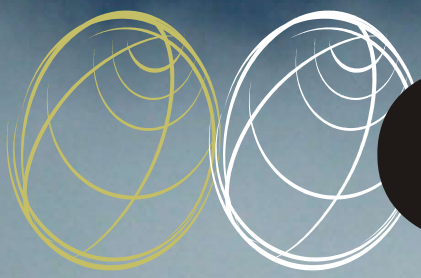

the eggs

E.G.U. NEWSLETTER

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- **EGU launches Imaggeo**
  a free geosciences photographic archive
- **Keeping the Earth's plates oiled**
  Findings on water in the asthenosphere presented at the first EuroMinScI conference
- **The African Monsoon Multidisciplinary Analyses (AMMA) programme**
  A scientific challenge with very serious repercussions for the black continent

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Cover photo: Falakro Mountain, Greece. Image credit: V. Karageorgos / Distributed by EGU.

Great debate during the last Assembly

The carbon footprint of the EGU 2007 Assembly was the topic of a well-attended debate held at the meeting.

Last week saw nearly 8000 delegates gather in Vienna, Austria, for the European Geosciences Union (EGU) meeting. But while the conference undoubtedly boosted knowledge and enabled researchers to forge new links, was its carbon footprint bigger than necessary? That was the topic of a well-attended debate held at the meeting.

According to Stefan Krause of the UK's University of Lancaster, in 2006 around 7,730 delegates travelled a total of 15 million km to reach Vienna from 91 countries. That travel produced roughly 5000 tonnes of carbon emissions. Krause found that just 18% of the delegates were responsible for around 3000 tonnes of carbon, as they came by plane from another continent. European delegates generated between 800 and 1800 tonnes of carbon, depending on whether they arrived by train or air. That said, there's quite a lot of uncertainty in the data, as carbon emissions depend on the type of plane, train or car as well as the passenger loading.

Arguing that the EGU's carbon footprint was not bigger than necessary, former EGU president John Ludden said that the conference's 80 splinter groups and business meetings saved carbon emissions by removing the need for lots of smaller meetings. "We should be bringing more people here to make ourselves more effective," he added. "We should be talking with the energy industry and economists." Ludden also suggested spending the money that might otherwise be spent offsetting the meeting's carbon footprint to bring, say, 100 Chinese or Indian scientists to the conference in order to boost environmental knowledge in countries that are developing fast.

Read more on http://environmentalresearchweb.org/cws/article/opinion/27741

From a report on http://environmentalresearchweb.org/

EGU journal Impact Factors on the rise

with ACP leading the way with IF 4.362

20 June 2006.- ISI JCRs (Journal Citation Reports) for 2006 have been published yesterday. Journal Citation Reports present quantifiable statistical data that provide a systematic way to evaluate the world's leading journals and their impact and influence in the global research community.

EGU journals' impact factors, according to JCR 2006, are:

- Atmospheric Chemistry and Physics (ACP) went up once again this year to 4.362, making ACP the leading geosciences journal.

- Biogeosciences (BG) 2.125. This is the first impact factor for BG, ranking Biogeosciences among the top journals in the fields that it covers (see http://www.copernicus.org/EGU/bg/biogeosciences_impact_factor_2006.pdf. The citation statistics confirm the top impact and visibility of BG only 3 years after its launch.

- Annales Geophysicae (ANGEO) 1.293

- Hydrology and Earth System Sciences (HESS) 1.333. The 2006 ISI Impact Factor shows a steep rise from the 2005 ISI Impact Factor. The 2006 Impact Factor reflects the citations in the years 2004 and 2005. The new web-based HESS journal only started in 2005, so part of its Impact Factor is still based on the old HESS. The high value of 1.333 is mainly due to the high citations in 2005. Intermediate computations using Scopus indicate that in 2007 the Impact Factor will again rise, with an expected value above 1.6. So HESS is on its way of becoming a top ranking journal.

- Natural Hazards and Earth System Sciences (NHESS) 0.884

- Nonlinear Processes in Geophysics (NPG) 1.312.

EGU awarded the Henry Darcy Medal to Professor Lars Gottschalk

The European Geosciences Union awarded recently its prestigious Henry Darcy Medal to Professor Lars Gottschalk.

Laudatio on the occasion of awarding the Henry Darcy Medal by the European Geosciences Union to Professor Lars Gottschalk.

The European Geosciences Union awarded recently its prestigious Henry Darcy Medal to Professor Lars Gottschalk. Since I have had a privilege of knowing Lars quite well since the early 1980s, when we collaborated in the IAHS Hydrology 2000 Working Group, I gladly accepted an invitation to deliver a laudatio at this ceremony.

Born and raised in Skåne (Sweden), Lars studied in the Lund University, but decided to extend his studies in Moscow. For a Swede, to go to the USSR in 1970s was neither an usual nor an easy thing. The iron curtain did exist and attempts to cross it raised suspicions on both sides. But the risk turned out to be worth taking. Lars got acquainted with the Soviet stochastic hydrology, which was virtually unknown in the West. He mastered the difficult Russian language, indeed very remote from Swedish and English. But what was most important, he met a beautiful young lady, Irina, who became his life-time companion – wife and collaborator.

Lars received his PhD degree from Lund. Since early 1980s he has been Professor of Hydrology at the University of Oslo and since mid 1990s a part-time scientific collaborator at CEMAGREF, France (in Lyon and Antony). His long-term French connections rhyme with the nationality of the patron of the medal, who studied wells in Dijon and developed the well-known Darcy Law.

For over three decades, Lars has paid valuable contributions to the development of hydrological sciences, and in particular to stochastic hydrology. A long list of his scientific interests contains, among others: hydrological applications of theory of probability and stochastic processes; analysis of spatial-temporal hydrological fields; regionalization; gridding runoff data; applications of EOF; runoff regimes; physically-based stochastic models; and data assimilation.

Being a citizen of Sweden and professor in Norway, Lars has operated in wealthy, well developed, and well organized countries. Yet, he has been well aware that being a part of the wealthy Scandinavia is – in mathematical terms – an initial and boundary condition. Recognizing the difficulties of hydrological research in less endowed countries, he has entered into intensive, and mutually beneficial, collaboration with hydrologists in Egypt, Mali, Poland, Russia, and India, and for several years now – with Central America, and Costa Rica in particular.

A few months ago, at a large UNESCO FRIEND conference in Havana, Cuba, I was really pleased to see Lars, Irina, and their collaborators from Costa Rica and France, and former Lars's students from Norway, backing many valuable contributions. Their work was well visible and attracted considerable interest at this large Conference.

Professor Gottschalk has provided international leadership in hydrological sciences. He has served as a long-term secretary of ICWRS, and vice-president of IAHS. He co-led the large, international NOPEX experiment (in the GEWEX family of projects). He has supervised many doctoral theses. Some of his students have achieved considerable successes, such as, for instance, the Tison Award of the IAHS.

Lars has chased neither money nor distinctions. Having achieved a lot, he remains a modest man and he may be a bit embarassed finding himself in the spotlights of the present ceremony. He has been driven by curiosity to know more, to understand better. He has cherished and supported scientific interests of his family. Not only Lars, but also his wife Irina and their son Michael, have doctoral degrees; achieving 100% PhD coverage in the family.

I wonder what short list of terms could describe Lars. Perhaps seeking (and finding) harmony in life and work. Perhaps consequence, persistence, long-term dedication, stability, and confidence.

The name Lars (Laurentius) comes from a Latin term – laurel, denoting a distinction of no monetary value but of much symbolic meaning, given to a winner of an ancient poetry contest or a sport competition at Olympia. I am very pleased that I can witness the moment of bestowing a, well deserved, contemporary laurel - the Darcy Medal upon a great scientist, and my friend, Professor Lars Gottschalk.

Editor's Note: This medal has been established in 1998 by the Section on Hydrological Sciences (HS) of EGU in recognition of the scientific achievements of Henry Darcy. It is reserved for individuals in recognition of their outstanding scientific contributions in water resources research and water resources engineering and management.

Hubert Savenije gives below a brief overview of Darcy's achievements:

"Henry Philibert Gaspard Darcy lived from 1803 to 1858 and was a well respected and renowned scientist of his time. His name is still known among hydrologists. He is best known for his contribution to groundwater flow: the Darcy "Law" that groundwater flow is directly proportional to the pressure

difference. However, he made substantial contributions to a much broader field of hydrological and hydraulic engineering. As an engineer responsible for the water supply of Dijon he carried out experiments to determine the characteristics of water flow through pipes of different material, size and roughness; and did filtration tests through sand filters of different sizes and filter material. He also carried out field experiments in open channels to determine the relations between velocity, cross-sectional area and slope. As a result of these experiments his name also appears in the Darcy-Weisbach equation for open channel flow.

His approach was purely scientific and in line with the empirical approach to science of that time. Besides his hydraulic experiments, he developed a theory for recharge of groundwater from rainwater infiltration, offered a rational explanation for the seasonal variation of the productivity of wells, and provided a theoretical explanation for the occurrence of artesian wells. Phenomena which in his time were still issues of serious debate.

What makes Darcy a particularly good figurehead for the "Hydrology and Water Resources" medal is that his research work was triggered by societal needs and the complex engineering challenges that came with an urbanising and industrialising society".

Professor Zbigniew W. Kundzewicz
Research Centre for Agricultural and Forest Environment, Polish Academy of Sciences, Poznań, Poland and Potsdam Institute for Climate Impact Research, Potsdam, Germany

New EGU journal launched: The Cryosphere (TC)

The Cryosphere is dedicated to the publication of research on all aspects of frozen water and ground on Earth and on other planetary bodies.

Katlenburg-Lindau, 1 May 2007.- EGU launched a new journal: The Cryosphere (www.the-cryosphere.net).

Aims and Scope

The Cryosphere (TC) is an international scientific journal dedicated to the publication and discussion of research articles, short communications and review papers on all aspects of frozen water and ground on Earth and on other planetary bodies. The main subject areas are:

ice sheets and glaciers;
planetary ice bodies;
permafrost, river and lake ice;
seasonal snowcover;
sea ice;
remote sensing, numerical modelling, in-situ and laboratory studies of the above and including studies of the interaction of the cryosphere with the rest of the climate system.

TC follows the innovative two-stage publication concept of Copernicus Publications and the EGU which involves a scientific discussion forum to:

-foster scientific discussion;
-enhance the effectiveness and transparency of scientific quality assurance;
-enable rapid publication;
-make scientific publications freely accessible.

Co-Editors-in-Chief are Jonathan Bamber, Jon Ove Hagen, Peter Lemke, John Pomeroy and Michiel van den Broeke.

The journal home page is
http://www.copernicus.org/EGU/tc/tc.html

EGU is looking for a new Executive Secretary

Experience in science-administration, in science-politics and in international cooperation would be an asset.

The EGU is the foremost geosciences union in Europe. Its annual meetings attract about 8000 scientists and it currently publishes 19 journals, most using an innovative "open access" format.

It also manages a growing number of education and outreach activities. We are looking for an Executive Secretary. The initial position will be half-time and will overlap with that of the present incumbent, Dr. Arne Richter, but could rapidly evolve to a full-time post. Applicants should have a post-graduate qualification, preferably in geosciences. Experience in science-administration, in science-politics and in international cooperation would be an asset. They should be able to run an independent office, organise a scientifi c association and have the vision to promote the free and independent growth of the Union. The EGU is currently searching for a location for its European Office, and therefore we welcome applications from research departments, institutes or organisations offering both personal and office space; however, the personal will always have the higher priority.

Applications should be submitted by mail or email to the present EGU Executive Secretary by 1 September 2007:

Dr. Arne Richter
EGU Executive Secretary
Max-Planck-Str. 13
37191 Katlenburg-Lindau
Germany
arne.richter@copernicus.org

New EGU Medal for Geomorphology

The Division on Geomorphology of the European Geosciences Union (EGU) has established a medal, the "Ralph Alger Bagnold Medal".

The Ralph Alger Bagnold Medal has been established by the Geomorphology Division of the European Geosciences Union in commemoration of the scientific achievements of Ralph Alger Bagnold. It is reserved for individuals in recognition of their outstanding scientific contribution to the study of geomorphology, by means of:

1. a substantive recent contribution to a particular research area
2. the originality and innovative nature of the research
3. timeliness and significance of the research

Ralph Alger Bagnold (UK, 1896-1990) was a soldier, explorer and scientist. His fundamental work on the physics of sediment transport in air and water and the dynamics of bedforms continues to underpin modern studies of processes shaping the surface of planets. It was reported in the classic book "The Physics of Blown Sand and Desert Dunes", published in 1941, and a series of groundbreaking papers written in the 1940s, 50s and 60s. For this work, Bagnold was named a member of the Royal Society. He received the Founders' Gold Medal of the Royal Geographical Society, the Wollaston Medal of the Geological Society of London, the Warren Prize of the US National Academy of Science, and the Penrose medal of the Geological Society of America. Combining a deep sense of curiosity and yearning for exploration with a sound background in physics and mathematics and a special inventiveness, Bagnold has produced a truly meaningful, influential and long-lasting body of work on Earth surface processes. His long scientific career was paralleled by a distinguished military career which saw him serve in two world wars, rising to the rank of Brigadier General in the British Army.

Please, visit the following web site: http://www.copernicus.org/EGU/awards/ralph_alger_bagnold_overview.html

You are kindly invited to submit candidates by the end of June of each year for presentation at the next year's General Assembly. For further details, please contact the following sites:

1. Proposal and Selection of Candidates:
http://www.copernicus.org/EGU/egu_info/award2.html
2. Proposal Submission:
http://www.copernicus.org/EGU/awards/Committees_.html

New EGU Medal for Geosciences Instrumentation

The Geosciences Instrumentation and Data Systems Division has established a new medal, the "Christiaan Huygens Medal".

The Christiaan Huygens Medal has been established by the Geosciences Instrumentation and Data Systems Division to recognize significant contributions in the fields within the scope of the division. The medal will be awarded to an individual for an innovation, development or discovery that has had major impact in its field, or for a series of contributions, during an extended period, that has led to significant progress in the field.

Christiaan Huygens was born in The Hague, The Netherlands, 14 April 1629 as the second son of Constantijn and Susanna Huygens. His father, from a wealthy family, was a diplomat in service of the House of Orange.

In his younger years Christiaan did not go to school but was taught by teachers at his home. He very early showed to be a bright and talented pupil. The family was acquainted with Descartes who got impressed by the talents of the young boy and Descartes certainly influenced him both during his studies and later, in particular in the field of mathematics. In 1645 Christiaan went to the University of Leiden to study mathematics and law and between 1647 and 1649 he continued these studies at the newly established Orange College of Breda where his father just had become a curator. While he was studying law, it was quite clear that his major interests were in physics and mathematics. He wrote his first scientific publication in 1649, De iis quae liquido supernatant (On hydrostatics). He was appointed member of the Royal Society in 1663 and in 1666 he became one of the first members of the French Academy of Sciences.

After the invention of the telescope by another Dutchman, Hans Lippershey, an eyeglass maker, Galileo used for the first time the telescope for astronomical purposes making many new discoveries. Huygens, among many others, realised that with improvements in the optics new celestial phenomena were waiting for being discovered and so started himself, together with his brother Constantijn, to manufacture telescopes and to refine the techniques of making them. With time the two brothers became very skilled telescope makers. Christiaan also developed a theory of the telescope and soon formulated the law of refraction to derive the focal distances of lenses.

In 1655, using his own telescope, he discovered the largest Saturnian moon, later to be named Titan, and in 1659 he was the first to realise that the rings of Saturn are indeed rings.

In these days measurement of time was a real challenge and of great importance for navigation at sea. Huygens studied seriously the problems related to measurement of time and invented the pendulum clock which dramatically improved the accuracy of time measurements. In 1673 he published his work Horologium Oscillatorium, where he describes the theory and practical realisation of this invention.

Huygens was a truly multidisciplinary scientist and studied and published papers on a large variety of topics ranging from the wave theory of light, mathematics and mechanics to practical topics as optics design formulae and music, among many other things. One of his last works was the philosophical Cosmotheoros where he even speculates on life on other planets.

Christiaan Huygen lived his life as single and he had no children. He died back in The Hague in 1695. In his testament he donated his manuscripts and correspondence to the University of Leiden and some of his instruments and lenses can now be found at the Museum Boerhaave in Leiden.

Please, visit the following web site:
http://www.copernicus.org/EGU/awards/christiaan_huygens_overview.html

You are kindly invited to submit candidates by the end of June of each year for presentation at the next year's General Assembly. For further details, please contact the following sites:

1. Proposal and Selection of Candidates:
http://www.copernicus.org/EGU/egu_info/award2.html
2. Proposal Submission:
http://www.copernicus.org/EGU/awards/Committees.html

EGU 2008 Call for Programme

EGU is looking forward to receiving your suggestions

The next General Assembly of the European Geosciences Union, the EGU 2008, will be held again at the congress centre Austria Center Vienna (ACV) in Vienna, Austria, from 13-18 April 2008 with an early registration and the icebreaker reception taking place on Sunday, 13 April 2008. The address of the web site is:

http://meetings.copernicus.org/egu2008

We hereby would like to invite you and your colleagues to take an active part in organizing the scientific programme of that conference by proposing:

1. timely sessions and/or topical symposia and/or attractive conveners and/or co-conveners for such events;

2. Union symposia which should be of interest to a larger geosciences' audience;

3. Townhall Meetings open for all participants in the conference at which new initiatives or decisions are announced to and discussed by a larger audience;

4. Great Debates in Geosciences open for all attendees following loosely the Oxford Union style with a moderator and two teams, each required to defend one side of a motion;

5. Short Courses and Workshops on special topics in the geosciences for the younger and more recently established colleagues and the specialists, respectively.

If you have any suggestion, please select "Call-for-Programme" on the conference web site, choose your programme area, find the input received so far, and proceed as indicated on the top of the various programmes to include your suggestions.

Any other suggestion regarding new programme areas or other types of meetings should be submitted directly to the Programme Committee Chair, Gerald Ganssen (gerald.ganssen@falw.vu.nl).

The general Call-for-Programme will be open until 15 September 2007, while from 16 September 2007 the Programme Committee will compile the final Call-for-Papers Programme from all of the suggestions received. During mid October-December 2007 there will be the period of an open Call-for-Papers. You will receive an announcement in time.

Splinter Meetings organized by you together with your colleagues to meet separately but taking advantage of the conference and the congress centre may be suggested during the Call-for-Paper period.

Please, inform your colleagues about these opportunities. We are looking forward to receiving your suggestions.

SOLAS SSC Position statement on large-scale ocean fertilisation

The Surface Ocean - Lower Atmosphere Study Scientific Steering Committee has issued a position statement, judging plans on large scale ocean ferilisation as ineffective to lower atmospheric CO2 levels

20 June 2007.- The Surface Ocean - Lower Atmosphere Study (http://www.solas-int.org/) is an international research initiative that is a part of the Earth System Science Partnership (http://www.essp.org/). It has issued in June a position statement on ocean ferilisation, which follows below.

SOLAS SSC Position statement on large-scale ocean fertilisation

Large-scale fertilisation of the ocean is being actively promoted by various commercial organisations as a strategy to reduce atmospheric CO2 levels. However, the current scientific evidence indicates that this will not significantly increase carbon transfer into the deep ocean or lower atmospheric CO2. Furthermore, there may be negative impacts of iron fertilization including dissolved oxygen depletion, altered trace gas emissions that affect climate and air quality, changes in biodiversity, and decreased productivity in other oceanic regions. It is then critical and essential that robust and independent scientific verification is undertaken before large-scale fertilisation is considered. Given our present lack of knowledge, the judgement of the SOLAS SSC is that ocean fertilisation will be ineffective and potentially deleterious, and should not be used as a strategy for offsetting CO2 emissions.

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EGU medalist elected NAS member

Paul G. Falkowski, EGU 2005 medalist, was elected at the National Academy of Sciences (NAS).

The National Academy of Sciences (NAS) announced on 1st May 2007 the election of 72 new members and 18 foreign associates in recognition of their distinguished and continuing achievements in original research. Included in this list of notables is Paul G. Falkowski, Professor at the Institute of Marine and Coastal Sciences and the Department of Geological Sciences, Rutgers, The State University of New Jersey. Election to the Academy is considered one of the highest honors that can be accorded a U.S. scientist or engineer. Paul G. Falkowski was key to launch the jourrnal Biogeosciences, of which he is a founding editor, and received the EGU Vladimir Vernadsky medal in 2005.

The European Geosciences Union (EGU) and the editors-in-chief of Biogeosciences are proud to have had such a distinguished scientist on the editorial board of Biogeosciences and warmly congratulate him.

Scientific Ocean Drilling Results to the Desktop

Nearly 40 years of scientific discoveries from ocean drilling research will soon be freely accessible online

College Station, Texas.- Published volumes detailing nearly 40 years of scientific discoveries from ocean drilling research, a vast reservoir of valuable and citable data for geoscientists, will soon be freely accessible online. These publications represent the scholarly results of an important global science endeavor that forever changed mankind¹s understanding of the Earth.

All findings and data published in volumes from the Ocean Drilling Program (ODP) are now available at http://www.odplegacy.org (click on Samples, data & publications.) The second phase of the digitization project, to be completed by this fall, will bring the Initial Reports of the Deep Sea Drilling Project series (Volumes 196) and other printed ODP and Deep Sea Drilling Project (DSDP)reports online. The DSDP publications will be available at http://www.deepseadrilling.org.

ODP was a 20-year international partnership of scientists and research institutions organized to explore the evolution and structure of the Earth through scientific ocean drilling. ODP conducted drilling operations in the world¹s oceans from January 1985 through September 2003. The program succeeded DSDP, which began drilling operations in 1968 and concluded its explorations in 1983. The Integrated Ocean Drilling Program (IODP) has been building upon the legacy of success of both its predecessor programs since 2004.

The Proceedings of the Ocean Drilling Program includes an Initial Reports volume of shipboard reports for each ODP research cruise and a companion Scientific Results volume of peer-reviewed postcruise research results. ODP first began publishing its Proceedings online in 1997. Through the digitization effort, scanned versions of ODP Proceedings volumes originally published between 1986 and 1996 have been made Web-accessible.

The PDF chapter files generated through the digitization project started as scanned images of each original page. Through the use of an optical character recognition process, a searchable text layer was added to the PDF files, making it possible to copy and paste text from the final PDF file of each chapter. HTML volume tables of contents provide online navigation to individual chapter files. The digitized volumes include links to individual core photographs scanned from original film as part of a separate ODP legacy project.

Every chapter in both the Proceedings of the Ocean Drilling Program and the Initial Reports of the Deep Sea Drilling Project will have a digital object identifier (DOI) associated with it. Scholarly and professional publishers create links between reference lists and the online content of cited papers using DOIs. With information about DSDP and ODP publications deposited with the DOI registration agency CrossRef, publishers will be able to link directly online to cited papers across the entire DSDP and ODP series.

IODP welcomes scientific ocean drilling expedition and engineering proposals from many disciplines, and from any country. With the newly digitized ODP data resource available to them, scientists and engineers writing new proposals will ultimately make new discoveries, develop new technologies and contribute to greater scientific knowledge.

Information about the IODP proposal submission process is available at http://www.iodp.org.

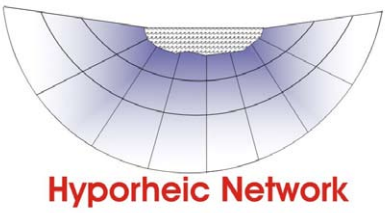
Contact: Jon Corsiglia, IODP U.S. Implementing Organization (202) 232-3900, jcorsiglia@joiscience.org.

Jon Corsiglia
IODP U.S. Implementing Organization
jcorsiglia@joiscience.org

Launch of the Hyporheic Network

A new knowledge transfer network on groundwater - surface water interactions and hyporheic processes has been launched

We are pleased to announce the launch of a new NERC-funded Knowledge Transfer Network on groundwater-surface water interactions, and hyporheic zone processes, which is run by a team from the Universities of Sheffield, Birmingham, Lancaster and Southampton and from CEH and the Environment Agency.



Logo of the Hyporheic Network

The Hyporheic Network will help to disseminate new research on this topic to the science end-user community, identify end-user priorities for future research projects, prepare a Handbook on GW-SW interactions and hyporheic zone processes for river managers; and develop interdisciplinary research proposals that facilitate improved river-corridor management.

We hope to attract hydrologists, ecologists, geochemists, hydrogeologists, geomorphologists (etc) to participate in the Network. Similarly we hope researchers and science end-users from central government, regulatory, industry, consultancy and NGO sectors will want to participate.

Sound interesting? Then please visit www.hyporheic.net and register with the Network. If you want more specific details e-mail us at hyporheic-network@sheffield.ac.uk.

The first workshop will be held at Sheffield University on 11 and 12 June 2007, and further details are available on the website.

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One year at Venus

One year has passed since Venus Express, the only spacecraft now in orbit around the planet, reached its destination.

11 April 2007.- One year has passed since Venus Express, the only spacecraft now in orbit around the planet, reached its destination.

Venus Express, designed and built by ESA, was conceived with the purpose of studying Venus in comprehensive and systematic way.

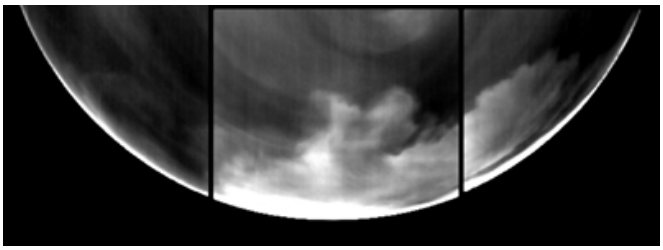
The space probe is collecting information about Venus' atmosphere (including its clouds and high-speed winds, its interaction with the solar wind and the interplanetary environment, and is looking for signs of surface activity, such as active volcanism.

"During one year of observations, we have already collected huge amount of data, which is exactly what we need to decode the secrets of an atmosphere as complex as that of Venus," said Håkan Svedhem, Venus Express Project Scientist at ESA. "Analysing it is an extreme effort for all science teams, but it is definitively paying back in terms of results."

The first ever, terrific global views of the double-eyed vortex at Venus' south pole, the first sets of 3D data about the structure and the dynamics of the sulphuric-acid clouds surrounding the planet in a thick curtain, temperature maps of the surface and the atmosphere at different altitudes, are few of the results obtained so far.

New infrared data is now available about Venus' oxygen airglow – a phenomenon detectable on the night-side. "The oxygen airglow was first discovered thanks to ground observations, and also observed by other missions to Venus such as the Russian Venera spacecraft and the US Pioneer Venus orbiter," said Pierre Drossart, co-Principal Investigator on Venus Express' VIRTIS instrument.

The fluorescence of the airglow is produced when oxygen atoms present in the atmosphere 'recombine' into molecular oxygen emitting light. The oxygen in the atmosphere of Venus is a very rare element. At high altitudes in the atmosphere, on the day-side of Venus, the strong flux of ultraviolet radiation coming from the Sun breaks the molecules of carbon dioxide present in large quantity in the atmosphere, liberating oxygen atoms. "These atoms are then transported by the atmospheric circulation towards the night side of the planet. Here the atoms migrate from the high atmosphere to a lower layer where they recombine into oxygen. By doing this, they emit light at 1.27um.



Oxygen airglow of Venus (Image credit:ESA).

The analysis of this phenomenon will provide clues on how Venus global atmospheric chemistry works. The mechanism for the production of the airglow was described in 1979 by P. Connes, after its emission was discovered through ground-based observations.

ESA

Build parks to climate proof cities

Scientists looking at the effect global warming will have on our major cities say a modest increase in the number of urban parks and street trees could offset decades of predicted temperature rises.

14 May 2007.- Scientists looking at the effect global warming will have on our major cities say a modest increase in the number of urban parks and street trees could offset decades of predicted temperature rises.

A study of University of Manchester has calculated that a mere 10% increase in the amount of green space in built-up centres would reduce urban surface temperatures by as much as 4°C.

This 4°C drop in temperature, which is equivalent to the average predicted rise through global warming by the 2080s, is caused by the cooling effect of water as it evaporates into the air from leaves and vegetation through a process called transpiration.

"Urban areas can be up to 12°C warmer than more rural surroundings due to the heat given off by buildings, roads and traffic, as well as reduced evaporative cooling, in what is commonly referred to as an 'urban heat island'," said Dr Ennos, who worked on the project with Professor John Handley and Dr Susannah Gill in the School of Environment and Development.

"We discovered that a modest increase of 10% green space reduced surface temperatures in the urban environment by 4°C, which would overcome temperature rises caused by global warming over the next 75 years, effectively 'climate proofing' our cities.

"Such a reduction has important implications for human comfort and health within urban areas and opportunities need to be taken to increase green space cover wherever structural changes are occurring within urban areas, as well as planting street trees or developing green roofs."

The research was part of the Adaptation Strategies for Climate Change in the Urban Environment (ASCCUE) project, which is an Engineering and Physical Sciences Research Council (EPSRC)-funded scheme under the wider umbrella 'Building Knowledge for Climate Change' (BKCC).

Communicator Award Goes to Glaciologists

The Working Group on Glaciology at the Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, has been awarded this year's "Communicator Award - Science Award of the Donors' Association".

16 April 2007.- The Working Group on Glaciology at the Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, has been awarded this year's "Communicator Award - Science Award of the Donors' Association". The prize has been awarded to the group of 15 polar and marine researchers working with Professor Heinz Miller, a geophysicist, in recognition of the excellent way in which they have communicated their research on climate change to the general public. The group is the first team of scientists to win the Communicator Award, which is being conferred for the eighth time this year.

The Communicator Award is Germany's highest distinction for the communication of research findings to the general public. It has been awarded by the Deutsche Forschungsgemeinschaft (German Research Foundation, DFG) and the Donors' Association for the Promotion of Sciences and Humanities in Germany since 2000 to scientists and researchers who have communicated their research findings to the general public in a particularly varied, original or creative manner and who have rendered outstanding services to the increasingly important dialogue between the scientific community and the public.

The 15 geophysicists, geologists, geographers and meteorologists in the working group have been taking deep ice cores from the Arctic and Antarctic ice on numerous national and international expeditions, enabling them to reconstruct the earth's climate over the past millennia. In 2003 they took the deepest ice cores to date from the Antarctic plateau, estimated to provide ice core climate data extending back 900,000 years, as part of the European Project for Ice Coring in Antarctica (EPICA).

(Editor' s note: more on the EPICA project was reported in Issue 17 of this Newsletter. http://www.the-eggs.org/articles.php?id=65)

From the air that is trapped in these ice cores they have been able to obtain the most detailed data to date on the presence and changes in the two main greenhouse gases in the atmosphere, carbon dioxide and methane. The team has also been involved in deep core drilling projects in Greenland, by the German Climate Research Programme (DEKLIM) and the "Klima in historischer Zeit" (The Climate in Historical Time) programme, which aims to reconstruct the climate over the past millennium.

The Communicator Award will be presented on 14 June during this year's "Summer of Science" in Essen.

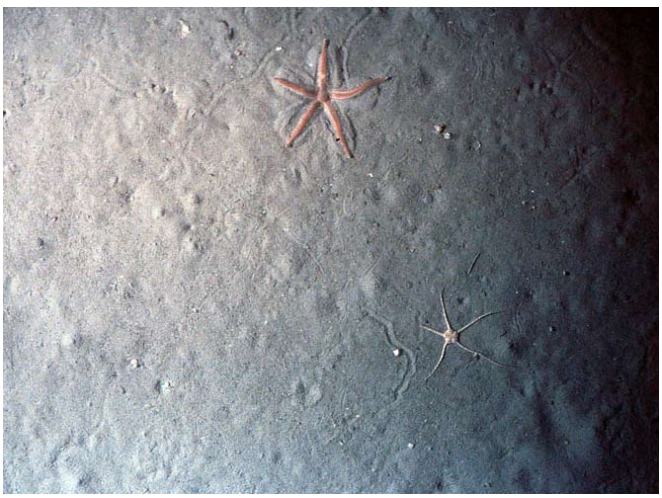
DFG

Official launch of the ESF EUROCORES Programme EuroDEEP

The official launch of the ESF EUROCORES Programme EuroDEEP 'Ecosystem functioning and biodiversity in the deep sea', involving ten science funding and performing agencies from eight European countries, took place in Brussels (BE), 5th of June, with a first kick-off meeting.

The official launch of the ESF EUROCORES Programme EuroDEEP 'Ecosystem functioning and biodiversity in the deep sea', involving ten science funding and performing agencies from eight European countries, took place in Brussels (BE), 5th of June, with a first kick-off meeting. The goal of the EuroDEEP Programme (www.esf.org/eurodeep) is to further explore the deep-sea environment and describe the biological species and communities that inhabit it, and to better understand the physical and geochemical processes that shape the environment in which these communities live. This will enable researchers to better describe, explain and predict variations of biodiversity within and between deep-sea habitats, their consequences for deep-sea ecosystem functioning and the interactions of the deep sea with the global biosphere.

EuroDEEP is coordinated by Dr. Inge Jonckheere at the European Science Foundation, Strasbourg (FR), (contact: eurodeep@esf.org) and has mobilised about 4 million Euros from national funding agencies that allow more than 25 research teams from 10 countries throughout four trans-national collaborative research projects to study the deep sea



Muddy sediments with an asteroid, an ophiuroid and animal tracks in the Norwegian Basin. DEEPSCAPE, NOCS 2006

ecosystem functions in contrasting southern European deep-sea environments (BIOFUN, Project Leaders are Prof. Sardà and Dr. Ramirez-Llodra, ES); to study microbial diversity in hypersaline lakes (MIDDLE Project, leaded by Dr. Yakimov, IT); to investigate colonisation processes in chemosynthetic ecosystems (CHEMECO Project, leaded by Dr. Gaill, FR) and to unravel population connectivity for sustainable fisheries (DEECON Project, under guidance of Dr. Stenseth, NO) during the next three years. Extra funding for coordination networking is allocated by the European Commission and will greatly integrate the research teams. This funding will enable postdocs and PhD students shortly to enroll through this unique research initiative. Strong links will be further established with other major initiatives and programmes (CoML, COMARGE, HERMES, ESSP, FP7 Deep-Sea Floor Frontier initiative…).

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Leibniz Prize awarded to Prof. Gerald Haug

The President of the DFG German Research Foundation, Prof. Dr. Matthias Kleiner, presented the awards to the eight winners of the Gottfried Wilhelm Leibniz Prize today.

24 March 2007.- The President of the DFG German Research Foundation, Prof. Dr. Matthias Kleiner, presented the awards to the eight winners of the Gottfried Wilhelm Leibniz Prize today. The paleoclimatologist Gerald Haug from the GeoForschungsZentrum in Potsdam was awarded the prize for the reconstruction and description of climate changes in recent Earth history.

Prof. Dr. Gerald Haug (38) has focussed his attention on climate changes over the last several million years. Through the analysis of seabed sediments, he was able to reconstruct the climate in key regions of our planet. In this process, he also investigated the causes of climate changes in recent Earth history and solved the mystery of the onset of the major ice ages in the northern hemisphere over 2.7 million years ago. His findings show that the North Pacific is a decisive moisture source for the American ice shield and the entire northern hemisphere.

Water Policy: EU States must do more to achieve good water quality

The European Commission today published a report on the performance of Europe Union Member States in implementing the Water Framework Directive.

Brussels, 22 March 2007.- The European Commission today published a report on the performance of Europe Union Member States in implementing the Water Framework Directive. The aim of the directive is to achieve a good level of water quality for all rivers, lakes, estuaries, coastal waters and groundwater in the European Union by 2015. While the results of the report are mixed, it is clear that Member States must do more to achieve the directive`s objective.

The aim of the 2000 Water Framework Directive (WFD) is to achieve by 2015 good water quality for all waters across the European Union. Under the directive Member States are obliged to adopt River Basin Management Plans by the end of 2009. The document published today reports on Member States` progress to date in adapting their legislation and putting in place the structures for good water management.

The reports submitted by all 27 Member States show that significant progress has been made. However, they also indicate a number of shortcomings. One of these is the inappropriate transposition of the directive into national law and another is the considerable lag by a number of Member States in incorporating economic instruments into water management systems.

Cooperation on cross-border issues such as water pollution between Member States and countries like Russia and Turkey also needs to be improved.

The Commission has also published two other related reports. The first is the latest implementation report of the Urban Wastewater Treatment Directive. This directive requires Member States to build adequate treatment facilities for municipalities over a certain size. The Commission found that only 51% of all treatment plants in the European Union – before enlargement in 2004 - met the standards under that directive. The second report is on implementation of the Nitrates Directive, which aims to reduce and prevent nitrate pollution from agricultural sources in surface water and groundwater. The implementation of that directive remains incomplete in a number of Member States and the pollution trends vary considerably across the European Union.

Young permafrost researchers and engineers get together for the IPY and beyond

The Permafrost Young Researchers Network (PYRN) was established in 2005 and has since then grown to become the largest network of young researchers in cryospheric science with more than 300 members from 32 countries.

The Permafrost Young Researchers Network (PYRN) was created in 2005. It is a non-profit international organization established under the patronage of the International Permafrost Association (IPA). Its mission is to "foster innovative collaboration and to recruit, retain and promote future generations of permafrost researchers and engineers". PYRN brings together more than 300 young researchers from 32 countries. Today it is the world's largest network of young researchers in polar and cryospheric science and is growing weekly.

The PYRN logo, inspired by a temperature curve describing the frozen state of the ground

During the International Polar Year (IPY), PYRN will direct the multi-disciplinary talents of its membership toward global awareness, knowledge and response to permafrost-related challenges in a changing climate. PYRN is represented at major international bodies such as the International Permafrost Association (IPA), the International Arctic Sciences Committee (IASC) and the Scientific Committee on Antarctic Research (SCAR). Apart from the obvious benefits of networking and to learn more about who is working within your field of expertise nationally and internationally, the main service PYRN provides to its member is through its web site, hosted by the Alfred Wegener Institute for Polar and Marine Research. Here open positions, fellowships and events relevant to the community are reported. In addition a bibliography of dissertations (PYRN-Bib) completed in the field of permafrost (which are not always published in other more easily accessible sources) has been compiled and made freely available. A monthly newsletter is distributed to all the members containing news, job announcements, events, etc. Every year, PYRN grants "the PYRN awards" for outstanding presentation at larger permafrost conferences. It is now calling for contributions to the PYRN 2007 award, to be granted at the international conference "cryogenic resources of polar regions" (June 2007, Salekhard, Russia)

In the near future PYRN is hoping that it can strengthen support to young researchers and engineers by implementing a multidisciplinary exchange platform, which will consist of an improved website reaching out to an even greater audience in partnership with the World Academy of Young Scientists (WAYS). PYRN will also organise annual workshops dedicated to young permafrost researchers and engineers from all over the world. As a first step, PYRN held its kick-off meeting for National Representatives at the Abisko Scientific Research Station, Sweden on the 22nd to 24th of February 2007. PYRN hopes now to rise to the challenge of implementing trans-national multidisciplinary research programs. To do so, its members are already brainstorming on future actions, integrated within the IPA-IPY programs, such as the Thermal State of Permafrost (TSP).

If you want to learn more about PYRN, its activities and members, please visit the PYRN website www.pyrn.org or see the enclosed pamphlet.

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China successfully launches Haiyang-1B

second chines oceanic survey satellite sends first images

China successfully launched its second oceanic survey satellite Haiyang-1B from the Taiyuan Satellite Launching Center on April 11, 2007. HY-1B will be used to monitor ocean colour and sea surface temperature and will aid China's development and utilization of oceanic resources as well as monitoring and prevention of oceanic pollution, the development of coastal areas and the study of global environmental changes. Haiyang-1B has an operational life of 3 years and is an upgraded version of an earlier model (Haiyang-1A), which operated from May 2002 to April 2004.

The payload consists of COCTS- Chinese Ocean Color and Temperature Scanner (1.1 km spatial resolution, 10 bands 0.402-12.5 um, repeat observation period 3 days) and CZI- Coastal Zone Imager (CCD Camera, 0.25 km spatial resolution, 4 bands 0.433-0.695 um, repeat observation period 7 days).

The first images from HY-1B were received at the data collection center in Beijing on 20 April 2007, indicating that the satellite was in good condition and functioning well. China plans to develop five more oceanic satellites in the near future. The Haiyang-2 satellite, or ocean dynamic environment satellite, will be launched in 2009 and demands for the Haiyang-3 satellite, or ocean surveillance satellite, are currently being analyzed.

Urban CO2 flux and surface energy balance datasets release

datasets include hourly values of upward and downward SW and LW radiation, sensible heat flux, latent heat flux, CO2 flux, wind speed, air temperature, and specific humidity through a year

This is an announcement of release of datasets of urban CO2 flux and surface energy balance.

We have begun to provide datasets of the Kugahara experiments in Tokyo. The datasets include hourly values of upward and downward shortwave and longwave radiation, sensible heat flux, latent heat flux, CO2 flux, wind speed, air temperature, and specific humidity through a year (only sunny days from May 2001 to April 2002).

The datasets are available in the following site.

http://www.cv.titech.ac.jp/~kandalab/

We hope this would be helpful for your studies.

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Tor Hagfors passed away

on January 17, 2007, Professor Tor Hagfors passed away at the age of 76.

Professor Tor Hagfors died at the age of 76 in Puerto Rico. From 1992 to 1998 he was director at the Max-Planck-Institut für Aeronomie MPAe (now Max Planck Institute for Solar System Research MPS) in Katlenburg-Lindau.

With Tor Hagfors we lost an excellent scientist with a world-wide reputation.. He was one of the pioneers in exploring the Earth's atmosphere and its space environment. His fundamental work on the application of electromagnetic waves for studying ionospheric physics and the surfaces of the moon and of other planets is classical and will have an influence on future research.

Tor Hagfors was born in Oslo in 1930. Before he became director at MPAe (MPS) in 1992 he was head of leading radio observatories and other research institutes in America and Scandinavia and he was professor at the Cornell University. At MPAe his work was concentrated on the investigation of cometary interior and the surface and subsurface of Mars. His personal engagement during a severe crisis helped to prevent the imminent closure of the institute.

Tor Hagfors received many important awards for his excellent scientific work including two honorary doctorates.

We will miss an excellent scientist, talented teacher, and a good friend.

Directors and personnel of the Max Planck Institute for Solar System Research, Katlenburg-Lindau.

European Scientists' Consensus Statement on Marine Reserves

an effort to bring together the European community of marine scientists in affirming the need for marine reserves and express concern over the lack of progress in implementing marine reserve networks in European waters

Dear Friends and Colleagues,

I am writing to you in the hope that you will join me in an effort to bring together the European community of marine scientists in affirming the need for marine reserves and express our profound concern over the lack of progress in implementing marine reserve networks in European waters.

In 2003, the World Parks Congress, the largest global assembly of protected area specialists and conservation managers recommended that marine "protected area networks should be extensive and include strictly protected areas [i.e. marine reserves] that amount to at least 20-30% of each habitat." This call is being echoed by other scientific, political and expert fora, including, in 2005, the United Nations Millennium Project, which called for 10% of the oceans to be covered by marine reserves in the short to medium term, with a long-term goal of 30%.

Decision VII/28 of the Conference of the Parties of the Convention on Biological Diversity requires all signatory parties to complete such a network of well-managed marine sites by 2012, including representative marine and coastal areas where extractive uses are excluded, and other significant human pressures are removed or minimised.

In advance of the next Conference of the Parties of the Convention on Biological Diversity (COP9), which will be hosted in Europe, Germany, it is time to take stock. All the more concerning is that neither Europe nor the rest of the world are on track to protect a network of marine reserves by 2012.

This lack of progress in establishing marine reserves is aggravating the already perilous state of many marine ecosystems. It further undermines initiatives aimed at a better scientific understanding of the composition and functioning of marine ecosystems, as it prevents comparative studies between exploited ecosystems and those that are left to recover or are as yet untouched. Marine Reserves are needed to serve as control areas in research efforts.

The following statement has been opened for signatures. The intention is to release the statement on June 8th – World Oceans Day – timed to feed into discussions in preparation for the Convention on Biological Diversity and the ongoing negotiations for a new European Union law for the protection of Europe's seas – the Marine Strategy Directive. The idea stems from a similar initiative by the American Association for the Advancement of Science (AAAS) (http://www.nceas.ucsb.edu/Consensus/) which helped stimulate the marine reserve debate in the US.

I hope you will feel this is an initiative you can support; the oceans need it. Please reply to me (cr10@york.ac.uk) with your name, affiliation, degree qualification, and country to add your name to the signatories. Please also forward this letter to colleagues, especially in other European nations, to ask for their support. Please ask them to reply to me directly. My apologies if this means that you receive multiple copies of this request. Signatories should have a Masters or PhD level qualification or equivalent, and work or reside in countries of the European Union. Many thanks for your support.

Callum Roberts

European Scientists' Consensus Statement on Marine Reserves

The continuing degradation of the seas around Europe, illustrated by the collapse of many fisheries, demands that urgent action is taken to stop this decline, restore marine ecosystems and manage them in an holistic manner.

We, the undersigned scientists, believe that Fully Protected Marine Reserves are essential for conservation, are necessary for the implementation of effective management of the sea, and have important benefits to scientific understanding of this environment.

Marine Reserves are sea areas where extractive uses are excluded, and other significant human pressures are removed or minimised that so that their associated ecosystems can recover towards a more natural state. Non-consumptive uses such as recreation are permitted.

Where marine reserves have been designated, they have been shown to result in long-standing and often rapid increases in the abundance, diversity and productivity of marine life, especially of species that were previously exploited. Marine reserves may benefit fisheries by the "spillover" of animals from inside the reserves and from the export of eggs and larvae to adjacent marine areas. Marine reserves also enable the development of more natural, extended population age structures that promote resilience to overfishing and are important to maintaining the integrity of marine ecosystems in the face of climate change.

In order to assure sufficient protection across the whole range of marine ecosystems it is necessary to establish a representative, replicated, networked and sustainable system of Fully Protected Marine Reserves. To be effective networks must, therefore, span large geographic distances and be of sufficient scale to protect against catastrophes and ensure the long-term health and stability of marine ecosystems.

Marine Reserves are essential to scientific understanding of marine ecosystems, and hence, to their management. They provide control areas for all direct human disturbances and more natural baselines for measurement of impacts. This enables scientists to obtain data that that are less confounded by human activities (e.g. separating natural variation from fishing effects) and acquire a greater understanding of the intrinsic processes of subject ecosystems.

In summary – establishing networks of marine reserves will be a major step towards implementing the ecosystem approach to management of the sea. Such networks will yield long-term conservation benefits and provide support for other management methods to improve fisheries. They are an essential tool in the package of measures needed to arrest the degradation of European seas and bring about their restoration.

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Atmospheric effects of regional scale nuclear conflicts

Low yield weapons can produce 100 times as many fatalities and 100 times as much smoke from fires per kt yield as previously estimated in analyses for full scale nuclear wars using high-yield weapons, if the small weapons are targeted at city centers

The authors assess the potential damage and smoke production associated with the detonation of small nuclear weapons in modern megacities. While the number of nuclear warheads in the world has fallen by about a factor of three since its peak in 1986, the number of nuclear weapons states is increasing and the potential exists for numerous regional nuclear arms races. Population and economic activity worldwide are congregated to an increasing extent in megacities, which might be targeted in a nuclear conflict.

The authors find that low yield weapons, which new nuclear powers are likely to construct, can produce 100 times as many fatalities and 100 times as much smoke from fires per kt yield as previously estimated in analyses for full scale nuclear wars using high-yield weapons, if the small weapons are targeted at city centers. A single "small" nuclear detonation in an urban center could lead to more fatalities, in some cases by orders of magnitude, than have occurred in the major historical conflicts of many countries. Analyzing the likely outcome of a regional nuclear exchange involving 100 15-kt explosions (less than 0.1% of the explosive yield of the current global nuclear arsenal), they find that such an exchange could produce direct fatalities comparable to all of those worldwide in World War II, or to those once estimated for a "counterforce" nuclear war between the superpowers. Megacities exposed to atmospheric fallout of long-lived radionuclides would likely be abandoned indefinitely, with severe national and international implications. The analysis shows that smoke from urban firestorms in a regional war would rise into the upper troposphere due to pyro-convection. Robock et al. (2007) show that the smoke would subsequently rise deep into the stratosphere due to atmospheric heating, and then might induce significant climatic anomalies on global scales. Also anticipated are substantial perturbations of global ozone.

While there are many uncertainties in the predictions, the principal unknowns are the type and scale of conflict that might occur. The scope and severity of the hazards identified pose a significant threat to the global community.

The article is available free of charge at:
http://www.atmos-chem-phys.net/7/1973/2007/acp-7-1973-2007.html

O. B. Toon, R. P. Turco, A. Robock, C. Bardeen, L. Oman, and G. L. Stenchikov, Atmospheric effects and societal consequences of regional scale nuclear conflicts and acts of individual nuclear terrorism, Atmos. Chem. Phys., 7, 1973-2002, 2007

Metabolic CO2 release by humanity

Calculated direct and indirect metabolic CO2 release by humans is about half of the CO2 released from fossil fuel combustion

The direct CO2 released by respiration of humans and domesticated animals, as well as CO2 derived from the decomposition of their resulting wastes was calculated. Human respiration was estimated to release 0.6 GtC year−1 and that of their associated domestic animals was estimated to release 1.5 Gt C year−1, to which an indirect release of 1.0 Gt C year−1, derived from decomposition of the organic waste and garbage produced by humans and their domestic animals, must be added. These combined direct and indirect metabolic sources, estimated at 3.1 GtC year−1, have increased 7 fold since pre-industrial times.

The calculated direct and indirect metabolic CO2 release by humans represents about half of the CO2 released from fossil fuel combustion, and nearly twice that released from changes in land use (as of IPCC 2001).

The article is available free of charge at http://www.biogeosciences.net/4/215/2007/bg-4-215-2007.pdf

Y. T. Prairie and C. M. Duarte, Direct and indirect metabolic CO2 release by humanity, Biogeosciences, 4, 215–217, 2007.

Towards measuring the meridional overturning circulation from space

As much as 98% of the variability in the smoothed transport is explained when SSH and bottom pressure are first smoothed

The authors present a step towards measuring the meridional overturning circulation (MOC), i.e. the full-depth water mass transport, in the North Atlantic using satellite data. Using the Parallel Ocean Climate Model, they simulate satellite observations of ocean bottom pressure and sea surface height (SSH) over the 20-year period from 1979–1998, and use a linear model to estimate the MOC.

As much as 93.5% of the variability in the smoothed transport is thereby explained. This increases to 98% when SSH and bottom pressure are first smoothed. Initial studies of predicting the time evolution of the MOC are presented.

The article is available free of charge at:
http://www.ocean-sci.net/3/223/2007/os-3-223-2007.html

D. Cromwell, A. G. P. Shaw, P. Challenor, R. E. Housego-Stokes, and R. Tokmakian, Towards measuring the meridional overturning circulation from space, Ocean Sci., 3, 223–228, 2007.

Waterfalls as sources of small charged aerosol particles

The concentration of the smallest ions was one-hundred fold higher than a reference point 100 m away from the waterfall.

In this study, the mobility distributions of cluster and intermediate ions were measured with an ion spectrometer near a waterfall. The concentration of negative 1.5–10 nm ions was one-hundred fold higher than a reference point 100 m away from the waterfall. Also, the concentration of positive intermediate ions was found to be higher than that at the reference point by a factor of ten. This difference was observed only at the smallest sizes; above 10 nm the difference was insignificant.

The article is available free of charge at:
http://www.atmos-chem-phys.net/7/2271/2007/acp-7-2271-2007.html

L. Laakso, A. Hirsikko, T. Grönholm, M. Kulmala, A. Luts, and T.-E. Parts, Waterfalls as sources of small charged aerosol particles, Atmos. Chem. Phys., 7, 2271-2275, 2007

Observing the Mediterranean Sea from space

satellite OISST is found able to reproduce in situ measurements with a mean bias of less than 0.1K and RMSE of about 0.5K

The time series of satellite infrared AVHRR data from 1985 to 2005 has been used to produce a daily series of optimally interpolated SST maps over the regular grid of the operational MFSTEP OGCM model of the Mediterranean basin. A complete validation of this OISST (Optimally Interpolated Sea Surface Temperature) product with in situ measurements has been performed in order to exclude any possibility of spurious trends due to instrumental calibration errors/shifts or algorithms malfunctioning related to local geophysical factors. The validation showed that satellite OISST is able to reproduce in situ measurements with a mean bias of less than 0.1K and RMSE of about 0.5K and that errors do not drift with time or with the percent interpolation error.

The article is available free of charge at:
http://www.ocean-sci.net/3/299/2007/os-3-299-2007.html

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A study on natural and manmade global interannual fluctuations of cirrus cloud cover

The seasonal variability and the interannual variance explained by ENSO and NAO to cirrus cloud cover are examined during the twenty-year period 1984–2004.

The seasonal variability and the interannual variance explained by ENSO and NAO to cirrus cloud cover (CCC) are examined during the twenty-year period 1984–2004. CCC was found to be significantly correlated with vertical velocities and relative humidity from ECMWF/ERA40 in the tropics (correlations up to −0.7 and +0.7 at some locations, respectively) suggesting that variations in large-scale vertical winds and relative humidity fields can be the origin of up to half of the local variability in CCC over these regions. These correlations reflect mostly the seasonal cycle. Although the annual cycle is dominant in all latitudes and longitudes, peaking over the tropics and subtropics, its amplitude can be exceeded during strong El Nino/La Nina events. Over the eastern tropical Pacific Ocean the interannual variance of CCC which can be explained by ENSO is about 6.8% and it is ~2.3 times larger than the amplitude of the annual cycle.

Natural long-term trends in the tropics are generally small (about −0.3% cloud cover per decade) and possible manmade trends in those regions are also small. The contributions of NAO and QBO to the variance of CCC in the tropics are also small.

In the northern mid-latitudes, on the other hand, the effect of NAO is more significant and can be very important regionally. Over northern Europe and the eastern part of the North Atlantic Flight Corridor (NAFC) there is a small positive correlation between CCC and NAO index during the wintertime of about 0.3. In this region, the interannual variance of CCC explained by NAO is 2.6% and the amplitude of the annual cycle is 3.1%. Long-term trends over this region are about +1.6% cloud cover per decade and compare well with the observed manmade trends over congested air traffic regions in Europe and the North Atlantic as have been evidenced from earlier findings.

The article is available free of charge at:
http://www.atmos-chem-phys.net/7/2631/2007/acp-7-2631-2007.html

K. Eleftheratos, C. S. Zerefos, P. Zanis4, D. S. Balis, G. Tselioudis, K. Gierens, and R. Sausen, A study on natural and manmade global interannual fluctuations of cirrus cloud cover for the period 1984–2004, Atmos. Chem. Phys., 7, 2631-2642, 2007

Dangerous human-made interference with climate

is studied with a GISS model driven by measured or estimated forcings for 1880–2003 and extended to 2100

The issue of dangerous human-made interference with climate is investigated using simulations with GISS model driven by measured or estimated forcings for 1880–2003 and extended to 2100 for IPCC greenhouse gas scenarios as well as the "alternative" scenario of Hansen and Sato (2004).

Identification of "dangerous" effects is partly subjective, but there is evidence that added global warming of more than 1°C above the level in 2000 has effects that may be highly disruptive. The alternative scenario, with peak added forcing ~1.5 W/m2 in 2100, keeps further global warming under 1°C if climate sensitivity is ~3°C or less for doubled CO2. The alternative scenario keeps mean regional seasonal warming within 2ó (standard deviations) of 20th century variability, but other scenarios yield regional changes of 5–10ó, i.e. mean conditions outside the range of local experience. The authors conclude that a CO2 level exceeding about 450 ppm is "dangerous", but reduction of non-CO2 forcings can provide modest relief on the CO2 constraint.

Three specific sub-global topics are discussed: Arctic climate change, tropical storm intensification, and ice sheet stability. It is suggest that Arctic climate change has been driven as much by pollutants as by CO2, offering hope that dual efforts to reduce pollutants and slow CO2 growth could minimize Arctic change.

Simulated recent ocean warming in the region of Atlantic hurricane formation is comparable to observations, suggesting that greenhouse gases (GHGs) may have contributed to a trend toward greater hurricane intensities.

Increasing GHGs cause significant warming in the model in submarine regions of ice shelves and shallow methane hydrates, raising concern about the potential for accelerating sea level rise and future positive feedback from methane release.

The authors conclude that prompt actions to slow CO2 emissions and decrease non-CO2 forcings are required to achieve the low forcing of the alternative scenario.

The article is available free of charge at:
http://www.atmos-chem-phys.net/7/2287/2007/acp-7-2287-2007.html

J. Hansen, M. Sato, R. Ruedy, P. Kharecha, A. Lacis, R. Miller, L. Nazarenko, K. Lo, G. A. Schmidt, G. Russell, I. Aleinov, S. Bauer, E. Baum, B. Cairns, V. Canuto, M. Chandler, Y. Cheng, A. Cohen, A. Del Genio, G. Faluvegi, E. Fleming, A. Friend, T. Hall, C. Jackman, J. Jonas, M. Kelley, N. Y. Kiang, D. Koch, G. Labow, J. Lerner, S. Menon, T. Novakov, V. Oinas, Ja. Perlwitz, Ju. Perlwitz, D. Rind, A. Romanou, R. Schmunk, D. Shindell, P. Stone, S. Sun, D. Streets, N. Tausnev, D. Thresher, N. Unger, M. Yao, and S. Zhang, Dangerous human-made interference with climate: a GISS modelE study, Atmos. Chem. Phys., 7, 2287-2312, 2007

EGU launches Imaggeo

a free geosciences photographic archive

by Kostas Kourtidis

The EGU hopes that as the collection will grow with time, it will become an indispensable one-stop address for geoscientific images of all kinds, serving all the geoscientific community.

Imaggeo is a new, online open access geosciences image repository of the European Geosciences Union (www.imaggeo.net). Every geoscientist who is an amateur photographer (but also other people) can now share its photographs with other colleagues by submitting them to this repository. Being open access, it can be used by scientists for their presentations or publications as well as by the press.

The Image archive is searchable by category, geographic

One of the first images submitted to the imaggeo collection. Lightning strike during a thunderstorm in Chalkidiki, Greece. Credit:Lefteris Aggelopoulos/ distributed by EGU.

This picture was taken during the solar eclipse on 29 March 2006 from the roof of the Physics Department of the Aristotle University of Thessaloniki, Greece. Credit: Aristeidis Georgoulias/distributed by EGU.

region, country and keywords.

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The EGU hopes that many of its members will make their photographic collections public using Imaggeo. It also maintains that as the collection will grow with time, it will become an indispensable one-stop address for geoscientific images of all kinds, serving all the geoscientific community.

The archive is available at www.imaggeo.net .

Kostas Kourtidis
The Eggs Managing Editor

Keeping the Earth's plates oiled

Findings on water in the asthenosphere presented at the first EuroMinScI conference

by Dr. Kate Ravilious

Earth's surface is very active; its plates are jiggling around, rearranging themselves into new configurations. So what is it that keeps Earth's plates oiled and on the move?

Earth's surface is a very active place; its plates are forever jiggling around, rearranging themselves into new configurations. Continents collide and mountains arise, oceans slide beneath continents and volcanoes spew. As far as we know Earth's restless surface is unique to the planets in our solar system. So what is it that keeps Earth's plates oiled and on the move?

Scientists think that the secret lies beneath the crust, in the slippery asthenosphere. In order for the mantle to convect and the plates to slide they require a lubricated layer. On Mars this lubrication has long since dried up, but on Earth the plates can still glide around with ease.

Beneath continents the asthenosphere appears at around 150km depth, while under oceans it can be as shallow as 60km. Above the asthenosphere lies the lithosphere: a more rigid layer that includes the crust. By 220km depth the asthenosphere comes to an end and the mantle goes back to a less flexible state.

What makes the asthenosphere so slippery and why does it exist on Earth but not other planets? These are some of the key questions that have puzzled Earth scientists ever since plate tectonics was discovered, but only now are the answers starting to emerge. A combination of new experimental techniques and powerful computational theory is enabling scientists to work their way through the asthenosphere atom by atom.

Björn Winker, a mineralogist at the Johann Wolfgang Goethe University in Frankfurt, Germany, believes that the key to the asthenosphere is water. "We have to have water in the asthenosphere to get it plastically deforming," he explains. This water is no longer in its liquid state, but is bound to oxygen in crystal structures to form hydroxyl (OH-) groups instead.

The question that really interests Winkler is 'where does the water go'? Which minerals are clinging on to their hydrogen and enabling the Earth to perform its plate tectonic dance?

Unfortunately we can't get samples from the asthenosphere – no-one has ever managed to drill a hole deep enough. But seismic wave patterns and magma spurting out of volcanoes give us clues as to which minerals make up the majority of the asthenosphere. Winkler finds samples of these candidate minerals on the Earth's surface and, using specialist experimental equipment, subjects them to the pressures and temperatures estimated for the asthenosphere.

The diamond anvil cell is just one of the tools his group uses. A sample is placed between two diamonds and compressed, to reach pressures of 10GPa – one million times the pressure at the Earth's surface. When these experiments are carried out at a synchrotron, which provides extremely bright x-ray radiation, he is able to use X-ray diffraction to analyse the way the sample behaves as the pressure is ratcheted up. "It is only possible to make these measurements at a synchrotron," says Winkler. "Laboratory x-ray sources are far too weak for such experiments."

In other experiments infra-red radiation shines through the sample and makes the O-H bonds vibrate. By measuring how much of the infra-red radiation is absorbed by the sample Winkler can estimate how much water the sample contains and whether it manages to hold onto it as the pressure increases. However, spectroscopic measurements can't reveal everything. "They can only give you a frequency. It is like trying to figure out a car's problems from listening to the way it rattles," says Keith Refson, a colleague of Winkler's who is based at the CCLRC Rutherford Appleton Laboratory near Didcot in the UK.

Afterwards Winkler and Refson use powerful computer calculations to work out what the atoms are doing and where the water might be held within the structure. "With computer models we can calculate where the sample should rattle and match the theory with experiment," says Refson.

Already Winkler and Refson have analysed a number of minerals in this way including 'diaspore' and 'clinochlore'. "It was known previously that diaspore would not survive going into the asthenosphere, but we are able to use the knowledge we have gained and apply it to other minerals," says Winkler. Meanwhile, clinochlore was found to be good at holding onto

water, but showed some interesting changes in its structure at around 8GPa. “The nature of the hydrogen bonds start to change and the layers within the structure slide,” explains Refson.

These kind of results have been invaluable for Hans Keppler, a geologist at the University of Bayreuth in Germany. He has been trying to work out why the asthenosphere exists.

Previous theories have suggested that this ‘wet’ and slippery layer exists because minerals leave their water behind them when they melt and turn into magma. “This explains why the asthenosphere appears beneath oceans, but it doesn’t explain why we have an asthenosphere beneath the continents,” says Keppler. Lava continually bubbles up at mid-ocean ridges, but continental plates don’t have an equivalent spring of constant magma. It also fails to explain why there is a lower boundary to the asthenosphere.

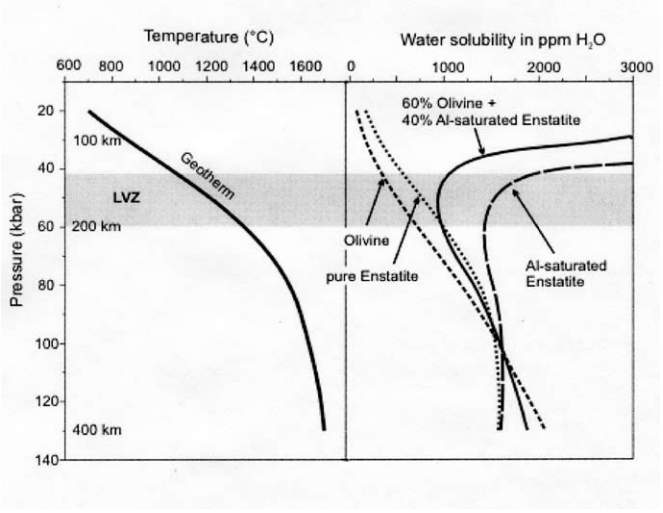

Diagram showing the situation below continental shields

Instead, Keppler has been investigating water solubility in the asthenosphere. Using a loaded piston cylinder apparatus he was able to heat and pressurise mixtures of aluminium-saturated enstatite (estimated to make up around 40% of the asthenosphere) and water to asthenosphere values. Similar experiments were also done with olivine (thought to make up around 60% of the asthenosphere).

What he found was that water solubility in olivine continuously increases with temperature and pressure, whereas in aluminium-saturated enstatite the solubility reaches a distinct minimum at asthenosphere temperatures and pressures. “It means that the mantle minerals cannot contain all the water and the excess water forms a hydrous silicate melt,” says Keppler, who presenting his findings at the 1st EuroMinScI Conference in La Colle-sur-Loup, France, in March this year. The presence of even small quantities of melt in a rock in known to drastically reduce its mechanical strength.

The water solubility model explains why the asthenosphere has a lower boundary and why it exists under continental and oceanic plates. Once the aluminium-saturated enstatite passes through its minimum solubility it starts to absorb water again and deeper in the mantle (at higher pressures and temperatures) the mantle becomes dry once more – creating a lower boundary.

Meanwhile, temperatures increase more slowly underneath continents, meaning that the minimum water solubility zone for aluminium-saturated enstatite is not reached until a greater depth under continents, compared to oceanic plates.

For now the jury is still out on Keppler’s new model. “It is a very elegant, but simplified model,” says Winkler. “Essentially it is based on two minerals, which is definitely not the whole story. The question is, if we refine the theory and include a greater range of minerals will it change things much?”

Some scientists are quite hostile to Keppler’s water solubility model. “It puts a lot of people out of business,” says Keppler. Nonetheless, most people agree that the theory is consistent with what is known about the asthenosphere and that it can’t be discarded. “Only more experiments and calculations can reveal the truth,” says Winkler.

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This article has been prepared by Dr. Kate Ravilious, based on findings presented in the First EuroMinScI Programme-wide Conference, La Colle sur Loup, France, 26-29 March 2007. EuroMinScI (European Mineral Sciences Initiative) is an ESF initiative. Dr. Ravilious is a freelance science writer and generally covers the physical and environmental sciences. She is a geologist by training.

The African Monsoon Multidisciplinary Analyses (AMMA) programme

A scientific challenge with very serious repercussions for the black continent

The African Monsoon Multidisciplinary Analyses (AMMA) international programme presents a scientific challenge with enormous repercussions for the black continent. Reports and analysis.

Bazimbouzou, some 60km from Niamey, the capital of Niger. It is barely ten o'clock in the morning, but already it is blazing hot. The air shimmers above the golden sand, on which a few sparse bushes are scattered here and there. Some soft green shoots, just a few centimetres high, seem reluctant to develop in the overheated atmosphere. The plants in this millet field, the only cereal able to survive in the extreme conditions of the Sahel, should be nearly 40 centimetres high by this time of year. "The rainy season is late this year," explains Thierry Lebel, hydrologist at the Institut de recherche pour le développement (French Research Institute for Development – IRD). "People here are certainly aware of the hazards posed by the climate and have strategies to try and combat them. When they plant their fields after the first rains they keep some seeds back in case dry weather ruins this initial attempt. They then try a second time. But now the third sowing has failed. Farmers have planted for the last time this season, because soon it will be too late to try again. There is no longer time for the seeds to reach maturity before the dry season returns, and the harvest will be lost."

Thierry Lebel is not only a specialist in the hydrology of the region, he is also one of the chief officials and founders of AMMA, an international scientific project which operates on an unprecedented scale, at least in Africa. AMMA brings together a large number of teams already working in the region on similar problems. "We have benefited from the strengths of each group," comments Jan Polcher of the Laboratoire de Météorologie Dynamique (Dynamic Meteorology Laboratory – LMD) in Paris, coordinator of AMMA-Europe, the European part of the project. "The French, for example, have particular expertise in the areas of surface and hydrology, the British in chemistry and atmospheric dynamics, while the Danes, Germans and Italians specialise in impacts." A spectacular scientific armada has been deployed, complete with fully equipped planes, oceanographic ships, radars, lasers, photometers and other radiosondes, not to mention the five satellites supporting the project. AMMA will, eventually, involve nearly 500 researchers from around thirty countries at an overall cost of over 50 million euro.

Why is there such a concentration of minds in a region, which, on so many other levels, has a shortage of everything? Here in the Sahel, and more generally in the whole of West Africa, the phenomena of climatic changes are a matter of life and, sadly, death. The rainy season (specialists prefer to talk about the monsoon season) governs everyday life. The intensity of the rains, the date they start and end, and their regularity are decisive factors, influencing agriculture, health, water resources, and even interethnic tensions. "Here, when the rains are good, every thing is fine." This is how Moussa Aksar, Head of the Niger weekly news paper L'Evénement, sums up the situation while sadly contemplating the ongoing drought.

"A monsoon is any seasonal rainfall phenomenon resulting from the difference in temperature between a continental expanse and an ocean," explains Jean-Luc Redelsperger, who is part of a joint research unit run by CNRS and Météo France, as well as AMMA scientific management. "There is an Indian monsoon – the best known – but also monsoons in Australia, South America, in the South East of the United States, and even in East Africa, to mention but a few, each with its own particular characteristics."

The African version is triggered by a thermal disparity between the colder Atlantic Ocean and the heart of the continent, where the overheated air is less dense. A flow of humid ocean air then rolls over the continent from the Gulf of Guinea in the South. This is accompanied by strong rains, which reach several metres per year, providing water for coastal countries and causing the formation of meteorological phenomena, known as squall lines, further inland. Precipitation results from hot, humid air rising towards cold, dry zones in the high tropo-

sphere. This rising air causes heavy condensation, and leads to a huge number of rainstorms. Given that it is accompanied by a release of heat, this phenomenon expands both outwards and upwards, reaching heights of around 17 km - the limits of the stratosphere. A European storm rarely exceeds an altitude of 8,000 m.

As it rises, this hot air chimney is struck by an altitude current at around 4,000 m, and then by a second at around 12,000 m, both flowing east to west. These collisions stabilise the rising air chimney (usually by tilting it), thereby preventing it from finally being suffocated under the precipitation it has generated and ensuring its longevity and rapid spread to the west. This series of phenomena results in a kind of giant storm forming a strip of between 200 km and over 1,000 km in length, accompanied by torrential rains and a huge release of energy in the form of wind and lightning. Such a system can remain active for several days, sweeping the entire continent until it emerges over the Atlantic Ocean. Most of the rain collected in the most arid zones in West Africa is generated by such squall lines. Some of the instruments used by the AMMA will record phenomena such as the speed and direction of winds at their centre, the size, shape and location of raindrops and ice particles, and the concentration of aerosols and trace gases.

Inexplicable and unforeseeable change

The surprising climatic variation in this region remains an enigma to scientists. To this day, we still cannot explain why and under what conditions one year might see twice as much water as the previous year. In the same way, we do not understand the reasons for the dramatic shortage of rain since the 1970s. On a map of the world showing the evolution of worldwide precipitation over recent decades, Thierry Lebel points to the main red zone, covering almost the entire western part of the African continent like an alarm. “The weakening of the African monsoon is the most important global climatic signal of the last half century,” the researcher warns. “The overall drop in rainfall has reached 30% - and it doesn’t help that there is such a large fluctuation between the good and bad years. Bad years can cause major tragedies, mirroring the terrible famines of the 1970s.” If the phenomenon is continental, and therefore a source of tension in several countries, the most severe impact will be in the Sahel, which has the most vulnerable populations. There has, for example, been a 60% reduction in the water level of the River Niger at Niamey since then.

The objective of AMMA, therefore, is to decipher the mystery of the African monsoon’s temperamental evolution and discover the root causes. This is not that easy. The phenomenon is, in effect, an atmospheric process of continental magnitude and of enormous complexity. The monsoon is controlled both by the global climate, its evolutions and periodic cycles, and by human activities, which have been throwing things out of balance for decades.

Serving the population

We are not just dealing with ethereal research in the upper reaches of pure science. Even if data from AMMA makes the advancement of worldwide climatology possible, it should not be forgotten that the main objective is to assist the people of Africa. Jan Polcher states this clearly: “We have made a commitment to our financers to produce useful science which will improve decision making by those in charge in these countries.” By understanding the monsoon, its interaction with the ocean and the great global climatic cycles, we are also advancing along the path toward forecasting it.

The first steps have already been taken along this path. André Kamga, a young official in charge of the African Centre of Meteorological Application for Development (ACMAD), one of AMMA’s African partners, points out that there are already some seasonal forecasts about the intensity of the monsoon, based on various climatic models, whose performances are satisfactory. “The problem,” he says, “is that farmers tell us the information we are giving them is not what they need. They need to be provided with forecasts on late starts to the monsoon, breaks in rainfall, and the risk of any early end to the rainy season. We must learn to provide them with this.”

In a country like Niger, where agriculture represents more than a third of GDP and employs 90% of the workforce, farmers would like to know, for example, when the first rains will fall, and whether the time has come for sowing or if the monsoon has not yet set in. Knowing the probability of long dry spells makes it possible to better manage seed stocks. Finally, the choice of the date of harvest also depends on weather conditions at the end of the monsoon.

How can we predict epidemics?

AMMA includes, moreover, an Impact of the Monsoon section, which goes far beyond merely agronomic considerations. The quantity of rain and its distribution are important in different ways, especially with regard to health. In Niger, several researchers are endeavouring to find out more about the links between the monsoon and various diseases, including malaria, the principal scourge in this region. “In the rainy season, when conditions are most favourable for mosquito reproduction, we observe a peak in the transmission of the disease,” explains Dr Jean- Bernard Duchemin, the Head of the Parasitology Unit at the Centre de recherches médicales et sanitaires (Centre for Medical and Health Research – CERMES), which comes under the authority of the Niger Ministry of Public Health. “However, the situation is not that simple. The Sahel strip displays strongly heterogeneous transmission – both in terms of space and time – and again the logic of this escapes us. Temperature, hygrometry, and possibly other environmental factors should also play a role. In Guyana, for example, we see fairly constant rainfall, while transmission of malaria follows periodical cycles.”

The goal of the CERMES scientists, which explains their participation in AMMA, is to define predictive models which, depending on the characteristics of each monsoon, make it possible for risks to be quantified and geographically localised. “This could allow for timely interventions to deal with the stages at which contamination is at its most acute,” Jean-Bernard Duchemin hopes. “For example, at one of our study sites we have located the temporary ponds that appeared in the rainy season. They are little used and we suspect them to be an important location for contaminated mosquitoes. If this is confirmed, we could suggest that villagers fill them in. We could also use preventative spraying to deal with inhabited areas that are identified as being at risk, or even distribute impregnated mosquito nets in such zones.”

But malaria is far from being the only threat linked to environmental conditions. Most viral diseases transmitted by insects, like dengue fever, yellow fever and Rift Valley fever, for example, are dependent on the surroundings, as are their car-

riers. There are also water-borne diseases, like dysentery and cholera, which may suddenly emerge after floods or because of drought, as the latter often forces people to drink dirty water. Here too, forecasting might be the key to the optimal use of medical resources that are always insufficient.

A water management tool

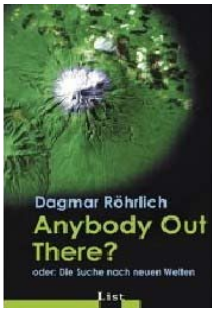
The usefulness of accurate forecasting of the monsoon does not stop there. Combined with improved management of the region's hydrology, which should be another result of the work carried out by AMMA, it would make more optimal use of water resources possible. The sloping basin of Ouémé (Benin), one of the project's intensive observation sites, has, for example, been bristling with hydrological instruments. As Arnaud Zinnou, an engineer at the directorate general for hydraulics in Benin, explains: "There are at least two potential dam sites on this river. A good awareness of the regional water cycle and, if possible, the future evolution of the monsoon, would be valuable in measuring the size of such installations in the most judicious manner." Investment in dams affects irrigation management, the country's energy supplies and ecological balance, and it will therefore be up to the scientists to indicate the quantity of water that can be withdrawn and stored, and also to specify the timing of such actions, in order to minimise any environmental impact of these works.

Protecting the future

It goes without saying that this huge deployment of forces mobilised for the AMMA project must have some role in the future. As the Ivory Coast meteorologist Abdoulaye Kignaman Soro, CEO of ACMAD, points out: "We have already come across important scientific issues which we have not been able to follow up in any way. In the end the instruments and researchers were withdrawn and we did not even have access to data. The AMMA certainly seems to be setting out on a different path. In time, we wish to develop our own capabilities in matters of meteorology and to convince our governments that this is an important step." Africa today has some failings in this area: there are fewer weather stations per square kilometre on the continent than anywhere else on the planet (eight times less than the minimum recommended by the World Meteorological Organisation) and local institutions suffer from a severe lack of resources. It is this situation, which is prejudicial to worldwide climatology and especially to Africa's development, that those in charge at AMMA would like to see changed. But do they hold all the right cards?

European Commission, RTD info No. 51, 2006

Anybody Out There? oder: Die Suche nach neuen Welten



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Publisher: List Verlag
ISBN: 3-471-78587-6
YEAR : 2006
EDITION : 1st (language: German)
PAGES : 246
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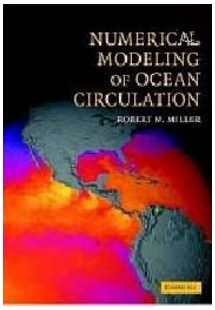
hardback

Modeling and prediction of oceanographic phenomena and climate is based on the integration of dynamic equations. The Equations of Oceanic Motions derives and systematically classifies the most common dynamic equations used in physical oceanography, from large scale thermohaline circulations to those governing small scale motions and turbulence. After establishing the basic dynamical equations that describe all oceanic motions, Müller then derives approximate equations, emphasizing the assumptions made and physical processes eliminated. He distinguishes between geometric, thermodynamic and dynamic approximations and between the acoustic, gravity, vortical and temperature-salinity modes of motion. Basic concepts and formulae of equilibrium thermodynamics, vector and tensor calculus, curvilinear coordinate systems, and the kinematics of fluid motion and wave propagation are covered in appendices. Providing the basic theoretical background for graduate students and researchers of physical oceanography and climate science, this book will serve as both a comprehensive text and an essential reference.

Numerical Modeling of Ocean Circulation



Authors: Robert N. Miller
Publisher: Cambridge University Press
ISBN: 0521781825
YEAR : 2007
EDITION : 1st
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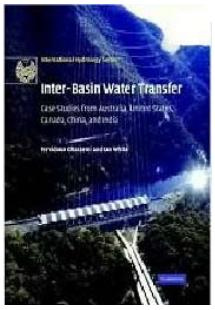
PRICE : 52.00 €
hardback

Oceans are an essential part of the climate system. They dominate the hydrosphere and play a key role in natural climate variability. The modeling of ocean circulation is therefore very important, not only for its own sake, but also in terms of the prediction of weather patterns and the effects of climate change. This book begins with an introduction to the basic computational techniques that are necessary for all models of the ocean and atmosphere, and the conditions they must satisfy. It contains descriptions of the workings of ocean models, the problems that must be solved in their construction, and how to evaluate computational results. Major emphasis is placed on those features that distinguish models of the ocean from other models in computational fluid dynamics, with the intention of examining ocean models critically, and determining what they do well and what they do poorly. Numerical analysis is introduced as needed, and exercises are included to illustrate major points. Additional resources are available at www. cambridge.org/9780521781824. Developed from notes for a course taught in physical oceanography at the College of Oceanic and atmorpheric Sciences at Oregon State University, this book is ideal for graduate students of oceanography, geophysics, climatology and atmospheric science. It will also be of great interest to researchers in oceanography and atmospheric science.

Inter-Basin Water Transfer



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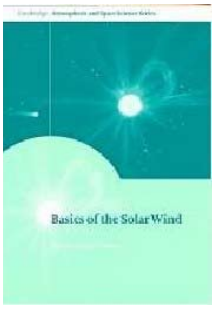
PRICE : 133.0 €
hardback

Since the Second World War increasing demands for irrigation, domestic and industrial water have generayed a massive growth world-wide in the number of large water infrastructure projects. Many of these projects involved the tyransfer of water from basins considered to have surplus water to those where the demand for water has exceeded or is expected to exceed supplies. While these inter-basin water transfers have substantially contributed to the overall development of numerous countries, they also have caused environmental, social, cultural and economic problems. Using the experience of inter-basin water transfer projects in Australia, United States, Canada, China and India this book examines case studies within the diverse geographical, climatic, economic, and policy regimes operating in these countries. The first part of the book is an overview of world challenges with respect to water resources and discusses the key issues in inter-basin water transfers. The second part examines the water resources of Australia, the driest inhabited continent. The third part explores inter-basin water transfer projects in the United States, Canada, China and India, examining their benefits and impacts within these nations contrasting economies and gonernance systems. The fourth part consists of numerous appendices. The book concludes by highlighting the successes and failures of the case examined, and provides pointers for the future of inter-basin water transfer in meeting urgent and growing water demands. This comprehensive and well-illustrated text will be of great interest to professionals and researchers in the fields of hydrology, water resources, and to those engaged in the environmental science, policy and regulation.

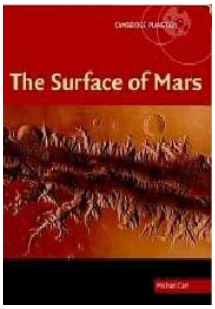
Basics of the Solar Wind



Authors: Nicole Meyer- Vernet
Publisher: Cambridge University Press
ISBN: 0521814200
YEAR : 2007
EDITION : 1st
PAGES : 463
PRICE : 103.00 €
hardback

Modeling and prediction of oceanographic phenomena and climate is based on the integration of dynamic equations. The Equations of Oceanic Motions derives and systematically classifies the most common dynamic equations used in physical oceanography, from large scale thermohaline circulations to those governing small scale motions and turbulence. After establishing the basic dynamical equations that describe all oceanic motions, Müller then derives approximate equations, emphasizing the assumptions made and physical processes eliminated. He distinguishes between geometric, thermodynamic and dynamic approximations and between the acoustic, gravity, vortical and temperature-salinity modes of motion. Basic concepts and formulae of equilibrium thermodynamics, vector and tensor calculus, curvilinear coordinate systems, and the kinematics of fluid motion and wave propagation are covered in appendices. Providing the basic theoretical background for graduate students and researchers of physical oceanography and climate science, this book will serve as both a comprehensive text and an essential reference.

The Surface of Mars

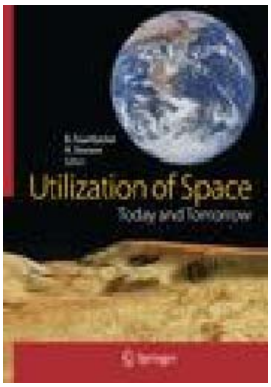


Authors: Michael Carr
Publisher: Cambridge University Press
ISBN: 0521872014
YEAR : 2006
EDITION : 1st
PAGES : 307
PRICE : 103.00 €
hardback

Our knowledge of Mars has grown enormously over the last decade as a result of the Mars Global Surveyor, Mars Odyssey, Mars Express, and the two Mars Rover missions. This book is a systematic summary of what we have learnt about the geological evolution of Mars as a result of these missions, and builds on the themes of the author' s previous book on this topic. The surface of Mars has many geological features that have recognisable counterparts on Earth. Many are huge in comparison to those on Earth, including volcanoes, canyons, and river channels that are ten times larger than their terrestrial eqyivalents. The book describes the diverse Martian surface features and summarizes current ideas as to how, when, and under what conditions they formed. It explores how Earth and Mars differ and why the two planets evolved so differently. While the author' s main focus is on geology, he also discusses possible implications of the geological history for the origin and survival of indigenous Martian life. Up-to-date and richly illustrated with over two hundred figures, the book will be a principal reference for researchers and students in planetary science. The comprehensive list of references will also assist readers in pursuing further information on the subject.

An overview of scientific and application-oriented activities in space

Utilization of Space- Today and Tomorrow



Berndt Feuerbach and Heinz Stoewer
Published by: Springer-Verlag, Heidelberg, Germany
ISBN: 3-540-25200-2
YEAR : 2006
EDITION : 1st
#PAGES : 410
PRICE : 63.00 €

The editors of this book attempted – and to a large extent succeeded – to provide a single reference volume for the wide topic of space sciences and space utilization, covering disciplines that range from space and atmospheric physics to materials engineering and life sciences.

The editors of this book attempted – and to a large extent succeeded – to provide a single reference volume for the wide topic of space sciences and space utilization, covering disciplines that range from space and atmospheric physics to materials engineering and life sciences. The book can serve as an overview and a helpful reference for a wide audience of graduate students and researchers as well as interested non-specialists.

There are 13 chapters organized in 5 sections (plus a "Challenges and Perspectives" concluding chapter), which cover quite effectively all that is related to space as a physical domain, as a work field, as an observation platform and as a communication medium. The sections are as follows:

1. The introductory section "Space: Beyond the Horizon" contains a chapter on space utilization by the Editor, B. Feuerbach, with an extensive list of space endeavours and a chapter on access to space by the Associate Editor H. Stoewer.

2. The section "Looking down: our Earth" contains 4 chapters, which comprehensively cover the use of space as an Earth Observation platform. Chapter 3 by S. Dech summarizes all kinds of remote sensing techniques employed in Earth Observation, and discusses the diversity of land, marine and security applications. H. Graßl devotes the next chapter (4) to climate and environment issues, first discussing the basics of earth systems and human impact on them, and then presenting the utilization of spacecraft in investigating and monitoring the terrestrial environment. T. Mohr and J. Schmetz treat meteorological observations from space and their applications in weather forecasting (chapter 5) and Vermeersen et al. deal with geodynamics – including geomagnetism – and related space missions (chapter 6).

3. The section "Looking up: Stars and Planets" contains a chapter (7) on the utilization of space as an observation platform for the universe (R.-J. Dettmar), including references to current and future space astrophysics missions and a chapter (8) on the solar system (T. Spohn and R. Jaumann), which engages more on the physical properties of the planets and less on the relevant space missions.

4. In section "Between Space and Earth", E. Ashford provides a quite informative chapter (9) on satellite communications, while G.W. Hein discusses satellite navigation systems and applications (chapter 10).

5. The last section of the book is "Space as a Laboratory"; it contains a chapter (11) on missions, space experiments and space technology for Fundamental Physics (H. Dittus), an extended chapter (12) on Materials Sciences in space (L. Ratke) and chapter on life in space (R. Gerzer, R. Hemmersbach and G. Horneck).

The last chapter, on Challenges and Perspectives of space utilization, is written by the two editors of the book, B. Feuerbacher and H. Stoewer. A useful list of acronyms and the keyword index close the book.

Web references are very useful, despite the fact that URLs may change in future.

For the next edition: The list of acronyms is not complete; more comprehensive reference lists would have enhanced most of the book chapters; in chapter 7, footnote 7 is missing.

All in all, this is a well-balanced and informative book, which I would recommend it to those who look for "global" information in a single volume on space applications.

Ioannis A. Daglis
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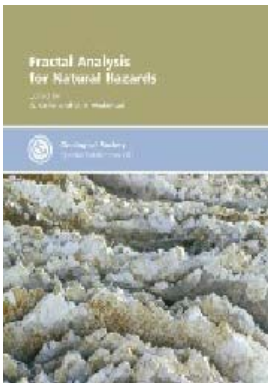
Book Review of Fractal Analysis for Natural Hazards

Fractal Analysis for Natural Hazards



Cello, G. and Malamud, B. D. (Eds)
Published by: GSL
ISBN: 1-86239-201-3
YEAR : 2006
EDITION : 1st
#PAGES : 184
PRICE : 112.00 €

Many natural objects in the Earth, like rock fractures ordrainage networks, have a fractal geometry.

Many natural objects in the Earth, like rock fractures ordrainage networks, have a fractal geometry. However, inspite of the idea of self-similarity and fractals was formal-ized in 1967, its application in the study of natural haz-ards has not been accepted until recently. This book showstwelve excellent papers based on the contributions presentedin a scientific session at the 32nd International GeologicalCongress held in Firenze, Italy, August 2004. These papersshow the application of spatial and temporal fractal-relatedapproaches and techniques to landslides, wildfires, floods,catastrophic rock fractures and earthquakes. A total of 37 sci-entists from UK, USA, Japan, China, France, Italy, Greece,Czech Republic, Norway, Australia and New Zealand, havecontributed to this complete book that is indispensable for allthose interested in the use of fractal analyses for the betterunderstanding of natural hazards.

The book brings together two kinds of contributions: sixpapers are focused on methodology, like cellular-automatamodels or prediction and self-organizing behaviour; othersix papers apply a specific methodology over some cases ofstudy and regions, mainly Italy and Greece. Five papers aredevoted to seismic activity, and other five contributions, tocrustal stress or failures in rocks; two papers contemplatelandslides and the same number considers wildfires; finally,one paper is devoted to floods analysis.

Between the methodological contributions, the first paper,by Malamud and Turcotte, provides a comprehensive lec-ture of the frequency-magnitude statistics for natural hazards, primarily on the basis on the power-law frequency-area behaviour of earthquakes, landslides and wildfires. The authors present the role of metastable regions in CA (cellular-automata) models in order to introduce an inverse-cascademodel for metastable cluster coalescence. This is the onlycontribution in the book that shows a common approach tothree different hazards. The paper by Ley proposes a modelto explain the three phases of pre-failure damage processin granitic rocks. The contribution shows the experimentalstudy by acoustic emissions (AE), which is clearly explained,and it performs a theoretical analysis to improve the dam-age model. The third contribution, by Davy et al, followsthis line of research on rock failures, and it presents the flowmodels that are appropriate for explaining multiscale fracturenetworks. In basis on the equivalent permeability as well asother flow properties, the authors propose three main lengthscales. The sixth contribution, by Zvelebil et al, is written bya pluridisciplinary team, with the aim of showing the impor-tance of numerical and graphical methods for improving therock fall risk assessment and early warnings. Between theadvantages of the proposed methods the distinction betweenintrinsic dynamics and climatically driven slope activity is animportant one. Between the methodological contributions,the tenth contribution, by Kidson et al, is the only devoted toflood frequency analysis. In the paper a simple Power Law(PL) model is compared with conventional distributions forthe prediction of outlier flood events. After the analysis ofpeak annual instantaneous discharges for 50 US rivers, authors conclude that PL model is a promising alternative toconsider both outlier and the bulk of floods within the sameframework, and its better suitability for managing extremefloods. The book ends with a methodological paper writtenby Millington et al, where a quantification of wildfire regimesis presented. Authors confront statistical wildfire frequency-area models suggested by the CA with empirical data fromdifferent parts of the world.

The six remaining papers are mainly focused on cases-analysis in Italy and Greece, although their methodologi-cal contributions are also important. Paparo et al, monitoredcrustal stress by AE, which give an indication of whether aphysical system is subject to stress. Taking into account thatAE signals are indicators of the fatigue state of the crustalstructures constituting the AE source, the authors apply frac-tal analysis to AE time series, particularly to several casesfrom Italy. The increased high/low frequency AE activitysome months/weeks before a large earthquake suggests us-ing it for assessing the time evolution of seismic activity.

The contribution of Poscolieri et al is also focused on crustalstress and seismic activity, but, in this case, it introduces theapplication of different observational techniques over the Io-nian Archipelago. Besides the AE measurement the authorsapply satellite-based techniques, like Differential

Interfero-metric Synthetic Aperture Radar (DInSAR) and DifferentialGlobal Position System (DGPS). The soil exhalation tech-nique and a suitable analysis of the DEM of the Island com-plete the study. In the seventh contribution, Telesca and hiscolleagues follow the analysis on seismic hazard in Italy. They study the multifractal variability in the time dynam-ics of geoelectrical data by means of Multifractal DetrendedFluctuation Analysis (MF-DFA) and propose to apply it forbetter characterizing the time dynamics of earthquakes. Theeighth paper, by Turcotte et al, is focused on landslides inItaly. The authors examine the applicability of a generallandslide inverse-gamma function over an inventory of 165landslides triggered by heavy rainfall in the region of Todi,Italy, and show its good agreement. This general distributionwas established using 24 000 landslide events triggered bydifferent causes and recorded in USA, Italy and Guatemala.The scaling properties of the dimensional and spatial charac-teristics of fault and fractures in carbonate rocks in the cen-tral Apennines, Italy, is analysed in the ninth contribution, byMarchegiani et al. The authors elaborate a three-dimensionaldiscrete fault and fracture model to evaluate the transport andstorage properties and assess the degree of risk related to theexploitation and management of geofluids hosted in carbon-ate rock volumes. The central Apennines, Italy, is also the re-gion selected by Cello et al to integrate fault data with earth-quake information to derive a relation between the magnitudeof the strongest historical earthquake and the fractal dimen-sion of active fault patterns. This integration represents agood low-cost methodology for predicting earthquake mag-nitudes in this region.

It is a hardback book printed with high quality and clearlyillustrations. The price is not too high in comparison withthe book interest. It constitutes a very good reference aboutthe present current research on fractal analysis as applied tonatural hazards, which is highly recommended for advancedstudents and researches.

This review is reproduced from Natural Hazards and Earth System Sciences, 7, 343–344, 2007,
http://www.copernicus.org/EGU/nhess/nhess.html

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International Summer School on Atmospheric and Oceanic Sciences - (Course)

03/09/2007 - 07/09/2007 - L'Aquila, Italy

PURPOSE The purpose of the school is to contribute to public and scientific understanding of the basic concepts and the applications of Integrated Ground-Based Observing Systems (IGBOS). Lectures will characterize most common instrumentations their strengths and limitations. Strategic plans for the deployment and the management of an observation site will be discussed, together with an overview of state-of-the-art techniques for integrating different kind of observations. Lectures will introduce to the most important applications of IGBOS, including satellite data calibration/validation, assimilation in numerical weather prediction, climate benchmarking, air quality monitoring, meteo/hydrological warnings, transportation safety, and civil protection.

TOPICS

Basic Instrumentation In-situ Measurements: Radiosondes and Sounding Networks Passive Instruments: Radiometers, Photometers, and Interferometers Active Instruments: RADAR, LIDAR, SODAR, Wind Profiler and Ceilometer systems Integration and Applications Concepts for an Integrated Ground-Based Observing System Techniques for Systems Integration Applications to Meteorology and Numerical Weather Prediction Application to Cloud and Gas Microphysics Satellite data calibration/validation Applications for Climate Change Monitoring Applications for Atmospheric Chemistry and Air Quality Monitoring Technology Transfer to Business and Industries Applications to Transportation Safety: Flying Hazards and Road/Rail Conditions Applications to Civil Protection: Hydro-meteo and volcanic risks

Organizer:
CETEMPS
Phyisics Department, University of L'Aquila
67100 Coppito, L'Aquila, Italy
Tel: +39 0862 433076
Fax: +39 0862 433089
http://cetemps.aquila.infn.it/issaos_2007/

Domenico Cimini
CETEMPS University of L'Aquila
nico.cimini@aquila.infn.it

Irasmos Summer School 2007 on Integral Risk Management - (Course)

24/09/2007 - 28/09/2007 - Davos, Switzerland

In 2007 the Irasmos Summer School on Integral Risk Management will be held for the first time. It will take place in the mountainous surroundings of Davos, Switzerland in 2007. The summer school focuses on integral risk management of natural hazards, whereby snow avalanches, rock avalanches and debris flows are the core processes to deal with. The framework of integral risk management will be disseminated in detail while not only scientists but also experts with operational experience will be involved to give their risk management-related expertise and know-how to students across a broad range of disciplines. The program strongly involves the participants in lecture discussions, exercises and workshops, and offers every participant the opportunity to present their recent work as poster presentation in a relaxing but stimulating atmosphere. The Irasmos Summer School 2007 is hosted by the Swiss Federal Research Institutes WSL/SLF and the EU's 6th FP STR-Project IRASMOS. All relevant information and final registration can be found on our website at http://www.slf.ch/irasmos/news.htm

Organizer:
WSL Institute for Snow and Avalanche Research SLF Davos
http://www.slf.ch/irasmos

Nicole Bischof,
WSL Institute for Snow and Avalanche Research SLF
Davos
Flüelastrasse 11
CH-7270 Davos
bischof@slf.ch

Turbulence and Waves in Space Plasmas - (Course)

09/09/2007 - 14/09/2007 - L'Aquila, Italy

The International School of Space Science, in cooperation with the Consorzio Area di Ricerca in Astrogeofisica, have organized a course on "Turbulence and Waves in Space Plasmas", to be held in L'Aquila, Italy, 9-14 September 2007. The course will offer the opportunity to learn the main concepts at the basis of propagation of waves and generation/evolution of MHD turbulence in space plasmas and to compare theoretical model predictions with experimental observations. These topics will be treated first in interplanetary space and then within the magnetospheric environment. The role that turbulence plays in several aspects of solar wind behaviour such as generation, heating, high-energy particles acceleration, cosmic rays propagation and solar wind–magnetosphere coupling will be particularly highlighted and, the phenomenon of turbulence will also be presented within the framework of the dynamics of complex systems. Magnetospheric MHD waves will be treated with special attention to: generation and propagation mechanisms, cavity and field line resonances, nonlinear effects, interaction with energetic particles, magnetospheric diagnostic capabilities. Specific sessions will allow students to present their own scientific results with the possibility to discuss and exchange ideas directly with leading scientists.

Application deadline: 23 June 2007

For further information visit http://www.cifs-isss.org/ or send an e-mail to ssc@aquila.infn.it.

Organizer
International School of Space Science & Corsorzio Area di Ricerca in Astrogeofisica, L'Aquila, Italy

http://www.cifs-isss.org/

Massimo Vellante, University of L'Aquila, Italy,
massimo.vellante@aquila.infn.it

Scientific Marine Illustration & Underwater Photography - (Course)

22/09/2007 - 01/10/2007 - Aegean Sea, Greece

There are still spaces available on the field course ' Marine Scientific Illustration & Underwater Photography'. This course is aimed at students and graduates of Illustration, Design, Marine Biology and Environmental Sciences, as well as of related fields.

This will be a 10-day course based in 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.

Topics covered

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

Dates for 2007:
27 June - 6 July and 22 September- 1 October

The number of participants is limited to 10 (minimum 4). The fee for the ten-day course is 950 euros,including all day activities of the program, accommodation, snorkelling excursions, drawing and painting materials and half board meals (breakfast and lunch).

For more information please see our website at:
www.archipelago.gr/en/viewpage.asp?page=fieldcourses/MarineIllustration.html
or contact Mrs. Abigail Lingford (course coordinator) at:abigail@archipelago.gr

Organizer:
NGO Archipelagos, Institute of Marine & Environmental Research of the Aegean Sea
www.archipelago.gr/en/viewpage.asp?page=fieldcourses/MarineIllustration.html

Reunion Island Symposium on the Tropical Stratosphere-Upper Troposphere Region - (Meeting)

05/11/2007 - 09/11/2007 - Saint-Gilles, Reunion Island, France,

The Reunion Island Symposium on the "Tropical Stratosphere-Upper Troposphere Region" will take place in Saint-Gilles, Reunion Island, France, on 5-9 November 2007. It is a SPARC/SCOUT-O3/NDACC/CNRS symposium.

Please be aware that the DEADLINE for abstract submission is: 30 JUNE 2007.

Information on registration, submission, accommodation, social events, etc, are available on the symposium website. Authors are requested to submit their abstracts by E-mail to: riis-2007.lacy@univ-reunion.fr

The symposium organizers are soliciting related scientific papers on the following topics:

Topic 1.
Clouds, cirrus and dehydration processes.
Topic 2.
Dynamical barriers & isentropic transport across the subtropical barriers.
Topic 3.
Tropics, mid- and high-latitude interaction mechanisms.
Topic 4.
Effects and mechanisms of the stratosphere - troposphere exchange.
Topic 5.
Networking, data, measurements and campaigns in the tropical stratosphere - UT region: NDACC, SHADOZ, MOZAIC, HIBISCUS, SCOUT-O3, AMMA, etc.
Topic 6.
Variability and trend assessment in the tropical stratosphere - UT region.

Organizer:
SPARC/SCOUT-O3/NDACC/CNRS
http://riis2007.univ-reunion.fr

Ozone Depletion: from its discovery to Envisat and Aura - (Meeting)

23/09/2007 - 26/09/2007 - Athens, Greece

At the invitation of UNEP, WMO, EESC, IO3C, the Academy of Athens, the BIOMEDICAL RESEARCH FOUNDATION, ACADEMY OF ATHENS and the National Observatory of Athens, a core group of speakers who have played an important role in the success of the Montreal Protocol from its very beginning, will gather together in Athens, between 23-26 September 2007, to present state of the art scientific results and discuss the success of the implementation of the Montreal Protocol.

The Symposium will take place in the Foundation for Bio-

medical Research of the Academy of Athens, Greece, close to the dates of the 19th Meeting of Contracting Parties to the Montreal Protocol and it will bring together distinguished scientists, policy makers, industry people and NGOs who have contributed to the protection of the ozone layer. Symposium participants will review scientific progress made since the signing of the Protocol in 1987 and will highlight the lessons this process holds for the continued implementation of the Protocol and for addressing other global environmental issues.

Based on the outcome of the Symposium, a statement will be prepared and presented to the international community. The statement will highlight the vital role of scientific contributions in establishing the reality of the ozone threat and drawing attention to the need for action; the importance of realistic measures and cooperative elements in implementing the Protocol; the necessity for technological innovation in providing solutions; and the value of objective assessment of scientific, environmental, technological and economic factors in fostering consensus and the experience gained to address future global environmental threats.

During the Symposium and following the Opening Ceremony, delegates will hear keynote speeches by eminent scientists and will be invited to participate in a Plenary round table debate on the interdependent roles of science, policy and technology in responding to global environmental change.

SESSIONS

There will be a review on the accomplishments of the scientific community in facilitating the negotiation of the Montreal Protocol and a description of the development of chlorofluorocarbon (CFC) ozone depletion theory.

Also there will be discussions on:

the most recent Montreal Protocol scientific assessment (Les Diablerets, 2006)

highlights of the Montreal Protocol as an international model for implementation of protocols, science development in tandem with policy making, the complementarity of private and national interests, and positive media contributions.

innovations and lessons learned in the Montreal Protocol process

SYMPOSIUM STATEMENT

A draft statement outlining the anticipated outcomes of the Symposium will be distributed to participants at the beginning of the meeting. On the following day, interested participants may meet informally to comment on and finalize the text.

REGISTRATION FEE

Those interested to participate will be charged a modest registration fee of 400 euro. The fee includes admission to the Symposium sessions and break areas, one copy of the Symposium Proceedings, a Welcome and a Farewell dinner. Participants are expected to finance their own travel and accommodation expenses.

If you wish to participate in the Symposium and receive more information, please visit http://www.20yearsmontrealprotocol.org/registration.php and submit the information to the Symposium Secretariat by email (info@20yearsMontrealProtocol.org)

or fax: +30 210 3490120 until May 15, 2007.

Organizer:

UNEP, WMO, EESC, IO3C, Academy of Athens, National Observatory of Athens

http://www.20yearsmontrealprotocol.org/

ESA-EUSC 2008 Conference on Image Information Mining - (Meeting)

04/03/2008 - 05/03/2008 - Frascati, Italy

The Organising Committee is pleased to invite you to participate and contribute with articles, posters or demonstrations to the “ESA-EUSC 2008 Conference” on “Image Information Mining: pursuing automation of geospatial intelligence for environment and security”, which will be held at ESA / ESRIN (Frascati, Italy) on March 4-5, 2008.

The Conference will be followed on March 6, 2008 by a “Panel on Information Mining from images, geo-information and text”.

CONFERENCE DETAILS

Participation to conference and panel is free of charge up toavailable seats. Interested participants shall register within February 1, 2008, sending an e-mail to Patrizia Farroni@esa.int.

The Conference is scientifically sponsored by IEEE GRSS. ESA will publish related “Workshop Proceedings”. Contributors are encouraged to make their interactive presentations, since only articles presented at the Conference will be published.

IMPORTANT DATES

Extensive abstract, with indication if it is for interactive presentation or poster session, via e-mail to mihai.datcu@dlr.de, copy Sergio.Delia@esa.int, subject: IIM ESA-EUSC 2008) by October 15, 2007.

Notification of acceptance (and format for article submission) will be provided to authors by November 15, 2007.

A limited number of demonstrations can be accepted: demonstration description and resource requirements shall be provided by e-mail to Sergio.Delia@esa.int (subject: IIM ESA-EUSC 2008) within February 15, 2008. Full articles and presentations by February 15, 2008.

CONFERENCE TOPICS

Presentations should focus on theory and applications leading to more automation in geospatial information extraction and understanding from optical and SAR EO images and heterogeneous sources:

- Automatic image pre-processing (geo-referencing, orthorectification, radiometric calibration, etc.)
- Challenges for metre resolution optical and SAR EO images
- Geospatial Intelligence: synergies across images, maps and geo information
- Models, semantics and spatial syntax for image understanding
- Information mining from heterogeneous sources
- Human-machine communication for spatial reasoning

- Knowledge discovery and sharing
- Scenarios and constraints in Environment, Security and Intelligence applications
- System architectures for geospatial information processing

The "Panel on Information Mining from images, geo-information and text" will include topics like (final list will be made available with the programme):

- Tools
- Use of KIM (interactive information discovery from images)
- Use of KEO (component-based processing environment)
- Image understanding
- Speaking Images: Intelligence and Semantics
- Understanding high resolution SAR images
- Image Information Mining
- Automatic classification strategies
- Change detection
- Mining Time Series
- Heterogeneous information sources
- Knowledge from Web content
- Visualisation of geo information

IIMCG

The event is the fifth in the series jointly organised by ESA and EUSC (see the last one at http://earth.esa.int/rtd/Events/ESA-EUSC_2006). It is promoted by the European Image Information Mining Coordination Group (IIMCG), initiated by:

ASI, Agenzia Spaziale Italiana
CNES, Centre National d'Etudes Spatiales
CNR, Consiglio Nazionale Delle Ricerche
DLR, Deutsches Zentrum für Luft- und Raumfahrt
EC-IST, European Commission - Information Society Technology
ESA, European Space Agency
ETHZ, Eidgenössische Technische Hochschule Zürich
EUSC, European Union Satellite Centre

And extended to:
EARSC, European Association of Remote Sensing Companies

Organizer:
IIMCG
http://earth.esa.int/rtd/Events/ESA-EUSC_2008

The 4th Polish Conference: URBAN CLIMATE AND BIOCLIMATE - (Meeting)

29/11/2007 - 01/12/2007 - Lodz, Poland

Main conference topics:

- spatial variability of meteorological parameters on urban areas
- structure of the urban boundary layer,
- exchanges of momentum, mass and heat between urban surface and its boundary layer,
- bioclimate of towns,
- climatic performance of urban green areas,
- air pollution and air quality at urban areas,
- anthropogenic heat emission,
- building climates,
- cites and global climate changes,
- urban climate and urban planning.

Conference languages: Polish and English (simultaneous interpretation not available).

Conference fee: 450 PLN (~115 EUR) (including conference materials, social programme and publication in post-conference volume).

Conference calendar:
30 May 2007 – pre-registration and abstract submission (150 words)
31 October 2007 – deadline for registration fee
1 December 2007 – full text submission

Conference Site: The University of Lodz Training and Conference Centre, Lodz, Kopcinskiego 16/18 (www.csk.uni.lodz.pl).

Organizer:
Department of Meteorology and Climatology University of Lodz, under the auspices of Professor Timothy Oke, Doctor honoris causa of University of Łódź
http://www.geo.uni.lodz.pl/~meteo/index_a.html

17th International Biohydrometallurgy Symposium - (Meeting)

02/09/2007 - 07/09/2007 - Frankfurt am Main

The International Biohydrometallurgy Symposium 2007 is the 17th event of an established series that originated in 1978. In recent years attention has focused increasingly on the role that microorganisms play in the treatment of minerals, metals, coal, oil, waste materials and also in related environmental issues.

Besides new technologies for the production of raw materials and valuable substances the main tasks are focused on the remediation of former mining activities and environmental protection connected with the different kinds of mining and the mining industries. Increasing contributions to the field from disciplines like genetics, biochemistry, electrochemistry microbiology, hydrometallurgy, chemistry, geology and process engineering have affected the rapid development as well as pressure from the European Union and national governments.

The International Biohydrometallurgy Symposium 2007 will be held in Frankfurt am Main, Germany.

The Symposium will provide a forum to present the latest scientific and technological advances in this area, and an opportunity for biotechnologists, practitioners and environmentalists to discuss future trends in the field.

This is the second time that the symposium will be held in Germany. We expect to have a large number of participants from the new EU member states and developing countries because there is a wide field for all problems relating to post-mining remediation. This is also a unique opportunity to dem-

onstrate the manifold remediation techniques in ore mining, uranium mining as well as coal and lignite mining. Therefore, the meeting will be an opportunity for scientists and engineers to study biohydrometallurgical applications, to learn how to implement them as well as to find new ways of collaboration.

The paper submission is closed! Last minute poster submission will be possible later on!

Organizer:
DECHEMA e.V.
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60486 Frankfurt am Main / Germany
geiling@dechema.de
[official page:]
http://events.dechema.de/biohydrometallurgy

Dr. W. Fürbeth, DECHEMA e.V., Theodor-Heuss-Allee 25, 60486 Frankfurt am Main, Germany,
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IHY European General Assembly: Second Announcement - (Meeting)

18/06/2007 - 22/06/2007 - Torino - Italy

Scientific Context The year 2007 will mark the 50th Anniversary of the International Geophysical Year (IGY) and 50 years of space exploration. The world¢s science community will come together for an international program of scientific collaboration: the International Heliophysical Year (IHY) 2007-2008. IHY extends the concept of “Geophysics” to “Heliophysics” to deal not only with atmospheric and solar-terrestrial physics but also with studies of other planets, the outer reaches of the heliosphere, and its interaction with the interstellar medium.

Meeting Goals

This meeting aims to foster the European participation and collaboration in the development of the large infrastructures of the future for the exploration and the study of the heliosphere. Space and ground-based major instruments that are presently in their initial design phase will be presented as support for discussions and contacts between scientific teams all over Europe. It will also be a good opportunity to expound new ideas or projects. This is particularly timely with respect to the ASTRONET efforts to establish a long-term planning for the development of European astronomy. It is also an excellent timing for the presentation of the missions in the frame of the ESA Cosmic Vision call for proposal.

The domains concerned are: Sun, Solar wind, Solar wind-Planets relationships, Space Weather, Limits of the heliosphere. A specific session will be dedicated to outreach and communication activities, one of the goals of IHY. Students and young researchers are particularly encouraged to participate: no fees are requested for PhD students.

Web site for registration : http://ihy2ega.oato.inaf.it/

Deadline for abstract submission: April 30th, 2007 C. Briand and E. Antonucci, on behalf of the SOC

Organizer:
Carine Briand (Chair)
Ester Antonucci (Co-Chair)
Costas Alissandrakis
Jean Louis Bougeret
Roberto Bruno
Manolo Collados Vera
Mike Hapgood
Richard Marsden
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Space Plasmas and Astrophysics, International workshop in honor of André Mangeney - (Meeting)

11/09/2007 - 14/09/2007 - Paris Observatory (Meudon, France)

The workshop will address all the many different subjects that André Mangeney has been working on during his scientific career, specifically in the field of space plasmas and astrophysical fluids. The workshop is intended for every person presently working/interacting with André, or having been working/interacting with André in the past. However, anyone interested in the topics listed below is equally welcome.

Preliminary list of topics:
* Collisionless plasmas (solar wind, space plasmas, ...)
* Stellar and solar physics (Asteroseismology, coronal physics, dynamo,...)
* Astrophysical fluids in general (convection, turbulence, ...)

Organizer:
LESIA, Observatoire de Paris
contact.wam@obspm.fr
fax: +33 1 45 07 28 06
http://www.lesia.obspm.fr/Workshop_Andre_Mangeney/

Filippo Pantellini
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International CAWSES Symposium - (Meeting)

23/10/2007 - 27/10/2007 - Kyoto, Japan

This International CAWSES (Climate and Weather of the Sun-Earth System) Symposium will provide an excellent opportunity to discuss the scientific accomplishments of CAWSES and look forward to SCOSTEP’s future programs at a mo-

ment toward the end of its initial five-year period.

The symposium will cover the four major themes of CAWSES,

1) Solar Influence on Climate,
2) Space Weather: Science and Applications,
3) Atmospheric Coupling Processes, and
4) Space Climatology.

Since treating the entire solar-terrestrial domain as one system rather than treating each region independently is the most important concept of CAWSES, the symposium offers tutorial lectures /keynotes that will be interesting for all participants every morning and more specific sessions of presentations in the afternoon. We welcome all those who are involved and/or interested in CAWSES to Kyoto in the autumn when we will have the pleasure of being surrounded by the great historical and modern sites of Kyoto in the Japanese atmosphere with the beautiful yellow leaves of the season.

Important Dates

Abstract submission deadline: May 31, 2007
Financial support request deadline: May 31, 2007
Early registration deadline: July 31, 2007

Abstract submission, financial support application, and registration are possible at the homepage of this symposium (http://www.stelab.nagoya-u.ac.jp/cawses/).

Tutorial lecturers: M. Geller, A. Nishida, E. N. Parker Keynote speakers: J. Beer, M. DikPati, J. Forbes, C. Fro"hlich, S. Fukao, N. Gopalswamy, J. Gosling, J. Haigh, Y. Kamide, J. Kozyra, K. Labitzke, F.-J. Luebken, L. Svalgaard, S. Tsuneta, R. A. Vincent, L. Zelenyi

Detailed information:
http://www.stelab.nagoya-u.ac.jp/cawses/
Contact: cawses07@stelab.nagoya-u.ac.jp

Organizer:
T. Tsuda, R. Fujii, K. Shibata, and M. Geller
http://www.stelab.nagoya-u.ac.jp/cawses

Satoshi Masuda
STEL, Nagoya University, Foro-cho, Chikusa-ku, Nagoya, Aichi 464-8601, Japan,
masuda@stelab.nagoya-u.ac.jp

International Conference: Impacts of Extreme Weather and Climate Events on Socio-Economic Developmen - (Meeting)

11/11/2007 - 15/11/2007 - Akure, Nigeria

This conference aims to bring together, seasoned researchers from around the world who have been working on the African Weather and Climate and the impacts of extreme weather and climate events for a focused, informed and an in-depth discussion on these issues. The conference will also provide a unique opportunity for researchers as well as others in governmental and non-governmental agencies who have been working in related sectors of the economy to review ongoing research, and proffer mitigating and adaptive strategies that would serve as proactive short- and long-term planning for the socio-economic development of the nations of Africa.

The conference sessions (oral and poster) will be devoted to papers that will address the following major themes and related activities:

The impacts of extreme weather and climate on agriculture.

The impacts of extreme weather and climate on water resources.

The impacts of extreme weather and climate on health and healthcare delivery.

The impacts of extreme weather and climate on urban planning and tourism.

The impacts of extreme weather and climate in transportation (aviation, land and sea).

The effects of extreme weather effects on socio-economic development in Africa.

Mitigation and adaptive strategies against extreme weather and climate events.

Abstracts can be submitted on http://www.nmets.org/conference/abstract_form.htm

Deadlines

Deadline for submission of Abstract 3Oth June, 2007.
Notification to authors of Accepted abstract 20 July, 2007.
Dealine for submission of extended abstract 31st August, 2007.
Information to authors of full paper for proceedings 30 September 2007.

http://www.nmets.org/conference

International CAWSES Symposium - (Meeting)

23/10/2007 - 27/10/2007 - Kyoto, Japan

International CAWSES (Climate and Weather of the Sun-Earth System) Symposium October 23 - 27, 2007, Kyoto, Japan Conveners: T. Tsuda, R. Fujii, K. Shibata, and M. Geller.

Important Dates:

Abstract submission deadline: June 25, 2007 (revised) Financial support request deadline: June 25, 2007 (revised) Early registration deadline: July 31, 2007

Abstract submission, financial support application, and registration are possible at the homepage of this symposium (http://www.stelab.nagoya-u.ac.jp/cawses/).

Tutorial lecturers: M. Geller, A. Nishida, E. N. Parker Keynote speakers: J. Beer, M. DikPati, J. Forbes, C. Fro"hlich, S. Fukao, N. Gopalswamy, J. Gosling, J. Haigh, Y. Kamide, J. Kozyra, K. Labitzke, F.-J. Luebken, L. Svalgaard, S. Tsuneta, R. A. Vincent, L. Zelenyi

Detailed information: http://www.stelab.nagoya-u.ac.jp/cawses/

Contact: cawses07@stelab.nagoya-u.ac.jp

Organizer:
T. Tsuda, R. Fujii, K. Shibata, and M. Geller
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The 8th Hellenic Astronomical Conference - (Meeting)

13/09/2007 - 15/09/2007 - Thassos Island, Greece

The Hellenic Astronomical Society (Hel.A.S.) and the Democritus Univercity Of Thrace (DUTH) are organizing the 8th Hellenic Astronomical Conference at the Island Of Thassos 13-15 September 2007. Ôhe registration for submission of abstracts for the upcoming 8th conference of Hel.A.S. is now open and the deadline has been extended to the 31st of May 2007. For more details please visit the conference web page at: http://www.ee.duth.gr/hac/

Organizer:

The Hellenic Astronomical Society (Hel.A.S.) and the Democritus Univercity Of Thrace (DUTH)

http://www.ee.duth.gr/hac/

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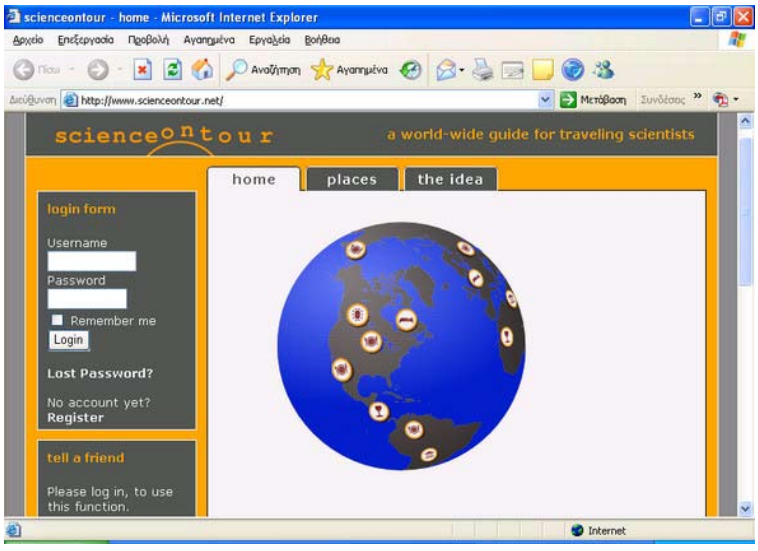
Water Information System for Europe

http://water.europa.eu

The Water Information System for Europe is a web portal which provides the public with a wealth of information on water and water-related topics such as bathing and other water quality data and information on urban wastewater treatment sites. The portal is a collaborative effort between the European Environment Agency (EEA) and the European Commission (Environment, Joint Research Centre and Eurostat).



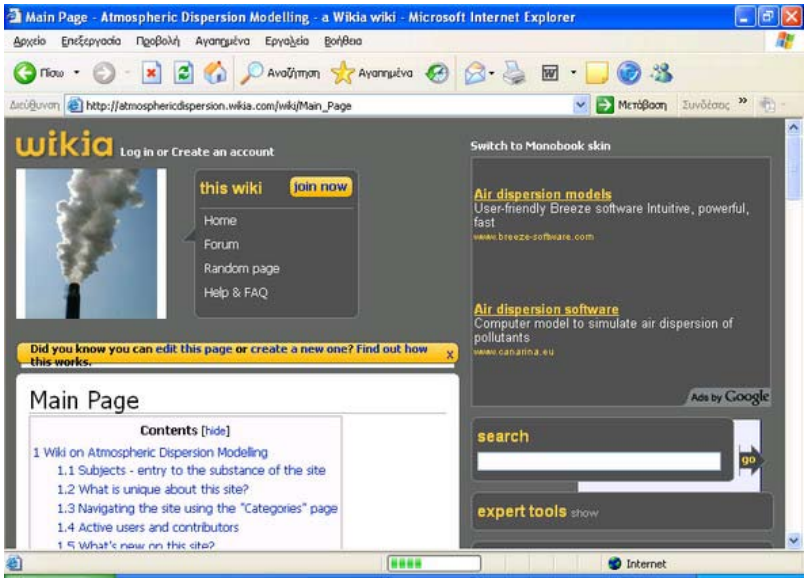
A Travel Guide for Scientists by Scientists

http://www.scienceontour.net

Scienceontour.net is a new platform on which scientists can share your tips, experiences and recommendations with each other. One can list favorite places and view the recommendations of others. The usage of the platform is free, although the providers state they might charge a small fee of a couple of Euros in the future.

To ensure that scienceontour.net remains empty of worthless, commercially self-serving content, registration is required before you can make any entries. The providers hope that this requirement will help protect the overall quality of the platform content. E-mail addresses will not be used for any mass, multi-address mailings or be shared with a third party.

Scienceontour.net is still a blank, clean sheet, but you can lend a hand to make this platform become an attractive and reliable source of information for us scientists. The tips and recommendations you supply will help make the plans surrounding our congresses and conferences as pleasant as possible.



A special web site on Atmospheric Dispersion- a so-called Wiki

http://atmosphericdispersion.wikia.com

A Wiki is a web site that is especially suited for collaboration. It allows users to easily create and edit Web pages. It has a very open structure where anyone can contribute with contents. A prominent example of a Wiki is the encyclopedia Wikipedia.org . The main ideas behind this particular Wiki can be formulated in the following way:

The Wiki on Atmospheric Dispersion Modelling addresses the international community of atmospheric dispersion modellers - primarily researchers, but also users of models. Its purpose is to pool experiences gained by dispersion modellers during their work.

Warnings against pitfalls and common mistakes are of high interest. Researchers are encouraged to report on pitfalls they encounter, and which they would like to warn others against.

There are many web sites dedicated to atmospheric dispersion models. However, the Atmospheric Dispersion Wiki has the following unique qualities:

* In contrast to traditional web sites, it is possible for anyone to contribute easily to its contents. Therefore, the site has the potential to become far more comprehensive than a site maintained by a single web master. Contributions can be actual information content, or they can consist of links to material elsewhere on the web.
* In contrast to traditional scientific publishing, you can add small bits of information - you do not have to wait, until you have prepared a complete scientific paper.
* In contrast to existing email distribution lists, the information compiled here is archived in a structured manner. Furthermore, you can add information on findings that are only of interest for a very small audience, not for an entire mailing list.
* Many knowledgeable researchers have pet subjects. They possess a vast experience, which newcomers to the field lack. Here, experienced researchers can in an informal way issue advice related to their pet subjects.

There is a short introduction to the Wiki at http://www.harmo.org/Conferences/Crete/Wiki_Introduction.asp

The Wiki is still in its infancy, so at present the actual contents of the site is limited. You can help it grow by adding contents related to your work.

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