiments dedicated to the carbon cycle.

It appeared important to us to make all of the GIFT teachers aware of this educational program, and we thank CarboSchools for their involvement in GIFT-2008.

New from previous years is the presentation by Marc Jamous (IPSL) of a greenhouse experiment, suitable for classroom use. This experiment demonstrates different aspects of CO₂ – biosphere interactions over time with varying environmental conditions. All teachers will work in small groups to construct their own classroom experiment, and the results of these different experiments will be presented by the groups to all of the workshop participants.

Finally, we ask teachers to consider seriously the GIFT agreement we have asked them to endorse. The GIFT workshop is kindly sponsored by the EGU and several other science organizations. We would like to continue offering teachers the opportunity to attend EGU and the GIFT workshop, but this depends upon our being able to show our sponsors that teachers have used the new GIFT information and science didactics in their daily teaching, or as inspiration for new ways to teach science to students in their community schools. We ask that participating teachers make a presentation of your experiences at GIFT to a group of your teaching colleagues sometime soon after their return from EGU, and inform us of where, when and how many teachers attended their presentation, as well as telling us about how they have used the GIFT information in their classrooms.

Information on past and future GIFT workshop is now available on the EGU homepage. Look at:

http://www.copernicus.org/EGU/GIFT/gift_symposia.html

where you can find the brochure (pdf) and also the slides of the different presentations.

Also, The Eggs, the EGU newsletter, <http://www.the-eggs.org/> features on the left of the home page the Education column, which teachers can use to write reports on their work, and to read about other educational work.

The Committee on Education of the European Geosciences Union welcomes you in Vienna for the GIFT-2008 workshop!

Carlo Laj
On behalf of the Committee on Education of EGU



Geochemical and biogeochemical reaction modeling



Authors: Bethke Craig M.
Publisher: Cambridge University Press
ISBN: 9780521875547
YEAR : 2008
EDITION : 2nd
PAGES : 543
PRICE : 60.00 €
hardback

This book provides a comprehensive overview of reaction processes in the Earth's crust and on its surface, both in the laboratory and in the field. A clear exposition of the underlying equations and calculation techniques is balanced by a large number of fully worked examples. The book uses The Geochemist's Workbench® modeling software, developed by the author and already installed at over 1000 universities and research facilities worldwide. Since publication of the first edition, the field of reaction modeling has continued to grow and find increasingly broad application. In particular, the description of microbial activity, surface chemistry, and redox chemistry within reaction models has become broader and more rigorous. These areas are covered in detail in this new edition. This book is written for graduate students and academic researchers in the fields of geochemistry, environmental engineering, contaminant hydrology, geomicrobiology and numerical modeling.

Geochemistry & The Biosphere: Essays by Vladimir I. Vernadsky

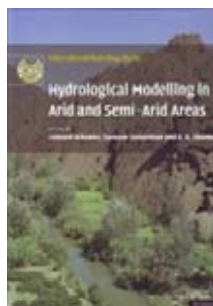


Authors: Vladimir I. Vernadsky
Publisher: Synergetic Press
ISBN: 0907791360
YEAR : 2007
EDITION : 1st (English Translation)
PAGES : 427
PRICE : 32.00 €
Paperback

20% discount for EGU members if ordered through the Synergetic Press website.
 Please include the words "EGU special" in the comments section of the online order and the discount will be adjusted after the order is placed.

In a time when world leaders are trying to catch up with the implications of global warming, an important 1926 monograph by Russian scientist Vladimir I. Vernadsky is poised to begin humanity's dialogue with the Earth. A recognized catalyst, this premier scientific work addresses in detail humanity's impact on the living systems of the planet. Renowned also as a philosopher and educator, Vernadsky wrote the first scientific theory about the "biosphere," the life zone of the Earth, and in the process prepared the ground for planetary thinking. The breadth of Vernadsky's knowledge of the literature of geology, geochemistry, the biosphere, the kinds of living organisms, and many other topics, is simply mind-boggling. He pulled together an incredible amount of information and applied powers of analysis that were truly phenomenal. Most of the important geochemical and ecological themes being discussed today were foreshadowed in these essays. This book introduces Vernadsky's groundbreaking work for the first time to the English-speaking world. Recommended for upper-division undergraduates through professionals.

Hydrological modelling in arid and semi-arid areas



Authors: Wheeler Howard, Sorooshian Soroosh, Sharma K. D. (Eds)

Publisher: Cambridge University Press

ISBN: 9780521869188

YEAR : 2008

EDITION : 1st

PAGES : 195

PRICE : 93.00 €

hardback

Arid and semi-arid regions are defined as areas where water is at its most scarce. The hydrological regime in these areas is extreme and highly variable, and they face great pressures to deliver and manage freshwater resources. However, there is no guidance on the decision support tools that are needed to underpin flood and water resource management in arid areas. UNESCO initiated the Global network for Water and Development Information for arid lands (GWADI), and arranged a workshop of the world's leading experts to discuss these issues. This book presents chapters from contributors to the workshop, and includes case studies from the world's major arid regions to demonstrate model applications, and web links to tutorials and state of the art modelling software. This volume is a valuable reference for researchers and engineers working on the water resources of arid and semi-arid regions. Describes hydrological modelling tools needed to support water management in arid regions, with contributions from the foremost experts in the field. Includes case studies from all over the world to show applicability of the models. Contains web links to tutorials and state of the art modelling software. This volume will be valuable for researchers and engineers working on the water resources of arid and semi-arid regions.



Summer School: Observing and Understanding Earth - Making the Most of Environmental Measurements - (Course)

13/07/2008 - 20/07/2008 - University of Konstanz, Germany

The interdisciplinary "Zukunftskolleg Summer School 2008" will bring together scientists from various fields of Environmental Sciences including Atmospheric and Ocean Sciences, Biogeosciences, Climate and Paleoclimate. It will cover tools and platforms of Earth observation, data quality and ways from observation to science.

Organizer:

Marc von Hobe, Forschungszentrum Juelich
(funded by the Zukunftskolleg of the University of Konstanz)

http://www.fz-juelich.de/conference/zwn_school08

Marc von Hobe
Forschungszentrum Juelich
ICG-1: Stratosphere
D-52425 Juelich, Germany
Email: m.von.hobe@fz-juelich.de

AEROSOLS and CLIMATE CHANGE - International Summer School on Atmospheric and Oceanic Sciences 2008 - (Course)

22/09/2008 - 26/09/2008 - L'Aquila, ITALY

The purpose of the school is to contribute to public and scientific understanding of the fundamentals of and the links between Aerosols and Climate. Lectures will discuss the main properties of the aerosols (size distributions, chemical composition, spatial and temporal distribution, nucleation, sources and sinks) and of the processes involving them (such as secondary organic aerosols formation, cloud formation). Lecturers will also characterize state-of-the-art instrumentation for aerosols measurements from groundbased, aircraft, and satellite platforms. After an introduction on climate fundamentals and on the interaction of aerosols with atmospheric radiation, lectures will describe the effects of aerosols on climate and model projections of future aerosols and climate change.

Organizer:

CETEMPS

University of L'Aquila
Via Vetoio 1, Coppito
67100 L'Aquila, ITALY

<http://cetemps.aquila.infn.it/issaos/>

Dr. Domenico Cimini
CETEMPS, Dipartimento di Fisica
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67100 L'Aquila

Tel: +39 0862 433076

Fax: +39 0862 433089

email: nico.cimini@aquila.infn.it

1st ESF-MedCLIVAR summer school - (Course)

17/09/2008 - 27/09/2008 - Island of Rhodes, Greece

1st ESF MedCLIVAR Summer School for post-graduate students on

Climate Variability over the Mediterranean area: Atmospheric and Oceanic Components

The Summer School will take place at the Hydrobiological Station and Aquarium of Rhodes located at the northern tip of the City of Rhodes in Greece.

Objectives

The 1st ESF-MedCLIVAR summer school will educate, through keynote talks, interactive sessions and tutorials on the physical, statistical and modelling aspects of climate variability in the seasonal, long-term scales as well as in extremes. It will bring together the atmospheric and oceanic components of Mediterranean climate variability providing education across disciplines. The school topics will include:

- The global and regional atmospheric mechanisms dominating the Mediterranean Climate
- Observed changes in the atmospheric and oceanic circulation
- Observed and modelled changes in atmospheric and oceanic parameters and their coupling
- Sea level and wind wave changes and their forcing
- Atmospheric and oceanic coupling of the Mediterranean Sea with the global atmospheric and oceanic circulation
- Changes in the extremes and the seasonality of atmospheric and oceanic parameters
- Monitoring and forecast strategies
- Climate change policy and management

How to apply

The School is targeted to active new researchers, Ph.D. students, and recent post-docs. In addition, researchers wishing to train or re-train in the subject of the school are also welcome especially if coming from developing Mediterranean countries not presently having a strong Mediterranean variability research established.

The selection of participants will be based on ensuring a balanced representation from the atmospheric and the oceanic community as well as ensuring participation from as many Mediterranean countries as possible. Gender issue will also be taken into account. The number of students will be limited to a maximum of 50.

Potential attendees are invited to apply to the school by filling the application form (click to download it) and providing the following documents:

- a letter of motivation in pdf format (max 300 words)
- a letter of support by the supervisor in pdf format

- CV in pdf format (max one A4 page, 12pt font-times single spaced)
- Abstract of the poster in pdf format (max 250 words)

The application form and the 4 pdf-documents should be emailed as attachments to Elena Xoplaki (elena.xoplaki@giub.unibe.ch), Mikis Tsimplis (mnt@noc.soton.ac.uk), Alex Theocharis (alekos@ath.hcmr.gr) and Roberta Boscolo (rbos@iim.csic.es) no later than May 30, 2008.

Successful candidates will be notified in June 2008.

The criteria for selection are those applicable by the ESF, which gives priority to MedCLIVAR-ESF supporting countries (www.medclivar.eu/organization.htm).

No fees will be charged for the attendance of the school. Accommodation (based on sharing double room) and full board will be kindly provided by ESF.

More detailed information on the ESF-MedCLIVAR Summer School can be obtained by contacting:

Alexander Theocharis
HCMR, Athens SPAIN
tel. +30 229 1076329
Email: alekos@ath.hcmr.gr

Roberta Boscolo
IIM-CSIC, Vigo SPAIN
tel. +34 986 232930 ext. 374
Email: rbos@iim.csic.es

Organizer:
<http://www.medclivar.eu/>

Field course from Archipelagos 2008 - (Course)

01/09/2008 - 10/09/2008 - Ikaria, Greece

Marine Scientific Illustration and Underwater Photography 2008

A unique opportunity to explore the fascinating underwater life of the Aegean Sea and discover the links between science and art.

Following the success of 2007 summer field courses the Archipelagos, Institute of Marine & Environmental Research of the Aegean Sea again is running a series of field courses in Scientific Illustration of Marine Fauna & Flora of the Aegean Sea. This course is aimed at students and graduates of Illustration, Design, Marine Biology and Environmental Sciences, as well as of related fields. Applicants will also be considered from a non-scientific or artistic background. Non-graduates are also welcome. The only requirement is a keen interest in marine life and the depiction of this life through photography and illustration.

This will be a 10-day course based on the island of Ikaria comprising lectures, seminars, workshops and practical field-work. Participants will gain first-hand experience in all stages of producing an accomplished scientific illustration, from procuring source material in the field to painting methods and techniques. Intensive observational drawing workshops will be delivered in the studio and in the field.

Participants will spend time developing their underwater

photography skills in the crystal clear waters of the Aegean. The local area offers a diversity of different marine environments, which are home to an abundance of weird and wonderful marine organisms.

These experiences will then be utilised to create a piece of artwork that reflects the diversity, and the beauty, of the underwater world. Tuition is given throughout the course in techniques of snorkelling, photography, painting and observational drawing, but there is also the freedom for students to explore the subject in an individual and creative way. Guidance will also be given for those wishing to produce a traditional and anatomically correct scientific illustration.

Topics covered

1. What is Scientific Illustration? Processes and applications.
2. Introduction to species identification in the field. Presentations on Invertebrates, Algae and Fish.
3. Biodiversity and conservation of Aegean Sea ecosystems
4. Underwater photography. Training in use of equipment.
5. Snorkeling, safety procedures, best practice rules and discussion on Aegean Sea habitats: where particular species can be found.
6. Practical training in underwater photography in the field.
7. Self evaluation of resource material to determine gaps in information.
8. Observational drawing skills. Workshops in the field and in the studio.
9. Colour theory. Painting techniques using a variety of media.
10. Applying species identification skills to illustrating of species.

Course Dates

For 2008 we offer the following dates:

- A: 29/5 to 7/6
- B: 3/7 to 12/7/07
- C: 1/9 to 10/9

Fees

The number of participants is limited to 10 (minimum 4). The fee for the ten-day course is 650 Euros, including all day activities of the program, accommodation, snorkeling excursions, drawing and painting materials and half board meals (breakfast and lunch).

For more information please visit: www.archipelago.gr or contact:

Abigail Lingford
Scientific Illustrator
Field Course Coordinator
Archipelagos, Institute of Marine & Environmental Research of the Aegean Sea
e-mail: abigail@archipelago.gr
P.O. Box 1, Rahes 83301, Ikaria, Greece
tel ++30 22750 41673

Organizer:

Archipelagos, Institute of Marine & Environmental Research of the Aegean Sea

www.archipelago.gr

Satellite Oceanography 2008 - (Course)

03/08/2008 - 23/08/2008 - Ensenada B. C., México

This advanced international course (for the series Satellite Oceanography Summer School: 1998, 2000, 2002, 2004, 2006), is focused on extreme events mainly (not limited) to the coastal ocean and the relevant processes in the vicinity of the interface between the two most important sub-systems in our planet, the ocean and the atmosphere.

Postgraduate students and research scientist interested in remotely study the oceans are invited to a three-week intensive international course on satellite oceanography. Undergraduate students in the last year of their career are also welcome to apply for admission, specially those from physics, oceanography, marine and environmental sciences, applied physics, applied mathematics, engineering or related subjects.

Lectures and hands-on exercises will cover topics on the basis of the ocean surface dynamics, the importance of oceanographic and meteorological phenomena and the physics in the vicinity of this interface, as well as the ways to observe the sea surface from space. Most lectures will be offered during mornings while afternoon sessions will be devoted to exercises, group discussion, visualisation, etc.

Starting with a description of the most important satellite missions on the earth observing system, lectures will also cover the basics and most of the physics involved in remotely sensing oceanographic and meteorological parameters. Synergy of information is also considered as an important aspect. Our ability to see the ocean from the space and to use the information retrieved will lead us to understand new applications and their impact on understanding climate change and its numerical modelling. Future important research topics and potential novel applications will also be addressed in satellite oceanography lectures, as to predict relevant extreme events such as tropical storms, hurricanes, El Niño, etc. The students will be prepared to create the next generation of ocean remote sensing products, useful and relevant not only to scientific research but also to socio-economic applications.

Participant students are expected to attend the full course (including laboratory sessions). Those requiring academic credits must register and complete all course assignments for official evaluation.

To apply for admission, please send a letter of intent explaining why you should be accepted/supported, and a short version of your CV as soon as possible (deadline: March 30th 2008), including full name, affiliation, and full postal address, e-mail, tel, fax, etc. to the COURSE SECRETARIAT:

Sra. Elvia Serrano (eserrano@cicese.mx), Departamento de Oceanografía Física, CICESE

Km 107 Carretera Tijuana-Ensenada, Ensenada B.C., 22860 México (<http://www.cicese.mx>)

Tel: +52 646 1750500 x24027 Fax: +52 646 1750547 or 1750574

Course registration fee is 300 US (or equivalent in Mexican pesos), to cover all course activities, including laboratory sessions and student notes.

Those participants interested in showing some of his/her activities and/or recent results are encouraged and welcome to bring a poster. Suitable space will be allocated for such purpose mainly with the objective of initiate discussion and maintain continuous interaction among participant students and lecturers. Please, indicate so if this is of your interest when applying for admission to organise a proper program and provide with all information to the participants with some advance notice.

Organizer:

<http://www.iocccg.org/training/other.html>

SPARC 4th General Assembly - (Meeting)

31/08/2008 - 05/09/2008 - Bologna, Italy

Scientific Programme

Abstracts for oral and poster presentations are invited across all topics of relevance to the SPARC programme including:

- Stratosphere-Troposphere Dynamical Coupling
- Stratospheric Variability and Climate Change
- Extra-tropical Upper Troposphere/Lower Stratosphere
- Detection, Attribution and Prediction of Stratospheric Change
- Tropical Tropopause Layer
- Atmospheric Chemistry and Climate
- Stratospheric data assimilation
- Gravity-wave processes and their parameterization
- Stratospheric and upper tropospheric water vapour

English is the official language of the conference

Calendar

29 February 2008	Abstract Deadline
29 February 2008	Financial Support Request Deadline
15 May 2008	Notification of Financial Support
30 May 2008	Early Bird Registration Deadline
31 July 2008	Standard Registration Deadline

For further information please visit:

<http://www.cmcc.it:8080/web/public/sparc-ga2008>

Organizer:

SPARC

<http://www.cmcc.it:8080/web/public/sparc-ga2008>

A Physics Perspective on Energy Supply and Climate Change: Prediction, Mitigation and Adaptation - (Meeting)

26/05/2008 - 29/05/2008 - Bad Honnef, Germany

Background and Purpose

The climatic impact of man's industrial activities, in particular the release of CO₂ in energy production, is by now a fact. To anticipate the consequences and define ways to alleviate them is a major scientific challenge. During the seminar the various aspects of the problem will be treated by internationally distinguished experts, with emphasis on the underlying physics. The seminar is aimed at scientist and engineers active in the fields of climate change and/or energy supply.

Organizer:

W. Blum, Working Group on Energy
U. Platt, Division of Environmental Physics
of the German Physical Society

<http://www.uni-saarland.de/fak7/fze/Heraeus.htm>

Prof. Dr. W. Roether

Otto Hahn Alle

Univ. Bremen, FB 1

wroether@physik.uni-bremen.de

2nd Int. Conf. BIOHYDROLOGY 2009: A changing climate for biology and soil hydrology interactions - (Meeting)

21/09/2009 - 24/09/2009 - Bratislava, Slovakia

Biohydrology 2009 is the second international conference to discuss exclusively the interactions between hydrological and biological processes in soil under conditions of changing climate. It will provide an ideal opportunity for hydrologists, biologists and soil scientists to discuss recent research developments. Key-note lectures from internationally renowned scientists, combined with volunteered papers and posters, will examine the wide range of processes that drive soil biology/hydrology interactions from the micro- to regional-scale.

Organizer:

Institute of Hydrology, Slovak Academy of Sciences, Bratislava, Slovakia

Institute of Hydrodynamics, Academy of Sciences of the Czech Republic, Prague, Czech Republic

University of Valencia, Valencia, Spain

Swansea University, Swansea, UK

University Koblenz-Landau, Koblenz, Germany

ALTERRA Green World Research, Wageningen, The Netherlands

Scottish Crop Research Institute, Invergowrie, Dundee, UK

Max-Planck-Institut for Biogeochemistry, Jena, Germany

Research Institute for Soil Science and Agricultural Chemistry, Hungarian Academy of Sciences, Budapest, Hungary

<http://www.ihs.savba.sk/biohydrology2009>

Dr. Lubomir Lichner, Institute of Hydrology, Slovak Academy of Sciences, Racianska 75, 83102 Bratislava, Slovakia; lichner@uh.savba.sk

31st International Geographical Congress - (Meeting)

12/08/2008 - 15/08/2008 - Tunis

The 2008 Tunis Congress will be held under the aegis of His Excellency Zine El Abidine Ben Ali, President of the Republic of Tunisia. It enjoys the support of the Ministry of Higher Education, Scientific Research and Technology, and is backed by various other ministerial departments and academic and research institutions.

The National Organizing Committee of the 2008 Tunis Congress has planned a scientific agenda meant to further develop the reflection and debates of the past two decades, while highlighting new paradigms and promoting new stances to geographers.

«Building together our territories» will be the major theme of the Congress. Three major issues will be discussed: the territory; the operational orientation of geography; and the role of the players. Going beyond the classical divides of the discipline, these issues make of geography a science that allows man to live intelligently with the others and his milieu.

Other breaking-news topics themes are also scheduled for debate. The evolution of geographical thought; Cultures and Civilisations for Human Development; the Renaissance of the Mediterranean; the International Year of the Planet Earth, are, inter alia, some of the issues that will be raised, showing the ability of geographers to share their concerns with others. Tunis 2008 will provide an ideal forum for geographers to express and confront their visions on the major issues of our time.

The 2008 Tunis Congress will host 36 IGU committees and 4 working groups whose activities will be integrated in the Congress general agenda. It will also offer the possibility of convening meetings for the different IGU regional networks (the Commonwealth network, Latin America network, South-East Asia network, Australia and the Pacific network) or for other nascent networks (Mediterranean, Africa, the Arab world, etc). The 2008 Tunis Congress will thus be a collective undertaking, aiming mainly at building and contributing to the renewal of Geography.

The excursion programme will be particularly rich. Owing to the diversity of its landscapes (from the Mediterranean forests to the desert, from the coast hills to the hinterland mountains, from the urban centres to the countryside), and because of the multiplicity of dynamics, constraints and the responses brought by society, the country does indeed offer limitless opportunities.

Abstract Submission

For information on how to submit your abstract, please visit

http://www.igc-tunis2008.com/index.php?option=com_content&task=view&id=74&Itemid=136

The deadline for abstract submission is fixed to May 31st 2008.

Organizer:

<http://www.igc-tunis2008.com>

IV International Symposium on Transboundary Waters Management - (Meeting)

15/10/2008 - 18/10/2008 - Thessaloniki, Greece

Aims

-To assess the state of the art and the progress recently made in the sustainable management of transboundary waters by different disciplines such as law, socio-economics and water science;

-To review current major international programmes concerned with the assessment and management of transboundary water resources; and

-To promote interdisciplinary approaches for integrated transboundary water resources management.

Symposium Themes

The main topic of the symposium is Transboundary Surface Waters and Shared Aquifers. The following, specific topics will be developed in depth either for surface and groundwaters separately, or in combination. Papers will be presented and discussed in separate thematic workshops followed by plenary debates and exchanges of views on inter and transdisciplinary approaches.

- Common Monitoring Networks
- Sharing Data and Information
- Remote Sensing, Cooperative Modelling & Simulation
- International Political Issues, Decision Making & Conflict Resolution

Resolution

- Involving Stakeholders in Transboundary Areas
- Institutional & Legal Issues
- Transboundary Water Economics
- Planning under Climate Change
- EU Policy in Transboundary Water Issues
- Education and Training, with an emphasis on shared aquifers

Call for papers

The structure of the symposium will facilitate both in-depth disciplinary workshop presentations and discussions, and plenary interdisciplinary exchange of views and suggestions for effective regional actions on sustainable TWM. The working language will be English.

Extended abstracts up to 3 pages on the above mentioned themes should be submitted by 30th April 2008. After review by special expert groups, authors of the accepted abstracts will be notified by 15th July 2008. Authors will also be informed about the type of presentation, which will either be oral or a poster. The accepted abstracts will be published in a CD Rom

before the symposium and full papers in a printed volume afterwards.

Important Dates

Submission of abstracts Form A and pre-registration Form B 30 April 2008

Notification of acceptance 30 June 2008

Second announcement and final programme 20 September 2008.

Contact Details

For submission of abstracts and papers Form A Ganoulis, J. e-mail: iganouli@civil.auth.gr

Pre-registration Form B and other organisational matters Conference Secretariat:

CONFERENCE SECRETARIAT

Topline Travel & Tourism

27 Tsimiski Steet

54624 Thessaloniki, Greece

Tel: (+30) 2310 252 103 or (+30) 2310 252 105

Fax: (+30) 2310 252 104 or (+30) 2310 252 107

E-mail: info@toplinetravel.gr

Organizer:

Aristotle University of Thessaloniki, UNESCO Chair IN-WEB, UNESCO-IHP, SAHRA, IGRAC

http://www.inweb.gr/index.php?option=com_content&task=view&id=241&Itemid=146

Call for papers for the SPIE Asia-Pacific Remote Sensing Conference - (Meeting)

17/11/2008 - 21/11/2008 - Noumea, New Caledonia

Present your work

Participate in one of the world's most important conferences in remote sensing for island ecosystem management and the diagnosis of threats to the global environment. SPIE Asia-Pacific Remote Sensing gives you the opportunity to contribute your research and gain interdisciplinary collaboration on technical approaches, theoretical basis, and application methods of marine, land, and atmosphere remote sensing.

Within weeks of presentation your work will be published in the SPIE Digital Library and become part of the scientific literature of the world

View call for papers program (PDF) at <http://spie.org/Documents/ConferencesExhibitions/Asia-Pacific-Remote-Sensing-2008-Call.pdf>

or consult the conference website (<http://spie.org/asia-pacific-remote-sensing.xml>) for further information

Abstracts due 2 June 2008

Organizer:

<http://spie.org/asia-pacific-remote-sensing.xml>

Ocean Optics Conference XIX - (Meeting)

06/10/2008 - 10/10/2008 - Tuscany, Italy

From the inception, the Ocean Optics Conference series has attracted a diverse audience of professionals and students addressing virtually every facet of optical oceanography including basic research, technological development, environmental management, and policy. Over the course of the 40 year history of the series, the conference has increased in scope and attendance and has become spiced with topics of local interest as the venues have become more varied and representative of the international oceanographic community. In this tradition, Ocean Optics XIX will convene in Tuscany, Italy, 6-10 October, 2008 and is expected to attract a diverse international audience and focus on many science issues of interest within the research community.

Sessions will generally be topical, derived from the submitted abstracts, and will be comprised of invited overview lectures and contributed papers. All contributed papers will be presented as posters and a subset will be selected by the planning committee for oral presentation.

Another tradition of the Ocean Optics Conference series is the construction and distribution of conference proceedings. Each contributed paper will be submitted as an extended abstract and the collected works distributed to all conference attendees in the form of a word-searchable CD ROM. The cost of the proceedings is included in the registration fee.

Instructions To Authors

All contributing authors to Ocean Optics XIX must provide the following:

- Short Abstract (due by 1 June 2008 (pre-registration deadline) at time of registration)
- Extended Abstract (due 31 Aug 2008)
- Poster Paper

Any author wishing to present their work orally in one of the contributed paper sessions must select that option when registering. Sessions will be constructed, based on submitted short abstracts, after the conference pre-registration deadline. **AUTHORS SELECTED FOR ORAL PRESENTATIONS ARE NOT REQUIRED TO PRESENT A POSTER.**

For Registration and Abstract submission Forms please visit: <http://oceanopticsconference.org/registration/form>

Important Dates

01 June 2008 - On-line Pre-registration closes (Short abstract deadline)

31 August 2008 - Extended abstract deadline

01 September 2008 - Accommodations deadline to ensure conference rates & availability

For further information please visit: <http://oceanopticsconference.org/>

or contact:

Trudy D. Lewis

Lewis Conferences International US LLP

1087 Belmont on the Arm Halifax, Nova Scotia B3H 1J2

Phone: 902-422-6069

Fax: 902- 425-3064

E.mail: trudy.lewis@ns.sympatico.ca

Organizer:

<http://oceanopticsconference.org/>

Second Symposium on The Ocean in a High-CO₂ World - (Meeting)

06/10/2008 - 09/10/2008 - Musée Océanographique,
Monaco

The purpose of the meeting is to provide an interdisciplinary forum to assess what is known about ocean acidification and to identify priorities for future research. The symposium will include both invited and contributed presentations (oral and posters).

The meeting space in the Oceanography Museum in Monaco is limited, so it is very important that individuals interested in participating in the symposium register as early as possible. If the number of registrants is greater than the space available, a selection process will be used, with some preference given to applicants who submit an abstract relevant to the meeting topics.

Abstract Submission

Please register for the conference BEFORE submitting your abstract as you will need your username and password to access the online submission tool.

The deadline for the submission of abstracts is May 31, 2008. You will need to have your abstract prepared in a Word file to be uploaded as part of the submission process. Please format your abstract as follows:

1. The entire abstract should be in Times Roman, 12 point font.
2. Title should be in BOLD CAPS
3. The author(s) names should be immediately below the title, in plain font. Underline the name of the author who will give the presentation. If the authors have different addresses, use a superscript number after the author's name, linked to the same number with the address at the end of the abstract (see sample below)
4. Please include an e-mail address for correspondence with the presenting author.
4. The body of the abstract should not be more than 250 words.
5. References, complex formulae, tables and illustrations should not be included in an abstract.

For Further information: <http://www.highco2world-ii.org/main.cfm?cid=975&nid=9349>

Important Dates

31 May 2008: Abstract deadline

31 July 2008: Early registration closes, higher registration fees go into effect

31 August 2008: Biogeosciences opens for submissions to special section on "The Ocean in a High CO₂ World - II"

For additional information, please contact James Orr (J.Orr@iaea.org) or one of the sponsors' representatives: Ed Urban (Ed.Urban@scor-int.org), Maria Hood (m.hood@unesco.org), or Emily Brevière (emily.breviere@igbp.kva.se) or visit: <http://www.highco2world-ii.org/main.cfm?cid=975>

Organizer:

<http://www.highco2world-ii.org/main.cfm?cid=975>

PORSEC 2008 (The Ninth Biennial Pan Ocean Remote Sensing Conference) - (Meeting)

02/12/2008 - 06/12/2008 - Guangzhou, China

PORSEC 2008, the Ninth Biennial Conference with the overall theme-Oceanic Manifestation of Global Changes, will be held in Guangzhou, China on December 2nd-6th, 2008, hosted by the South China Sea Institute of Oceanology (SCSIO), Chinese Academy of Sciences (CAS).

Abstract Submission

1, Please indicate in which session the abstract should go and write down the session NO. in your abstract. Whether an abstract is for oral or for poster should be decided by the committees. For abstracts intended for oral presentations, please underline the name of the speaker beside which write down "speaker" in the round brackets. (see sample abstract doc)

2, The abstract should be submitted via our homepage (specifying whether the paper is considered for oral presentation or for poster presentation).

In case of difficulty, please email the abstract to porsec2008@scsio.ac.cn as a WORD file attachment.

3, Some Abstract Formatting Instructions: All abstracts must be in English. Maximum Length of Abstract: 500 words, Font style: Times New Roman, 11 Point. No photographs, figures, tables, reference or abbreviations. No footnotes or endnotes

4, Sample abstract see <http://ledweb.scsio.ac.cn/porsec2008/download/sample%20abstract.doc>

Important Dates:

Call for session: June 1-Sep 30 2007

Abstract submission: 15th January - 15th July, 2008

Contacts

Danling Tang (Lingzis) Ph.D. Professor South China Sea Institute of Oceanology, Chinese Academy of Sciences No.164 West Xingang Road, Guangzhou, China, 510301 Tel/Fax: 86 20 89023203 Email: lingzistdl@126.com Personal Website: <http://lingzis.51.net/>

Ms Paula Lei PORSEC 2008 Assistant & Secretary South China Sea Institute of Oceanology, Chinese Academy of Sciences No.164 West Xingang Road, Guangzhou, China, 510301 Tel/Fax: 86 20 89023203 Email: porsec2008@scsio.ac.cn

Organizer:

<http://ledweb.scsio.ac.cn/porsec2008/>



Atmospheric Sciences-Academic

Postdoc position: Dynamics and statistics of extreme extratropical storms

Company: University College Dublin
 Location: Ireland-Dublin
 Date Posted: 03/03/2008
[\[show details...\]](#)

Atmospheric Sciences-Academic

Faculty position in atmospheric and oceanic sciences

Company: Princeton University
 Location: USA-Princeton
 Date Posted: 28/03/2008
[\[show details...\]](#)

More details on these jobs can be found online at www.the-eggs.org (click on the button “Job Positions” on the left). Job positions online are updated twice a week.