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Modest page charge rise for ACP to ensure sustainability

In a letter to the ACP Editorial Board, Uli Pöschl, ACP Executive Editor, addresses the need for a modest rise in page charges

21 December, 2005.- In a letter to the ACP Editorial Board, Uli Pöschl, ACP Executive Editor, comments on the situation for open access journals in general and ACP in particular. We reproduce below a part of this letter, since it is of interest to the wider audience of authors and the scientific community:

"2005 has been another successful year for ACP. Over 400 manuscripts have been submitted for peer reviewed publication, and the journal impact factor has increased to a value of 2.7, one of the highest in the fields of atmospheric, environmental, and geosciences. For more information see the journal web site at www.atmos-chem-phys.org.

The steep increase of submissions demonstrates that the scientific community values the high quality and impact, rapid turnover times, and stimulating interactive discussions of ACP & ACPD. It confirms that there is a demand for improved scientific publishing and quality assurance, and that the interactive open access journal concept of ACP meets this demand. Nevertheless, many things including the emails, web forms, and functionality of the electronic editorial office remain to be and will be further improved.

As you may know, the European Geosciences Union (EGU) has financed the launch of ACP without any outside support, enabled the development of new software tools for the innovative interactive open access journal concept (two-stage publication, public peer review, and interactive discussion), and kept the publications free of charge to everyone - authors, scientific community, and the open public - for an initial period of two years.

At the beginning of 2004 modest publication charges have been introduced and levied from the authors to maintain free online access for everyone ("open access") while moving towards a self-sustainable financing scheme.. Nevertheless, EGU has continued to subsidize ACP and its newly launched sister journals, keeping the minimum charges for well-prepared manuscripts as low as 15-20 EUR per discussion paper page.

In the meantime, the actual long-term costs of operating the EGU interactive open access journals have been tested and worked out in detail. It has become clear that charges of 20 EUR or less per page are not sustainable without subsidies. In particular, it turned out that cost reductions by further automation of the manuscript production process are limited by a continuing demand of authors, editors, referees, and interactive commentators for support by the staff of EGU office. We have received a lot of positive feedback for this personal support, and thus we would like to maintain the highly appreciated level of service rather than diminishing it for the purpose of cost-cutting.

Accordingly, the EGU council has decided to increase publication charges to a level which enables self-sustainable operation of the interactive open access journals. Thus the minimum charges for manuscripts prepared in accordance with the journal guidelines will be increased to 23 EUR per discussion paper page at the beginning of 2006.

http://www.copernicus.org/EGU/acp/guidelines_for_manuscript_and_article.html

Since one discussion paper page corresponds to about one third of a page in the traditional double column layout of final revised papers, the net price for the publication of a 10 page paper in ACP - including free color figures and online supplements, two-stage publication, and interactive public discussion - will be on the order of 700 EUR.

To put this number into perspective, I would like to draw your attention to the following facts:

1) Other major open access publishers such as BioMed Central and the Public Library of Science (PLoS) charge mostly more than 1000 EUR for traditional single-stage publications without interactive public discussion.

2) The large traditional publishing group Springer charges 3000 USD for making individual publications in traditional subscription journals freely available online, i.e. they levy USD per online open access paper in addition to charging libraries and other subscribers for access to the journal in which it appears.

3) In the traditional scientific publishing business, where some journals do not only limit access to subscribers or sell articles on a pay-per-view basis but also request additional publication charges from authors (e.g., several hundred USD per color page), the total turnover and public costs amount to several thousand USD per paper. The annual turnover of publishers in the sector of science, technology, and medicine (STM) amounts to about 7 billion USD per year, and some of the traditional publishers - including Elsevier with a market share of over 30% - are making over 30% profit out of public funds for research and education.

4) Due to increasing problems with library subscription funds ("library budget crisis") and because of the many other economic, educational, and scientific advantages of open access publishing, most major scientific funding organisations in the world have signed the Berlin Open Access Declaration 2003 and similar statements of intent. Thereby they have committed to support open access publishing and provide dedicated funds for authors to cover publication charges. Depending on the policies and efficiency of the different national and international funding agencies, these funds have already

been installed and are available to scientists (in combination with research grants but also separately). For more information see the documents and links at:

http://www.copernicus.org/EGU/acp/ad_page.html

In view of the situation outlined above, I hope and expect that the authors and scientific community of ACP will agree and cope with the upcoming increase of publication charges for making the journal self-sustainable".

From a letter of Uli Pöschl to the ACP Editorial Board

YSOPP 2005 Awards for Hydrological Sciences

Matthias Retter, Jon Olav Skøien, Giuliano Di Baldassarre, and Anne Fleig received the 2005 YSOPP awards for Hydrological Sciences during the last EGU Assembly in Wien

The following students received the Young Scientist Outstanding Poster Paper (YSOPP) Hydrological Sciences awards:

Matthias Retter (retter@giub.unibe.ch) for the poster entitled Investigating the vectors of subsurface storm flow in a hillslope by Retter, M.; Hincapié , I.; Germann , P.F. Matthias works on his Ph.D. in the Soil Science Section of the Institute of Geography at the University of Bern, Switzerland. His research interests focus on runoff generation processes and he is convinced of nowadays need for SLICE.

Jon Olav Skøien (skoien@hydro.tuwien.ac.at) for the poster entitled Geostatistical interpolation of runoff by Skøien, J.O.; Blöschl, G. Jon Olav works at the Institute for Hydraulic and Water Resources Engineering at Vienna University of Technology (Austria). The main issue of his Ph.D. reserach is how to incorporate scale and network structure in geostatistical hydrologic analyses.

Giuliano Di Baldassarre (giuliano.dibaldassarre@mail.ing.unibo.it) for the poster entitled A regional model for estimating the design storm in Northern-Central Italy by Di Baldassarre, G. Giuliano works on his Ph.D. at the Department DISTART of the University of Bologna (Italy) under the supervision of Prof. Armando Brath. His research is mainly directed to hydraulic modelling of flood inundations. In particular he has studied the effects of the topographic data resolution on a two-dimensional model accuracy.

Anne Fleig (a.k.fleig@geo.uio.no) for the poster entitled A global evaluation of streamflow drought characteristics by Fleig, A. K.; Tallaksen, L. M.; Hisdal, H.; Demuth, S. Anne recently started as a Ph.D. student at the Department of Geosciences of the University of Oslo (Norway). Her research is focused on hydrological droughts and their links to regional-scale weather patterns, larger scale atmospheric circulation patterns and low-frequency climate variables in order to develop a statistical forecasting tool for summer droughts in North-Western Europe.

You can download the posters as pdf-files at http://meetings.copernicus.org/egu2006/ysopp_awardees.html.

Biogeosciences journal

has been included in SCIE

Biogeosciences (http://www.biogeosciences.net) has been accepted, beginning coverage with volume 1(1) 2004, to be included into

- Science Citation Index-Expanded (SCIE) including the Web of Science
- ISI Alerting Service
- Current Contents/Physical, Chemical & Earth Sciences (CC/PC&ES)
- Current Contents/Agriculture, Biology and Environmental Sciences (CC/AB&ES)

Though it will take some time to see the result we wanted to keep you informed about the success so much people contributed to.

With our best regards,
Jean-Pierre Gattuso & Juergen Kesselmeier, co-Editors in Chief

ESA and China sign framework agreement

for space cooperation for peaceful purposes

On Friday 18 November, Sun Laiyan, Administrator of the China National Space Administration, and ESA Director General, Jean-Jacques Dordain, signed an Intergovernmental Framework Agreement for space cooperation for peaceful purposes.

The signing ceremony took place in the Diao Yu Tai Guest House, Beijing, in the presence of the Chinese State Councillor, Mrs Chen Lizhi, and representatives of the diplomatic community. This is the first Framework Agreement that China has signed with ESA and it will facilitate cooperation between ESA and China in a number of areas including space science, Earth observation, telecommunications, navigation and microgravity research.

China and ESA are already cooperating on a number of space projects, one of which is the Double Star Programme with CNSA and the Chinese Academy of Sciences, providing complementary data to the Cluster programme. Another important project is the Dragon Programme set up by ESA and the National Remote Sensing Centre of China.

ESA

RESEARCH FRONT: Seaweed Iodine emissions and aerosols

Most aerosol formation around the coastal region appears to come from algae releasing iodine vapours in the form of CH2I2 and I2

Atmospheric aerosols are of environmental significance in a number of ways including cloud condensation and climate change, so understanding what influences their formation is of vital importance. There has been substantial recent speculation over the specific role of various iodine compounds in the formation of new aerosol particles and cloud condensation nuclei. Indeed it was very recently noted that there is a "need to understand more fully the production of iodine vapour, gas-phase interactions and particle production over the open ocean" (O'Dowd et al, Nature 2005 vol 433, E13).

This has prompted us to publish in the December issue of Environmental Chemistry a Research Front on Iodine in Marine Aerosol Formation in order to provide authors and readers with a forum for bringing together diverse opinion on this topical subject.

Roland von Glasow of the University of Heidelberg introduces the series with an Opinion Essay. The group of articles is centred around Colin O'Dowd's Short Review of the current state of the art. O'Dowd, who is at the University of Galway's physics department, presents the evidence from various groups showing that most aerosol formation around the coastal region is due to algae releasing iodine vapours in the form of CH2I2 and I2. The relative importance of the two species is currently being hotly debated. Evidence for both species is presented in the following seven research papers.

Cover of Environmental Chemistry, Issue 2

Alex Baker of the University of East Anglia shows for the first time that organic forms of iodine are widespread and abundant in aerosol particles in the broader marine atmosphere. These conclusions are based on extensive latitudinal and longitudinal cruises across the atlantic ocean.

Thorsten Hoffmann, Alex Guenther, Colin O'Dowd and Karine Sellegri present recent measurements of field and laboratory measurements of the atmospheric flux of iodinated compounds, and show that iodinated compounds are overwhelmingly the most important source of coastal aerosol particle formation. John Plane of East Anglia and Liisa Pirjola of Helsinki Polytechnic have each contributed modeling papers to provide the basis for a mechanism of new particle formation. Lucy Carpenter of the University of York and Gordon McFiggans of the University of Manchester present convincing evidence for the dominant role of I2 over CH2I2 in the release of iodine compounds from the seaweed laminaria digitata.

These results are presented in the journal Environmental Chemistry, Issue 2, 2005.

Alison Green
Editor, Environmental Chemistry

IAUC Luke Howard Award

for outstanding contributions to the field of urban climatology to Professor Ernesto Jáuregui

The International Association for Urban Climate (IAUC) Awards Committee has selected Professor Ernesto Jáuregui of the National University of Mexico (UNAM), Mexico City as this year's recipient of the IAUC's Luke Howard Award. The award honors individuals who have made outstanding contributions to the field of urban climatology in a combination of research, teaching, and/or service to the international community of urban climatologists. Prof. Jáuregui's work in Mexico City, and with the WMO, has served to enhance understanding and focus attention on urban climates in tropical cities. The award will be presented at the ICUC-6 meeting in Göteborg, Sweden, 2006. Below the citation from Robert Bornstein, IAUC Awards Committee Chair (from the IAUC Newsletter, http://www.urban-climate.org):

"The IAUC is happy to announce that that Prof. Ernesto Jáuregui of the National University of Mexico has been selected by its Awards Committee for the second (2006) Luke Howard Award. Prof. Jáuregui was selected as he has been an unrivalled pioneer in the study of the climates of tropical cities in the areas of urban climatology, atmospheric pollution, and human bioclimatology.

He has been a central figure in the field of urban climate ever since his role as Scientific Director of the path-breaking WMO Technical Conference of Urban Climatology and its Applications with Special Regard to Tropical Areas in Mexico City in 1984. His long and extensive Mexico City investigations have focused on how it affects all aspects of its urban climate and air quality: radiation, energy balance, evaporation, humidity, heat island, flow patterns, and precipitation. These efforts have made important contributions in the practical areas of land-use planning, air quality management, and human bioclimatology. Dr. Jáuregui has formed research groups on human bioclimatology and urban climate in several Mexican universities and was an Alexander v. Humboldt Scholar in Germany. His importance as a researcher and teacher has been recognized by several prizes, among them the National University Prize for Teaching in the Natural Sciences and the Mariano Bárcena Medal of the Mexican Geophysical Union. He has been the WMO Rapporteur on Urban/Building Climatology, Commission for Climatology, since 1984, and has been the leading author of reports by international experts of the WMO and IPCC on urban climate and on global climate change. He has served on the editorial boards of three Mexican journals (Atmósfera, Geofísica Internacional, and the Bulletin of Geography) and of two international journals (Urban Atmosphere/Atmospheric Environment and the International Journal of Biometeorology). His scientific production includes geographical atlases at the national, regional, and local scales; several books on climatology and bioclimatology; and more than a 100 articles in international scientific journals and magazines.

Given the difficulties of establishing a high quality research program in a country with limited budgets, resources, and support, Ernesto has forged a path that has and will continue to inspire younger researchers around the world to achieve similar goals. Finally, Ernesto epitomizes several of the admirble qualities of Luke Howard, as he is undoubteldly a pioneer who has extended the field of urban climate to the tropics; he relies on personal observation, intuition, and scientific acumen; and he is a humanitarian who seeks to improve the welfare of city dwellers. His recognition by his international colleagues adds luster to IAUC and to the Luke Howard Award".

Aircraft experiment in Darwin successfully completed

The focus of the scientific investigations during the airborne measurement missions has been a deep convective system, locally called Hector, which is generated almost daily in this season over the islands off the north of Australia

he last local mission of the SCOUT-O3 aircraft experiment from Darwin was performed on Tuesday December 06, 2005. On nine missions during the last four weeks the Russian high-altitude aircraft Geophysica and the DLR Falcon research aircraft made joint scientific flights into the tropical atmosphere, probing at high altitudes the transition region between the troposphere and the stratosphere.

SCOUT-O3 is an Integrated Project of the European Commission supported under Framework Programme 6 and by national funding. The partnership involves 59 European and international research organisations and more than 250 scientists. The major SCOUT-O3 goal is the production of forecasts of the evolution of the coupled chemistry/climate system, making major European contributions to international assessments of ozone depletion and climate change prepared in support of policy such as the WMO-UNEP ozone assessments (Montreal Protocol) and the IPCC reports (Kyoto protocol). An important objective within SCOUT-O3 is to make new atmospheric measurements of critical processes in order to improve the models used to make the forecasts. To this end, the major SCOUT-O3 field experiment based in Darwin, Australia, which has just concluded, had a number of important goals aimed at improving our knowledge of the tropical upper troposphere and lower stratosphere. The SCOUT-O3 field experiment was carried out in cooperation with the Tropical Warm Pool – International Cloud Experiment hosted by the Australian Bureau of Meteorology.

The tropical upper troposphere is a crucial region for under-

SCOUT-O3 group foto

standing. It is the region of the atmosphere which controls the transport of water vapour, the CFCs and their replacements, and the sources of the nitrogen oxides into the stratosphere. These gases have a major impact on stratospheric ozone and, subsequently, both direct and indirect impacts on surface climate. Measurements in this region are particularly challenging, calling for very specialised, high-performance research aircraft. The outstanding research issues range widely from questions concerning the role of clouds and aerosols in this region to the transport routes and timescales of air moving from the troposphere to the stratosphere. The new SCOUT-O3 measurements will allow us to address these and other issues.

The focus of the scientific investigations during the airborne measurement missions has been a deep convective system, locally called Hector, which is generated almost daily in this season over the islands off the north of Australia. In the convective towers, air masses can be lifted through the depth of the troposphere within hours and thus, in principle, can transport pollutants and other gases very efficiently from the surface up to the stratosphere. The major part of the research flights was thus dedicated to the Hector (and similar) systems. One highlight of the campaign was the measurements on November 30, when the Russian M-55 Geophysica and the German DLR Falcon aircraft were sent twice into the air, first to probe Hector during its strongest development stage and then, after several hours, to study its impact on the tropopause region as the storm began to decay. On this particular day the SCOUT-O3 aircraft were supported by two other research aircraft from the U.K. NERC-funded project ACTIVE. Further flights were carried out in SCOUT-O3 to investigate the large scale structure and composition of the tropopause layer in this tropical region.

The scientists have collected a large data set on water, nitrogen oxides, ozone, long-lived tracers, halogenated species, clouds and aerosols and meteorological parameters. These data will be used to understand transport processes, chemical transformations and cloud-related processes and thus finally to answer questions about how the stratosphere is fed from lower tropical altitudes. The analysis of these data will require several months. The SCOUT-O3 Annual Meeting in March 2006 will be a first forum to discuss results between the different participants and to plan for their implementation in the SCOUT-O3 modelling activities.

The experiment will continue on Saturday 10 December with the transfer of the SCOUT-O3 research aircraft back to Europe. As on the inbound transfer to Australia in November, the flights will be used to measure the tropopause region over the tropical monsoon region above Indonesia and then, over India and the countries of the Middle East, the transition across the subtropics into European midlatitudes will be investigated. The aircraft are expected to return to Oberpfaffenhofen, Germany on December 16.

European Ozone Research Coordinating Unit

New results from Titan and Mars

from the Huygens and Mars Express missions

New findings from the Huygens and Mars Express missions were announced on the 30th of November, 2005, at a press conference in ESA Paris, coinciding with a number of scientific papers online in Nature and Science. Presentations and images are available on www.esa.int/marstitanresults.

The presentations include a set of new results from the Huygens probe's two-and-a-half hour descent and landing, part of the NASA/ESA/ASI Cassini-Huygens mission to Saturn and its moons, as well as results from Mars Express investigations of Mars. These include the first-ever probing below the surface of Mars, new geological clues with implications for the climate, newly-discovered surface and atmospheric features and traces of the presence of water ice on this world.

CRYOSAT mission outlook

ESA investigates possibilities to rebuild the lost satellite

Paris, 3 February 2006.- The European Space Agency, has outlined the conclusions of the investigations on the CRYOSAT launch failure on 8 October 2005.

In order to investigate the launcher failure, three commissions have been nominated:

- the "Russian State Commission", involving Russian representatives of military and civilian entities
- the "Eurockot-Khrunichev" commission, where ESA representatives have been invited.
- the "ESA Commission of investigation into the CryoSat launch failure" nominated by the ESA Director General and including external experts.

As the Rockot launcher design is based on the re-use of currently operational military components, some events could not be reported by the investigation Committees with full details.

Both the Russian State Commission and the ESA Commission have completed their work and issued reports. The Russian embargo on Rockot launches has been lifted, subject to the recommendations of the Russian State Commission being implemented.

On 8 October 2005, after a successful preparation of the satellite by the joint ESA and industrial teams, the CryoSat satellite was ready to be launched by a Rockot launch vehicle from the Plesetsk Cosmodrome. The launcher was operated by the Russian Space Forces and lift-off took place, on schedule, at 15h02 UTC.

Rockot is a 3-stage launcher formed by combining the 2-stage booster unit of the SS-19 Intercontinental Ballistic Missile with a manoeuvrable upper stage called Breeze-KM. The booster stages have flown 148 flights as the SS-19 of which 145 were successful. CryoSat was the sixth commercial launch of Rockot. The first two stages of Rockot are simple boosters which include no independent control system nor computer. All commanding, flight control and timing is performed by equipment in the Breeze stage. The first stage has four main engines and the second stage has one cruise engine and four small "vernier engines", with adjustable thrust direction, used for steering and for fine adjustments of the velocity prior to third stage separation.

At ESOC some of the launcher telemetry was available in real time. Progress of the launch sequence seemed to be nominal, with some drop-outs in the transmission of the telemetry. As expected, the downlink signal from the launcher was lost when the launcher passed beyond the horizon at Plesetsk, about 440 seconds after launch. After almost a full revolution (90 minutes after launch) the upper composite of CryoSat and the third-stage was expected to be acquired by the Redu ground station, with slightly later acquisition at Villafranca and then Kiruna. Separation would occur five minutes after nominal acquisition of signal, when the satellite would be in coverage of Kiruna. No signal was acquired. Searching and commanding was continued from 4 ground stations for the duration of the nominal pass, almost 20 minutes. Some 3 hours after launch, the ESOC Flight Control Team was informed of internet reports of a launch failure. Nevertheless, attempts to make contact with the satellite were maintained until the launch authorities made their definitive announcement of a launch failure, some 4 hours after launch.

In Plesetsk, there are two control centres: a military control centre located in the neighbourhood of the launch pad, operated by the Russian Space Forces, and the commercial Mission Control Centre (MCC) located 40 kilometres away. Preliminary investigations were immediately started by the Russian State Commission. Some 4 hours after liftoff,a debriefing finally took place in the MCC and ESA were informed that the satellite was lost. In the meantime some Russian spokesmen were given clearance to inform the media about the failure.

Cause of failure

A command to shut down the second stage cruise engine was triggered, + 284 s after launch, within the flight control system in the Breeze-KM, but it was not propagated to the second stage. The engine continued to burn a further 4 seconds. At this time the engine depleted the fuel while an oxidiser supply still existed. This resulted in an engine burn-through or other catastrophic event with the generation of large torques. The vernier engines tried to compensate and moved to their extreme hard-stop positions as they ran out of fuel (+ 291 s).

The torque caused deviations in pitch, roll and yaw. 10 s after the failed shut-down command, the pitch deviation achieved 30 degrees from nominal: the trigger to issue a mission failure command. This aborted further commands in the timeline, and in particular no command to separate the Breeze-KM was issued. The composite of second stage, fully fuelled Breeze-KM and CryoSat continued on an unpowered ballistic trajectory, tumbling in all axes. At the time of the failure the composite was travelling at 5.7 km/s at a height of 200 km. It achieved a height of 230 km before beginning to fall. At a height of some 50 – 60 km (+ 696 s), with a deceleration of about -26g, the temperatures of the composite reached the melting point of aluminium. The combination of the strong deceleration, degraded structural integrity and the build of pressure from the heated fluids caused the rupture of the fuel tanks at an altitude between 30 and 40 km (+ 726 s), with the explosive combination of the hypergolic propellants: 1.3 tonnes of UDMH and 2.7 tonnes of N2O4. The combination of the re-entry heat and the explosion completely destroyed CryoSat. Only massive, temperature resistant parts of the launcher itself, such as the combustion chamber, will have reached the surface, albeit heavily melted. The remains fell at the down-range periphery of the second stage drop zone, at 87 deg 45 min N, 70 deg 02 min E, at about + 806 s, just over 12 minutes after lift-off.

Prior to the failed second stage shut-down all telemetry showed a completely nominal flight. Everything was nominal until the failure to shut down the second-stage cruise engine. According to ESA officials, the direct cause of the failure has been unambiguously identified: the failure to shut down the second stage engine was caused by the incorrect interaction between the pre-burn pressurisation sequence of commands required prior to the start of the Breeze-KM engine and the overall flight control timeline. A mission-specific sequence of fixed commands, to be executed prior to the end of the second-stage flight, is required to prepare the pressurisation of the Breeze-KM fuel tanks. The sequence starts with a command to evacuate the pressurisation lines and ends with a command to stop measuring pressure. The command for the shut-down of the second stage cruise engine was issued 1.01 s before the command which stops the sampling of tank pressure values. Because the command to stop pressure sampling was not yet issued, the driver device required to send the engine shut-down command to the second-stage was not in the correct state. As a result the command was not sent to the second-stage and the engine continued firing.

This timing discrepancy did not exist for the previous launches of Rockot, which were all successful. The first four demonstration flight of Rockot had carried a maximum propellant load and therefore minimal ullage (free space in

the tanks). Consequently, the time required to pressurise the tanks was relatively short and the overall timing for these launches was fixed. Once Rockot began commercial flights the actual propellant load carried by Breeze-KM became variable, to optimise each mission. Consequently, the ullage became variable too and the time required for pressurisation also became variable. The whole sequence of commands associated with this pressurisation and sampling changed from mission to mission. The entire sequence of commanding for the pressurisation of CryoSat's Breeze-KM stage was later than for most other missions, and CryoSat had a longer pressurisation period than almost all others.

The Russian State Commission has made specific recommendations, which have to be implemented prior to resuming flights with Rockot, under Russian law. These address the specification and verification of the timeline for each mission. It is also stipulated that the next launch, Kompsat-2, will be scrutinised in detail to ensure that the measures have been correctly and completely implemented. The Russian State Commission has lifted the embargo on Rockot launches, subject to full implementation of its recommendations.

Outlook

In view of the strong interest shown by the scientific community for the CryoSat mission, ESA has started to investigate the possibilities to rebuild the lost satellite.

On 15 November 2005, the ESA Earth Observation Executive issued a "Plan for the Recovery of the CryoSat mission". This information note was presented and discussed during the 22-23 November session of the Programme Board for Earth Observation (PB-EO). No formal decision could be taken at that time, and the PB-EO requested the Executive to submit for the February 2006 meeting a consolidated proposal based on a quotation by industry to rebuild the satellite.

A further step will be the submission to the Industrial Policy Council of the Contract Proposal for the procurement of the satellite on March 2006.

Joint press release by the DFG and the MPG

DFG and MPG submitted a set of suggestions to the new German Federal Government

14 October 2005.- The Deutsche Forschungsgemeinschaft (German Research Foundation, DFG) and the Max Planck Society submitted the following suggestions to the new German Federal Government:

1. Strengthen scientific excellence

Both the federal and the state governments need to give scientific organisations and institutions increased creative freedom, promoting their potential to excel and enabling them to become more competitive at an international level. In order to fully exploit the potential of publicly funded research and obtain the added value that can be achieved through cooperation, university funding needs to be improved in the long-term and greater independence has to be given to the universities, particularly when it comes to issues such as budgets, student selection, appointments and (intellectual) property.

2. Create conditions that promote research

In order to stay at the forefront in an increasingly competitive global climate, scientists must be offered attractive employ-

ment and career prospects. This calls for a more cosmopolitan outlook and demands internationally competitive employment and salary regulations as well as the elimination of red tape, not least to attract scientists from abroad.

Certain legal and administrative obstacles to research also need to be overcome, for instance in the fields of genetic engineering, stem cell research and nuclear research.

3. Strengthen European research

The DFG and the Max Planck Society welcome the creation of a European Research Council (ERC) planned under the 7th EU Framework Programme. In order to ensure its acceptance by the European scientific community and enable it to promote innovation, we support the creation of an autonomous structure, governed by the scientific community itself and based on the principles of scientific excellence.

From a joint press release No. 69 by the DFG and the MPG

Reference url: http://www.dfg.de/en/news/press_releases/2005/press_release_2005_69.html

ESA/EC agreement on Earth Observation data signed today

Four fields in which ESA and the JRC undertake to work together in close cooperation

26 October 2005.- An agreement on space-based information services and access to, and provision of, Earth Observation data was signed today by ESA and the Joint Research Centre of the European Commission. The signature took place at ESRIN, the ESA Earth Observation Centre in Frascati, Italy.

Dr Volker Liebig, Director of ESA's Earth Observation Programme, signed the agreement on the 'Specific arrangement concerning the development of space-based information services and the access to and provision of Earth Observation data' on behalf of the ESA Director General, Jean-Jacques Dordain, while Mr Freddy Dezeure, Director of Programme and Resource Management of the EC Joint Research Centre (JRC), signed on behalf of the EC.

There are four fields in which ESA and the JRC undertake to work together in close cooperation:

* coordinating the use of Earth Observation satellite missions, in which they have a common interest
* developing services aimed at meeting the specific needs of end users (in particular in EU services)
* optimising access to support information for EC actions
* coordinating and providing technical support with regard to Earth observation activities within the European initiative INSPIRE (INfrastructure for SPatial InfoRmation in the European Union), whose objective is harmonising the methods employed by Member States to collect data on the geographical characteristics of their own territories.

The document signed today at ESRIN puts into effect many of the actions envisaged in the 'Framework Agreement between the European Union and the European Space Agency' in the field of Earth Observation, signed on 25 November 2003.

Venus Express succesfully launched

It will reach Venus next April

Paris, 9 November 2005.- The European spacecraft Venus Express has been successfully placed into a trajectory that will take it towards its destination of the planet Venus, which it will reach next April.

Venus Express will manoeuvre itself into orbit around Venus in order to perform a detailed study of the structure, chemistry and dynamics of the planet's atmosphere, which is characterised by extremely high temperatures, very high atmospheric pressure, a huge greenhouse effect and as-yet inexplicable "super-rotation" which means that it speeds around the planet in just four days. The European spacecraft will also be the first orbiter to probe the planet's surface while exploiting the "visibility windows" recently discovered in the infrared waveband.

The 1240 kg mass spacecraft was developed for ESA by a European industrial team led by EADS Astrium. It lifted off onboard a Soyuz-Fregat rocket, the launch service being provided by Starsem.

Contact with Venus Express was established by ESA's European Space Operations Centre (ESOC) at Darmstadt, Germany approximately two hours after lift-off. The spacecraft has correctly oriented itself in relation to the sun and has deployed its solar arrays. All onboard systems are operating perfectly and the orbiter is communicating with the Earth via its low-gain antenna.

Following on from the twenty or so American and Soviet missions to the planet carried out since 1962, Venus Express will endeavour to answer many of the questions raised by previous missions but so far left unanswered. It will focus on the characteristics of the atmosphere, its circulation, structure and composition in relation to altitude, and its interactions with the

planet's surface and with the solar wind at altitude.

To perform these studies, it has seven instruments onboard: three are flight-spare units of instruments already flown on Mars Express, two are from comet-chaser Rosetta and two were designed specifically for this mission.

The PFS high-resolution spectrometer will measure atmospheric temperature and composition at varying altitudes. It will also measure surface temperature and search for signs of current volcanic activity. The SPICAV/SOIR infrared & ultraviolet spectrometer and the VeRa instrument will also probe the atmosphere, observing stellar occultation and detecting radio signals; the former will in particular seek to detect molecules of water, oxygen and sulphuric compounds thought to be present in the atmosphere. The Virtis spectrometer will map the various layers of the atmosphere and conduct multi-wavelength cloud observation in order to provide images of atmospheric dynamics.

Assisted by a magnetometer, the ASPERA 4 instrument will analyse interaction between the upper atmosphere and the solar wind in the absence of magnetospheric protection such as that surrounding the Earth (for Venus had no magnetic field). It will analyse the plasma generated by such interaction, while the magnetometer will study the magnetic field generated by the plasma.

And the VMC camera will monitor the planet in four wavelengths, notably exploiting one of the "infrared windows" revealed in 1990 by the Galileo spacecraft (when flying by Venus en route for Jupiter), making it possible to penetrate cloud cover through to the surface. The camera will also be used to monitor atmospheric dynamics, notably to observe the double atmospheric vortex at the poles.

ESA Press Release
N° 50-2005

Research Funding opportunities in the field of Marine Coring Science

Following the agreement with Participating Organisations from Austria, Belgium, France, Germany, Ireland, the Netherlands, Norway, Portugal, Switzerland and the United Kingdom, the European Science Foundation is launching a Call for Outline Proposals for research projects to be carried out under the EUROCORES programme Challenges of Marine Coring Research (EuroMARC).

Following the agreement with Participating Organisations from Austria, Belgium, France, Germany, Ireland, the Netherlands, Norway, Portugal, Switzerland and the United Kingdom, the European Science Foundation is launching a Call for Outline Proposals for research projects to be carried out under the EUROCORES programme Challenges of Marine Coring Research (EuroMARC). The programme will run for three to four years and includes national research funding and a European networking component. Information on the programme is also available on the ESF website (http://www.esf.org/euromarc).

The EUROCORES (ESF Collaborative Research) Scheme is an innovative ESF instrument to stimulate collaboration between researchers based in Europe to maintain European research at an international competitive level. The principle behind the EUROCORES Scheme is to provide a framework for national research funding organisations to fund collaborative research, in and across all scientific areas. Participating funding agencies (national research councils and academies and other funding organisations) jointly define a research programme, specify the type of proposals to be requested and agree on the peer review procedure to be followed. The ESF provides support for the networking of funded scientists while the funding of the research stays with national research funding organisations. Further background information on EUROCORES Scheme may be found on the ESF web site (www.esf.org/eurocores).

As a first step, Outline proposals are invited by 12 March 2006. These should include a scientific rationale of up to 1200 words. As a second step, Full proposals will be invited on the basis of recommendations of the Review Panel after the sifting. The deadline for full proposals is expected to be 25 June 2006.

ESF

Highly resolved observations of trace gases in the lowermost stratosphere and upper troposphere

For H_2O the maximum concentrations in the LMS are found during summer, suggesting unique (temperature- and convection-controlled) conditions for this molecule during transport across the tropopause.

During SPURT (Spurenstofftransport in der Tropopausenregion, trace gas transport in the tropopause region) the authors performed measurements of a wide range of trace gases with different lifetimes and sink/source characteristics in the northern hemispheric upper troposphere (UT) and lowermost stratosphere (LMS). A large number of in-situ instruments were deployed on board a Learjet 35A, flying at altitudes up to 13.7 km, at times reaching to nearly 380 K potential temperature. Eight measurement campaigns (consisting of a total of 36 flights), distributed over all seasons and typically covering latitudes between 35° N and 75° N in the European longitude sector (10° W–20° E), were performed. Here we present an overview of the project, describing the instrumentation, the encountered meteorological situations during the campaigns and the data set available from SPURT.

Measurements were obtained for N2O, CH4, CO, CO2, CFC12, H2, SF6, NO, NOy, O3 and H2O. The authors illustrate the strength of this new data set by showing mean distributions of the mixing ratios of selected trace gases, using a potential temperature-equivalent latitude coordinate system. The observations reveal that the LMS is most stratospheric in character during spring, with the highest mixing ratios of O3 and NOy and the lowest mixing ratios of N2O and SF6. The lowest mixing ratios of NOy and O3 are observed during autumn, together with the highest mixing ratios of N2O and SF6 indicating a strong tropospheric influence. For H2O, however, the maximum concentrations in the LMS are found during summer, suggesting unique (temperature- and convection-controlled) conditions for this molecule during transport across the tropopause.

The SPURT data set is presently the most accurate and complete data set for many trace species in the LMS, and its main value is the simultaneous measurement of a suite of trace gases having different lifetimes and physical-chemical histories. It is thus very well suited for studies of atmospheric transport, for model validation, and for investigations of seasonal changes in the UT/LMS, as demonstrated in accompanying and elsewhere published studies.

The full article is available online free of charge at http://www.copernicus.org/EGU/acp/acp/6/283/acp-6-283.pdf

A. Engel et al., Highly resolved observations of trace gases in the lowermost stratosphere and upper troposphere from the Spurt project: an overview, Atmos. Chem. Phys., 6, 283-301, 2006.

Daily ionospheric forecasting service (DIFS) III

Using a number of ionosonde measurements and geomagnetic and solar values, a Daily Ionospheric Forecasting Service (DIFS) has been developed.

The daily variability of the ionosphere can greatly affect HF or SATCOM communications. HF skywave operators plan frequency schedules months in advance, however, they also require daily knowledge of the ionospheric conditions in order to modify assignments. SATCOM operators also require daily information about the levels of scintillation, which are variations in phase, amplitude, polarisation and angle of arrival that can cause severe degradation of the received signal.

Using a number of ionosonde measurements and geomagnetic and solar values, a Daily Ionospheric Forecasting Service (DIFS) has been developed, which provides HF and SATCOM operators with daily forecasts of predicted ionospheric conditions. The system uses in-house algorithms and an externally developed Global Ionospheric Scintillation Model (GISM) to generate HF and SATCOM forecasts. HF forecasts consist of a past summary and a forecast section, primarily displaying observed values and predicted categories for the Maximum Usable Frequency (MUF), as well as an Ionospheric Correction factor (ICF) that can be fed into the ionospheric propagation prediction tool, WinHF. SATCOM forecasts give predictions of global scintillation levels, for the polar, mid and equatorial latitude regions. Thorough analysis was carried out on DIFS and the results conclude that the service gives good accuracy, with user feedback also confirming this, as well.

N. Butcher, Daily ionospheric forecasting service (DIFS) III, Annales Geophysicae 23, 3591 - 3598, 2005.

Obituary

Michel Frankignoulle (1957-2005)

Michel had for life and mankind the same level of passion than for science. Throughout his life, he fought against intolerance, injustice and pre-conceived ideas at all ideological, political and scientific levels. All of his close collaborators and friends will continue to cherish his philosophy.

Michel Frankignoulle graduated in Chemistry from the University of Liège (Belgium) in 1981. He completed his Ph.D. in 1986 in the laboratory of Professor Albert Distèche and became a Research Associate at the Fonds National de la Recherche Scientifique (FNRS) in 1989. He defended his aggregation thesis in 2003, and became a Senior Research Associate at the FNRS in 2004.

Michel carried out his Ph.D. research in the Bay of Calvi (Corsica) where he developed in situ pH probes which allowed him to tackle a wide range of research themes such as dissolved inorganic carbon dynamics, eddy diffusion in the water column, gas transfer velocity, carbonate buffer factors, and ecosystem metabolism. The latter led him to team up with Jean-Pierre Gattuso on pioneering studies of carbon dynamics in coral reefs. Together they showed that coral reefs are net sources of CO2 to the atmosphere, based on experimental and theoretical approaches. They also showed that a decrease in calcium carbonate saturation state would lead to a decrease in calcification, and hence act as a potential negative feedback on the increase of atmospheric CO2. The effect of ocean acidification on marine biogeochemistry, air-sea CO2 fluxes and climate change has become a hot research topic partly as a result of these earlier studies.

In the early 1980's, Michel met Roland Wollast and in the early 1990's they worked on CO2 dynamics in the Scheldt estuary. Their close collaboration was one of the cornerstones of the BIOGEST (Biogas Transfer in Estuaries) project that allowed quantifying rigorously the fluxes of biogases (and in particular greenhouse gases) between temperate tidal estuaries and the atmosphere. Michel was the first to demonstrate the significance of CO2 emissions from estuaries in the global carbon cycle.

Michel also extensively worked in the North Sea and the Gulf of Biscay in collaboration with Roland Wollast, in the framework of several projects among which OMEX (Ocean Margin Exchange). Results of the BIOGEST and OMEX projects pointed towards the significance of the coastal ocean in the global carbon and CO2 cycles, a topic which presently receives a growing attention.

More recently, Michel's love of adventure and dedication to discovery led him to work on CO2 dynamics in tropical estuaries and mangrove environments. He left the comfortable European research vessels for pirogues and creeks infested by mosquitoes, yet with his long-lived determination and unaltered enthusiasm to point out the biogeochemical significance of low-latitude coastal areas.

With Roland Wollast, Jean-Pierre Gattuso, Jack J. Middelburg and Carlos M. Duarte, among others, he investigated, in the framework of the EUROTROPH (Nutrients Cycling and the Trophic Status of Coastal Ecosystems) project, past and future changes of ecosystem metabolism and CO2 fluxes in coastal environments related to pollution and eutrophication. This is also become a hot topic in coastal biogeochemistry.

Michel had for life and mankind the same level of passion than for science. Throughout his life, he fought against intolerance, injustice and pre-conceived ideas at all ideological, political and scientific levels. All of his close collaborators and friends will continue to cherish his philosophy.

His wife, his three daughters, his numerous friends and colleagues will sorely miss "Miche" as we all called him.

Alberto Borges and Bruno Delille
University of Liège, Belgium

The EGU Biogeosciences Division is very sad with the announcement above that Michel Frankignoulle passed away. Michel was a founding member of the Biogeosciences section of the European Geophysical Society which became the Biogeosciences division of EGU. He was in charge of coastal biogeochemistry and helped to organize exciting sessions at the general assemblies. Our community has lost a prominent scientist and a good friend. The Biogeosciences Division expresses its sympathy to his wife, Christine, three daughters, Cassandre, Melissa and Ségolène, and to all friends, associates and colleagues of Michel.

EGU BG Committee

Influence of a Star flare
on the Sun-Earth environment and its possible relationship with snowfall

by Saumitra Mukherjee

Star flares during low Planetary Indice (Kp) and low Electron flux (E-flux) conditions of the Sun-Earth environment might result in lowering further the magnetic field as well as the electron flux through the repulsion of the magnetic field in the Sun-Earth environment by star flares. The E-flux variation will in turn induce variations in the production of ionospheric currents. Ionospheric currents are produced by geomagnetic storms originating from the star-sun-earth environment. Can ionospheric current variations have an influence on atmospheric temperature? On 25th December 2004, hailstorm and snowstorm were reported in large areas in the northern hemisphere, while in the tropics a sudden drop of temperatures has led to foggy and smoggy conditions. This temperature variation is different in different parts of the earth as a possible effect of the solar flare would be dependent on the geomagnetic coordinates.

Introduction

Our planet is a part of our solar system, our galaxy and the universe. All members of these systems are interactive, interdependent and interrelated. The solar radiation that reaches the earth is dissipated in one of the following ways: reflection, absorption, or scattering. Part of the solar radiation reaching the earth is absorbed by the earth and part of it is returned back. Radiation returning from the earth is absorbed or scattered by atmosphere (Donn, 1965). The sun is the chief driving force for terrestrial climate, the climatic variation in different parts of the earth determined primarily by their respective positions to the sun rays. Sunspots and earth-directed coronal mass ejections from sun also seem to influence the global climate. Changes in glacial deposition have been found to be in phase with changes in the orbital path of earth. More elusive has been a definite answer to the question of whether or not variations in the sun's plasma emissions are capable of influencing the weather and climate at the earth's surface. Global warming in this century has corresponded with lowered cosmic ray intensities. Cosmic rays help the formation of dense clouds in the lower atmosphere while having a small negative effect on cloud cover in the upper atmosphere. The low clouds retain more surface energy, keeping the surrounding air hot, while the high clouds reflect more sunlight into space keeping the upper atmosphere cooler (Yu, 2004). NASA scientists have first attempted to correlate the Sun with the climate by modeling the sensitivity of the atmosphere and climate to different forcings (Lean and Rind, 1996). The solar magnetic field is the major parameter needed to reconstruct the secular variation of the cosmic ray flux impinging on the terrestrial atmosphere, since a stronger solar magnetic field more efficiently shields the earth from cosmic rays. Further, it has been stated that cosmic rays affect the total cloud cover of the earth and thus provide a driver for the terrestrial climate, although the physical mechanism underlying the link is still poorly understood. This points to the need for a more rigorous and through study of the link between sun and climate change (Solanki et.al., 2000). In the later part of the 19th century, there were many claims of newfound connections between sunspots and climate. It began with the announcement by the amateur astronomer Heinrich Schwabe, in 1843, that sunspots come and go in an apparently regular eleven-year cycle. What followed was a flood of reported correlations, not only with local and regional weather but with crop yields, human health, and economic trends. These purported connections frequently broke down under closer statistical scrutiny and lacked the buttress of physical explanations and were in time forgotten or abandoned. The Chandra X-ray Observatory has seen X-ray outbursts from a young star in McNeil's nebula, which have helped to show that its magnetic field is interacting with an orbiting disk of gas, causing it to flare up intermittently (Kastner et.al., 2004).

An attempt has been made in this paper to highlight the influence of star flares on the Sun-earth environment. Decreases

in magnetic values and electron flux are also noticed after the earth directed starstorm (NASA News, 2004; Fig. 1). These geophysical parameters, e.g. the E-flux, seem to have some relationship with the snowfall in higher latitudes and higher altitudes of lower latitudes on the 25th of December, 2004. Rainfall and development of fog, and smog on lower altitudes of lower latitude have also been recorded on the same day.

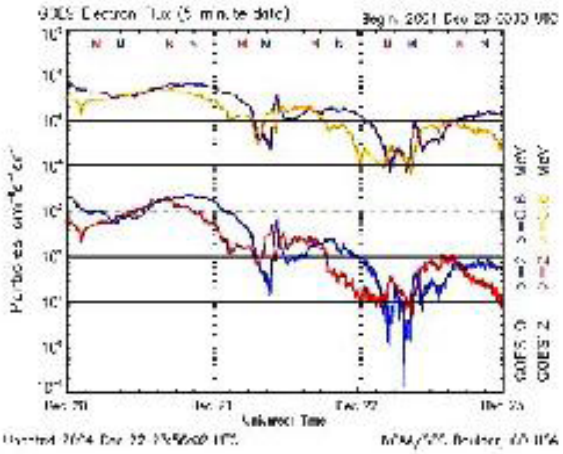

Figure.1. Sudden fall of Electron Flux 36-40 hours before snowfall (SOHO satellite data). Courtesy SOHO/NASA to the author.

Hypothesis

Although the Sun is known to be a variable star, its total output of radiation is often assumed to be very stable and hence its variations have negligible possible impact on climate. Testimony to this assumption is the term that has been employed for more than a century to describe the radiation in all wavelengths received from the Sun, the so-called solar constant, whose value at the mean Sun-Earth distance is a little over 1.37 kW / m² per unit of surface. But in truth, the solar constant varies (Lassen and Friis, 1995).

Sunspots and other forms of solar activity are produced by magnetic fields and their changes affect the radiation emitted by Sun, including its distribution among shorter and longer wavelengths. The Earth has a magnetic field with north and south poles. The magnetic field of the Earth is enclosed in a region surrounding the Earth called the magnetosphere. As the Earth rotates, its hot core generates strong electric currents, which produce the magnetic field. This field reaches 36,000 miles into space. The magnetosphere prevents most of the particles from the sun, carried in solar wind, from impacting the Earth. A star storm distorts the shape of the magnetosphere by compressing it at the front and causing a long tail to form on the side away from the Sun. This long tail is called the magnetotail. The Star storm and Sun storm can enter through magnetic shield and influence the atmosphere.

Discussion

After more than a century of controversy, solar variability effects on the climate of the Earth remains a very active research field. Present work attempts to establish a new hypothesis on Star-Sun-Earth atmospheric interactions and opens a new horizon for more accurate weather prediction research. Bjorck and colleagues (Bjork et al., 2001) proposed that a weakening of solar activity might have caused a mini chill. It coincided, they find, with a large increase in the amount of beryllium-10 trapped in Greenland ice, which is an evidence of a solar flicker. This radioactive form of beryllium is produced when cosmic rays from space collide with nitrogen and oxygen atoms in the atmosphere. The magnetic field around the Earth shields the planet from cosmic rays. This field is stronger when the sun is more active i.e., emitting more ultraviolet radiation and displaying more sunspots, hence fewer cosmic rays can penetrate (Bjorck, et al., 2001).

Star-Sun influence on the Earth's atmosphere

For hailstorm, snowstorm or heavy cloud formation, it is essential that the Earth's atmosphere should contain enough micron-sized aerosol particles to act as cloud condensation nuclei. Data on a star storm show that hailstorms have developed in various parts of the globe after the star storm (NASA, 2004). Since early 1992, Ulysses has been monitoring the stream of stardust flowing through our Solar System. The stardust is embedded in the local galactic cloud through which the Sun is moving at a relative speed of 26 kilometers per second. As a result of this relative motion, a single dust grain takes twenty years to traverse the Solar System. Observations by the DUST experiment onboard Ulysses have shown that the stream of stardust is highly affected by the Sun's magnetic field. In most of the 1990s, this field, which was drawn out deep into space by the out-flowing solar wind, kept most of the stardust out. The most recent data, collected up to the end of 2002, show that this magnetic shield has lost its protective power during the recent solar maximum. It has been reported that about three times more stardust is now able to enter the Solar System (Max Plank News release, 1999). The reason for the weakening of the Sun's magnetic shield is the increasing solar activity, which leads to a highly disordered field configuration. In the mid-1990s, during the last solar minimum, the Suns magnetic field resembled a dipole field with well-defined magnetic poles (North positive, South negative), very much like the Earth. Unlike Earth, however, the Sun reverses its magnetic polarity every 11 years. The reversal always occurs during solar maximum. That's when the magnetic field is highly disordered, allowing more interstellar dust to enter the Solar System. It is of interest to note that in the reversed configuration after the recent solar maximum (North negative, South positive), the interstellar dust is even channeled more efficiently towards the inner Solar System.

It is expected that more interstellar dust will occur from 2005 onwards, but it had already appeared in December 2004. The sun has entered the zodiac's 13th house: An interstellar wind hit our planet. It's a helium-rich breeze from the stars, flowing into the solar system from the direction of Ophiuchus (NASA 2004). The Sun's gravity focuses the material into a cone and Earth passes through it during the first weeks of December. Earth was inside the cone during 25th December, 2004. Grains of stardust are very small, about one hundredth the diameter of a human hair, move very fast, and produce large numbers of fragments when they impact asteroids or comets. It is, therefore, conceivable that an increase in the amount of interstellar dust in the Solar System will create more cosmic dust by collisions with asteroids and comets. We know from measurements by high-flying aircraft that around 40,000 tn of interplanetary dust enters the Earth's atmosphere each year. It is possible that the increase of stardust in the Solar System will influence the amount of extraterrestrial material that rains

down to Earth (ESA Science News, 2003).

How the Earth's surface temperature adjusts to a given change in solar radiation, depends on the processes by which the climate system responds to variations in the energy it receives. Some of these factors amplify the effects of changes that are imposed; others reduce them. Lumped together, they make up what is called the sensitivity of the climate system, which indicates the number of degrees by which the mean-surface temperature will be raised or lowered in response to a given change, up or down, in solar and/or extra terrestrial radiation or any other climate driver. To understand the impacts of star-solar variations on climate we need to know how much the star-solar inputs vary, and how the climate system responds to these changes. The sensitivity of climate to solar radiation changes, as defined earlier, is not well known. A conservative estimate is that a 0.1 % change in solar total radiation will bring about a temperature response of 0.06 to 0.2° C, providing that change persists long enough for the climate system to adjust. This could take 10 to 100 years. Changes in the visible and infrared part of the solar spectrum alter the surface temperature by simple heating; other parts of the spectrum can also affect climate, although their paths of influence are less direct. We know, for example, that the enhanced UV radiation that pours outward from the Sun at times of high solar activity increases the amount of ozone in the stratosphere through increased dissociation of molecular oxygen. At times of minima in the eleven-year cycle of the Sun, ozone is decreased. It has been also known that ozone contributes to climatic change (Lean and Rind, 1996).

Solar radiation received at the Earth can vary by means that are unrelated to any changes on the Sun itself. The best studied of these are very long-term changes in the Earth's orbit around the Sun, which alter the distribution of sunlight both geographically and seasonally. They are now believed to trigger the coming and going of the major Ice Ages. As such, they may provide a powerful demonstration of the impacts of changes in solar radiation on the climate system. The changes involved arise from gradual shifts in the shape and orientation of the Earth's orbit around the Sun, and in the present 23.5 deg tilt of the Earth's axis of rotation. These cyclic changes, brought about by the changing gravitational pull of the other planets and the Moon, introduce periods of about 19, 23, 41, and 100 thousand years in the distribution of sunlight over the globe. The total annual dosage, averaged over the entire surface, varies by up to 0.1 percent, while more specific, seasonal changes at any place can reach a few percent. Such changes are apparently sufficient to trigger major changes in climate, hence implying that the Earth's climate system may be more sensitive to small solar irradiance perturbations than one might think. Climate simulations are as yet unable to account for the unexpectedly prominent 100 kyear periodicity in the record of past climate. This long period is associated with oscillations in the eccentricity of the Earth's orbit. Changes in the Sun-Earth distance directly affect the amount of solar radiation incident on the Earth in different parts of the year. Changes in the activity of the Sun itself could exert a similar effect. Such studies of solar perturbations can serve the broader cause as diagnostic probes of the atmosphere and climate system. Ambiguities regarding projected greenhouse warming call in much the same way for clearer information regarding the role of the Sun as a possibly important contributor to the current warming trend. Climate simulations using only greenhouse gas changes predict a warming that exceeds 0.5°C as documented in the instrumental record of the past 140 years. The reason behind the difference between the observed and the predicted values may be because not all natural and anthropogenic forcings are considered in the models. If variations in the output of the Sun are indeed limited to the tenth of a percent that is recorded in direct measurements, future solar changes will likely have but a small effect on the surface warming of a few degrees that is expected to result from doubled concentrations of greenhouse gases. If we consider Sun-Earth-climate connections observed in the past, we may think that star flares could potentially alter the anticipated effects of carbon dioxide and other greenhouse gases on the surface temperature of the Earth.

In January 2002, Unicorn, a moderately dim star in the Monoceros constellation, the Unicorn, suddenly became 600 000 times more luminous than our Sun. This made it temporarily the brightest star in the Milky Way. The light from this eruption created a unique phenomenon known as a 'light echo' when it reflected off dust shells around the star. This phenomenon was followed by hailstorm in northern hemisphere. Further, in the month of December, 2004, Unicorn repeated a similar phenomenon. It may be noted that the sudden snowfall on the northern hemisphere continents on the 25th of December, 2004 has sufficient bearing on Star-Sun-Earth's atmosphere interaction.

Conclusion

Sun-Earth environment Kp (planetary indices), proton flux and electron flux exhibit changes. Sudden changes in these parameters may influence the environment of the earth abruptly. If an E-flux rise is responsible for global warming, then an E-flux lowering may lead to snowfall. On the 22nd of December 2004, a sudden fall in the electron flux was recorded by the SOHO satellite (Fig. 1). Widespread snowfall was recorded in United Kingdom on the 25th of December 2005 (Aberdeen, London, Birmingham, Manchester, Cardiff, Belfast, Crosby, Woodford –Source: Meteorological Office, U.K. and BBC Weather News.). A subsequent rise of the E-flux normalised the condition. The starflare might have influenced the E-flux and thus cased snowfall on 25th December 2004. Similar observations were noticed in other parts of the world also. Widespread snowfall was recorded in other parts of the world on the 25th of December 2005 and further on the 23rd of February 2005. Houghton, MI, Mauna Loa at Hawaii, Boston and New York in the U.S.A., received very high snowfall; Tehran in Iran received also snowfall; Queensland in Australia experienced a cyclone with cold wave; Jammu and Kashmir, Shimla, India experienced a cold wave and received snowfall (Source: Meteorological Office, U.K., BBC Weather News, UK, and NOAA, USA). These weather conditions were anomalous and were accompanied by low Kp indices and low E-flux conditions.

We suggest that regular monitoring of Star flares and their influence on the Sun-Earth environment may lead to more accurate weather prediction.

Acknowledgements

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The Editor would like to note that although this paper presents very preliminary and limited observations, it was published following our policy of providing an open forum for new ideas.

Integration of the New EU Member Countries into the GMES Programme

Conference conclusions and recommendations

by Dr. Jean Bruston

The Eurisy Conference 'Integration of the New EU Member Countries into the GMES Programme' took place 12-14 December 2005 in Warsaw, Poland. The Conference was co-organised with the Space Research Centre of Polish Academy of Sciences and co-sponsored by the European Commission, ESA, CNES, DLR, and ESPI.

CONCLUSIONS

The Warsaw Conference on "Integration of the new EU Member Countries into the GMES Programme" was attended by around 160 experts from space and user institutions, infrastructure and service industry, research centers and academia. More than 40% of the audience was from outside the space sector, and about half of the participants came from new Member Countries.

The Conference focused on active participation of the New EU Members States (NMS) in the future development and application of GMES. It is the second in a series of GMES-related conferences following the Berlin event and preceding the Toulouse and Budapest ones, concluding with the Graz Conference to be held in April 2006.

The participants acknowledged with satisfaction the outcome of the European Union Space Council (Nov 28 2005) and the ESA Council meeting at ministerial level (Dec 5/6 2005) at which a GMES programme was presented to Member States. In particular, the decision of the ESA Council to launch the first phase of the optional GMES programme with an over subscribed budget was welcomed by the participants who saw it as a strong encouragement of their effort toward building and integrating operational services. The formal invitation by the ESA Council meeting at ministerial level to countries from new EU member states to join the programme as fully participating states was received with great enthusiasm and underlined the relevance of the Conference. However, the participants expressed their wish to see a greater commitment of the EU Member States, supporting the swift implementation of GMES through the European Commission.

During the discussion, the participants agreed that the involvement of user organisations, research institutions and industry from the New EU Member States in GMES is essential for ensuring the success of this programme in the enlarged Europe. A number of stake holders from the NMS, most notably user organizations and service industries, already participate in both the ESA and EC GMES projects. Their involvement is presently limited to land and ocean GMES projects, but must be extended to the GMES security projects such as RISK-EOS, LIMES and PREVIEW. Participants were convinced that industries in the New Member States have all the required skills to participate as active players within GMES. In particular, Industrial leaders already active in GMES welcomed the participation of NMS industry in all roles within GMES, including space and ground hardware, distribution/ processing /calibration, validation and service provision. However, the potential of New Member States in GMES is still not fully exploited, and there is a pressing need to increase the involvement of New Member States actors in GMES.

For this purpose, a resources and dedicated framework need to be made available and accessed within the institutional set-up. The key GMES European-level stakeholders including EC and the JRC, ESA, EUMETSAT, EUSC and EEA are all developing new links and enlarging their respective membership and cooperation with NMS national organizations. This clearly sets the long-term institutional and programmatic framework for GMES.

Priority should be given to making full use of existing programmatic and funding mechanisms to achieve this, including national funding from the New Member States, activation of the ESA PECS (Plan for European Cooperating States) mechanism, access to funds available through EC Programmes, and involvement of NMS organizations in GMES.

RECOMMENDATIONS

The following specific recommendations emerged from the discussions that took place during the meeting:

1) The formal integration of the New EU Member States to the GMES programme needs to be accelerated in order to set-up the mechanisms facilitating collaboration at all levels. In particular, ESA and officials from the New EU Member States are invited to accelerate their efforts toward reaching agreements, either via the PECS mechanism or the "Programme participation" mechanism of ESA.

2) The legal framework related to Earth Observation applications, either at National or EU level, does not support the development of services. The European Commission and National Legislators are invited to undertake a careful screening of existing legislation and required adaptations, following for example the case of the water framework regulations.

3) In particular, the timely availability, the pricing and licensing of data, services and products are critical for the deployment of GMES, and need to be foreseen in the respective legal instruments.

4) Partnerships are seen as a key factor for the development of the GMES Programme in general and the integration of the new EU Member States in particular. It was recognised that in addition to national and EU levels, the regional (sub-national) level and cross borders (adjacent) coordination and applications are essential and need to be supported. The GMES institutional actors, in particular the EC and ESA, are invited to foster the development of specific downstream services through bilateral partnerships of new Member States' and old Member States' institutions.

On behalf of the Programme Committee,

Dr. Jean Bruston, Secretary General, Eurisy
3-5 rue Mario Nikis, 75015 Paris
Tel. + 33 1 47 34 00 79
jean.bruston@eurisy.org

EGU Assembly

Vienna, Austria, 2-7 April 2006

Check the meeting website

http://meetings.copernicus.org/egu2006/

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Meeting Programme

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Presentation of Union Awards & Medals

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Great Debates in the Geosciences

Townhall Meetings

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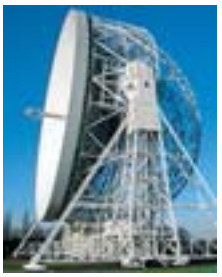
CRAF Handbook for Radio Astronomy



Authors: Jim Cohen, Titus Spoelstra, Roberto Ambrosini and Wim van Driel (eds.)
Publisher: ESF
ISBN: -
YEAR : 2005
EDITION : 3rd
PAGES : 171
PRICE : 0.00 €

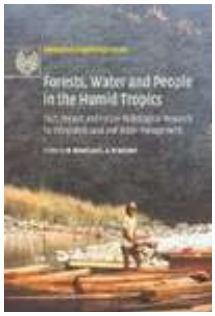
The 171-page book is available online as pdf at http://www.esf.org/medias/section_5/194/CRAFHandbook3.pdf

Ecohydrology of Water-controlled Ecosystems-Soil moisture and Plant Dynamics

Authors: Ignacio Rodriguez-Iturbe, Amilcare Porporato
Publisher: Cambrgidge University Press
ISBN: 0521819431
YEAR : 2004
EDITION : 1st
PAGES : 442
PRICE : 116.00 €

Ecohydrology of Water-controlled Ecosystems addresses the connections between the hydrologic cycle and plant ecosystems, with special emphasis on arid and semi-arid climates. This modern and important topic is treated by building suitable mathematical models of the physics involved and then applying them to study the ecosystem structure and its response to rainfall and climate forcing in different parts of the world, including savannas, grasslands and forests. It investigates the vegetation response to water stress (drought), the hydrologic control on cycles of soil nutrients, and the dynamics of plant competition for water. The book also offers insights into processes closely related to soil moisture dynamics, such as soil-atmosphere interaction and soil gas emissions. This book will appeal to advanced students and researchers from a large range of disciplines, including environmental science, hydrology, ecology, earth science, civil and environmental engineering, agriculture, and atmospheric science.

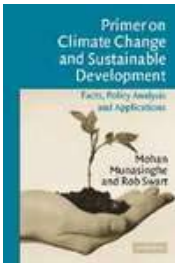
Forests, Water and People in the Humid Tropics



Authors: M. Bonell, L. A. Bruijnzeel (eds.)
Publisher: Cambridge University Press
ISBN: 0521829534
YEAR : 2005
EDITION : 2nd
PAGES : 944
PRICE : 253.00 €

Forests, Water and People in the Humid Tropics is the most comprehensive review available of the hydrological and physiological functioning of tropical rain forests, the environmental impacts of their disturbance and conversion to other land uses, and optimum strategies for managing them. The book brings together leading specialists in such diverse fields as tropical anthropology and human geography, environmental economics, climatology and meteorology, hydrology, geomorphology, plant and aquatic ecology, forestry and conservation agronomy. The editors have supplemented the individual contributions with invaluable overviews of the main sections and provide key pointers for future research. Specialists will find authenticated detail in chapters written by experts on a whole range of people-water-land use issues, managers and practitioners will learn more about the implications of ongoing and planned forest conversion, while scientists and students will appreciate a unique review of the literature.

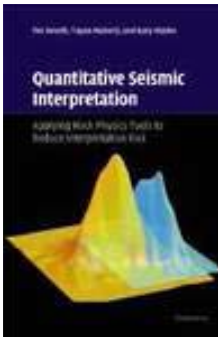
Primer on Climate Change and Sustainable Development: Facts, Policy Analysis, and Applications



Authors: Mohan Munasinghe, Rob Swart
Publisher: Cambridge University Press
ISBN: 0521008883
YEAR : 2005
EDITION : 1st
PAGES : 458
PRICE : 43.10 €

Climate change and variability has become the primary environmental concern of the 21st Century. The potential impacts and mitigation of climate change need to be analyzed within the context of sustainable development. Primer on Climate Change and Sustainable Development presents a condensed and accessible review of the latest state-of-the-art assessments of the Intergovernmental Panel on Climate Change. The book begins with a foreword from the chair of the IPCC. Our current knowledge of the basic science of climate change is described, before moving on to future scenarios of development within the context of climate change. Possible adaptation and mitigation measures, including cost and benefit analysis, are discussed. The book will be an invaluable textbook for students of environmental science and policy, and researchers and policy makers involved in all aspects of climate change.

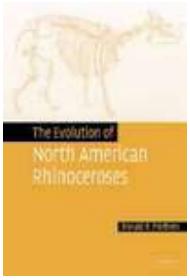
Quantitative Seismic Interpretation: Applying Rock Physics Tools to Reduce Interpretation Risk



Authors: Per Avseth, Tapan Mukerji, and Gary Mavko
Publisher: Cambridge University Press
ISBN: 0521816017
YEAR : 2005
EDITION : 1st
PAGES : 376
PRICE : 129.30 €

Quantitative Seismic Interpretation demonstrates how rock physics can be applied to predict reservoir parameters, such as lithologies and pore fluids, from seismically derived attributes. The authors provide an integrated methodology and practical tools for quantitative interpretation, uncertainty assessment, and characterization of subsurface reservoirs using well-log and seismic data. They illustrate the advantages of these new methodologies, while providing advice about limitations of the methods and traditional pitfalls. This book is aimed at graduate students, academics and industry professionals working in the areas of petroleum geoscience and exploration seismology. It will also interest environmental geophysicists seeking a quantitative subsurface characterization from shallow seismic data. The book includes problem sets and a case-study, for which seismic and well-log data, and Matlab codes are provided on a website (http://publishing.cambridge.org/resources/0521816017). These resources will allow readers to gain a hands-on understanding of the methodologies.

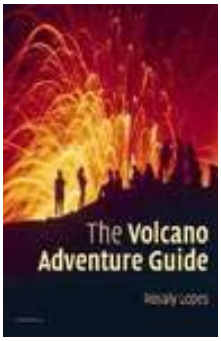
The Evolution of North American Rhinoceroses



Authors: Donald R. Prothero
Publisher: Cambridge University Press
ISBN: 0521832403
YEAR : 2005
EDITION : 1st
PAGES : 228
PRICE : 86.20 €

The family Rhinocerotidae has a long and amazing history in North America. From their first appearance about 40 million years ago, they diversified into an incredible array of taxa, with a variety of ecologies that don"t resemble any of the five living species. They ranged from delicate long-legged dog-sized forms, to huge hippo-like forms that apparently lived in rivers and lakes. This book includes a systematic review of the entire North American Rhinocerotidae, with complete descriptions, measurements, and figures of every bone in every species - the first such review in over a century. More importantly, it discusses the biogeographic patterns of rhinos, their evolutionary patterns and paleoecology, and what rhinos tell us about the evolution of North American landscapes and faunas over 35 million years. It is a complete and authoritative volume that will be a reference of interest to a variety of scientists for years to come.

The Volcano Adventure Guide

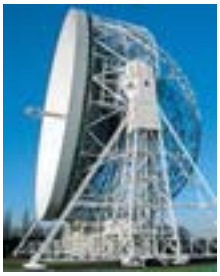


Authors: Rosaly Lopes
Publisher: Cambridge University Press
ISBN: 0521554535
YEAR : 2005
EDITION : 1st
PAGES : 362
PRICE : 43.50 €

The Volcano Adventure Guide is the first book of its type. It contains vital information for anyone wishing to visit, explore, and photograph active volcanoes safely and enjoyably. Following an introduction that discusses eruption styles of different types of volcanoes, how to prepare for a volcano trip, and how to avoid volcanic dangers, the book presents guides to visiting 42 different volcanoes around the world. This section is packed full of practical information including tour itineraries, maps, transportation details, and warnings of possible non-volcanic dangers. Three appendices at the end of the book direct the reader to a wealth of further volcano resources. Aimed at non-specialist readers who wish to explore volcanoes without being foolhardy, it will fascinate amateur enthusiasts and professional volcanologists alike. The stunning colour photographs throughout the book will delight armchair travellers as well as inspire the adventurous to get out and explore volcanoes for themselves.

The Committee on Radio Astronomy Frequencies (CRAF) published recently this 3rd edition

CRAF Handbook for Radio Astronomy



Jim Cohen, Titus Spoelstra, Roberto Ambrosini and Wim van Driel (eds.)
Published by: ESF
ISBN: -
YEAR : 2005
EDITION : 3rd
#PAGES : 171
PRICE : 0.00 €

The ESF Expert Committee on Radio Astronomy frequencies, CRAF, was established in 1988 to coordinate the European efforts for the protection of radiospectrum ands used by the Radio Astronomy Service and other passive applications.

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Progress in technology, which has made possible all kinds of advanced astrophysical research, now threatens to render this research impossible from the surface of the Earth. Radio transmissions from terrestrial, airborne and space-based stations are proliferating in ever increasing numbers for a multitude of purposes. The pressure on the authorities to make radio spectrum available for all newly invented applications of radio, e.g. various space systems, high altitude platform stations (HAPSs), digital broadcasting, power line communications, ultra-wide band technology and vehicular short range radar, is tremendous.

This Handbook reviews the needs of the Radio Astronomy Service and the measures required for its continued protection. The Handbook has been prepared by the Committee on Radio Astronomy Frequencies of the European Science Foundation in Strasbourg, CRAF. It provides a comprehensive review of matters related to spectrum management and the protection of the science of Radio Astronomy against harmful interference. The review is placed within the historical and technological context within which the Radio Astronomy Service operates. This book is intended for a wide readership. It aims to provide a bridge between the professional radio astronomical community and professional radio spectrum managers with no previous background in astronomy.

The 171-page book is available online as pdf at http://www.esf.org/medias/section_5/194/CRAFHandbook3.pdf

Online ocean colour tools

http://www.borstad.com/grip.html

Borstad Associates Ltd have created a number of web-based ocean-colour visualization tools. These online tools are now publicly accessible at: http://www.borstad.com/grip.html

The project was funded by the Department of Fisheries and Oceans, the Department of Environment and the Canadian Space Agency.

One of the tools is a temporal profiler using SeaWiFS 8-day global composite data for the period spanning August 28 1997 through October 31 2004. The map currently spans from -180 to 0 degrees West Longitude and from 0 to 90 degrees North Latitude, however, the same data are available for the complete globe so it may be possible to set up the interface to allow for the broader map or other datasets.

The developers have attempted to optimize the interfaces to be as fast as possible using any standard web browser. If you have any questions or suggestions regarding the profiler, or any of the other tools, please send an email to Gary Borstad (email: Gary@borstad.com). Any malfunctions can be referred to Peter Willis email: peterw@borstad.com.

IOCCG News

AsiaFlux Training Course 2006 on Micrometeorology Theory and Practice of CO2 Flux Measurement (Course)

21/08/2006 - 30/08/2006 - Tsukuba, Japan

AsiaFlux has been investigating the carbon budget in various terrestrial ecosystems in Asian region using eddy covariance technique on a tower. Eddy covariance technique is a micrometeorological method to estimate the exchange of carbon dioxide, water vapor and heat between atmosphere and land surface by observing atmospheric turbulence. It is one of the most widely-used methods in this research field for its high accuracy. We are eager to develop our observation sites widely and enhance the network, which should result in promoting our research on elucidation of carbon budget in Asia-specific terrestrial ecosystem.

We therefore proceed holding a training course to disseminate the technology of tower flux observation. Aim of this training course is to provide expertise in eddy covariance technique, such as essential knowledge on carbon balance and micrometeorology as well as practical measurement skills to flux principal investigators in Asia.

We target the participants particularly who:

--Are going to establish a local flux-network in his/her country and willing to link up with AsiaFlux, OR

--Are currently members of AsiaFlux and willing to achieve a deeper understanding on flux measurement.

All lectures and class material will be given in English. A certificate of attendance will be awarded to all the participants at the end of the course.

Goal of AsiaFlux Training Course is to widen our community and establish a foundation of exchanging data. We seek applicants from various backgrounds.

Subjects of the lecture will include atmospheric boundary layer, canopy micrometeorology and data processing.

The course will devote much time to the practical flux measurement and calculation. Program includes some praxis sessions to improve skills on data processing and equipments handling.

http://www.asiaflux.net/aftc2006/

Summer School ALPBACH 2006: Monitoring of Natural hazards from Space - (Course)

25/07/2006 - 03/08/2006 - Alpbach-Tyrol, Austria

THE SUMMER SCHOOL PROGRAMME

The topic chosen for the 2006 Summer School Alpbach, “Monitoring Natural Hazards from Space”, is concerned with the use of satellites to improve our ability to monitor, predict and mitigate natural hazard events. Losses of life and property due to natural hazards have increased dramatically during recent years. This can partly be attributed to population growth and increasing complexity of economical and technical infrastructure. Moreover, evidence is growing that climate change further enhances the intensity and frequency of natural disasters. Timely and accurate information on geophysical processes preceding and going along with hazard events is crucial for improving the forecasting capabilities and hazard warnings, in order to reduce the losses and the vulnerability to disasters. Natural hazards are complex phenomena, their understanding requires integrated observing systems of satellite-borne, airborne and in-situ sensors. The capabilities of Earth Observation (EO) satellites for disaster preparedness and mitigation have been recognized, and a global strategy has been developed for utilization of satellite resources. The International Charter on Space and Major Disasters, conducted by several major space agencies, is an early response system delivering satellite data rapidly to users affected by disasters. Support to risk management, including early warning, hazard impact assessment and reaction, is also a priority theme of GMES. The Global Monitoring for Environment and Security (GMES) initiative of ESA and EC represents an important milestone for better utilization of EO satellite data in a wide range of application fields. Although presently operating EO satellites provide important information for natural hazard management, the potential of space observations for this task is still far from being fully exploited.

The Summer School Alpabch 2006 will address innovative satellite mission concepts for improving the understanding of geophysical processes related to natural hazards and for improving hazard prediction and disaster management. The lectures will cover scientific and technical topics of Earth Observation from space and address geophysical aspects and observations of the following hazard types: earthquakes, volcanoes, landslides, floods, wildland fires.

A key element of the summer school is the workshop, to which more than 50% of the time spent in Alpbach will be given. Students will be formed into four teams, each of which will study a different scientific space mission, designed to answer some of the key questions relating to the Summer School topic—Monitoring of Natural Hazards from Space. The teams will be supported by tutors who are

experts in space mission design, and by the lecturers. Many of the lecturers will be present throughout the duration of the Summer School and will assist the teams with the definition of the missions. The purpose of the workshop will be to develop four mission concepts—one by each team, to the point where a space agency could, in principle, take it over and begin the first stage of mission preparation. By the end of the workshop, the teams will have considered not only the instrumentation—having shown that it can meet the scientific requirements, but also the spacecraft orbit, its construction, its sub systems, and its launch, together with a cost estimate. The results of the projects will be delivered as short “mission studies” to be presented by each team, during the final workshop day, to an expert review panel. Lectures will be provided on space mission design and other technical topics relevant to the workshops.

Joint evening dinners (sometimes with after dinner speeches on subjects of general scientific interest) will be organised at the Fichtensaal of the Hotel Böglerhof for lecturers, tutors, students and accompanying persons to provide a convivial atmosphere for informal discussions.

PARTICIPATION

The Summer School is open to 60 selected young science and/or engineering graduates from among the member states and cooperating states of the European Space Agency (ESA). The working language of the Summer School will be English. An application form, duly endorsed by a university professor, head of department or equivalent, should be submitted to the Aeronautics and Space Agency of FFG before March 31, 2006.

The number of participants will be limited to 60 and confirmation of acceptance will be given by the end of April 2006. A registration fee of ¤ 330,- will be charged. This fee covers working material, free access to copying and computer, e-mail and internet facilities at the School House, coffee breaks and dinner vouchers (including one free drink per evening) throughout the period of the Summer School including the weekend.

FINANCIAL SUPPORT

Participants from Austria, Belgium, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Switzerland, Sweden and the UK as well as Hungary may be eligible for financial support by the relevant national sponsoring agencies or universities. Belgian students will be informed by the national point of contact to apply to their universities for support of participation, travel and subsistence costs. The application form should indicate the status of application for support.

More info can be found at the web site of the Austrian Research Promotion Agency.

Organizer:
Aeronautics and Space Agency of FFG, co-sponsored by the European Space Agency (ESA) and the national space authorities of its member and cooperating States.

http://www.ffg.at/index.php

Living with Climate Variability and Change: Understanding the Uncertainties and Managing the Risks (Meeting)

17/07/2006 - 21/07/2006 - Espoo, Finland

With a focus clearly on the management of climate related risks and opportunities, this forum will provide a chance to review the progress, obstacles and future prospects for effective policy and practice in critical sectors such as agriculture, water resources, public health, and disasters. Attendance will include experts and practitioners in all of these areas.

At the conference website you can also view and/or download the first announcement. A shortcut to that is: http://www.livingwithclimate.fi/linked/en/Flyer.pdf

More information will be posted to the website, and a second conference announcement will be forthcoming soon.

Organizer:
FMI, WMO, IRI

www.livingwithclimate.fi

9th International Symposium on High Mountain Remote Sensing Cartography (HMRSC-IX) (Meeting)

14/09/2006 - 22/09/2006 - Graz, Austria

GENERAL TOPICS

1. application of REMOTELY SENSED IMAGE DATA (terrestrial, airborne, spaceborne) and other collateral data for information extraction in high mountain areas;
2. and CARTOGRAPHIC REPRESENTATION of this data/information in maps (analogue, digital, line maps, image maps, combined image-line maps, etc.) and GIS-based environments; and
3. application-oriented analysis.

EMPHASIS IS PUT ON INTERDISCIPLINARITY, namely to give a forum and a platform

- to persons interested in geosciences (geographers, geologists, geomorphologists, glaciologists, etc.), cartographers, photogrammetrists, remote sensing experts, computer experts, biologists, tourism agents, regional planners, etc.,
- to young scientists (post-graduate students, PhD-students, post-docs, etc.), and
- to decision makers (tourism agents, park managers, regional planers, environmental activists) respectively, to learn about HMRSC.

Organizer:
Institute for Geography and Regional Science, University of Graz;
Institute of Remote Sensing and Photogrammetry, Graz University of Technology

http://www.kfunigraz.ac.at/geowww/hmrsc/hmrsc_9/

Transport, Atmosphere and Climate (TAC) (Meeting)

26/06/2006 - 29/06/2006 - Oxford, U.K.

An international conference will take place in June on all aspects of the impact of the different modes of transport (aviation, road transport, shipping etc.) on atmospheric chemistry, microphysics, radiation and climate. In particular, papers on the following topics are welcome:

- engine emissions (gaseous and particulate),
- emission scenarios and emission data bases,
- near field and plume processes, effective emissions,
- impact on the chemical composition of the atmosphere,
- impact on aerosols,
- contrails, contrail cirrus, ship tracks,
- indirect cloud effects (e.g., aerosol-cloud interaction),
- radiative forcing,
- impact on climate,
- metrics for measuring climate change and damage,
- mitigation of transport impacts by technological means, i.e., environmental impacts of changes in vehicles and engines (e.g., low NOx engines, alternative fuels),
- mitigation of impacts by operational means (e.g., air traffic management, environmental flight and ship routing).

Observational, experimental, remote sensing and modelling studies are encouraged.

The TAC conference is a follow-on from the European conference “Aviation, Atmosphere and Climate (AAC)” in Friedrichshafen, Germany (2003) and the Seeheim (Germany) Workshop “Aviation, Aerosols, Contrails and Cirrus Clouds (A2C3)” in 2000.

Pre-registration can be made at the conference website. If you register you will automatically receive further information, e.g., instructions for abstracts (deadline 24 March 2006).

http://www.pa.op.dlr.de/tac/

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20 Years of Nonlinear Dynamics in Geosciences (Meeting)

11/06/2006 - 16/06/2006 - Rhodes, Greece

The purpose of this conference is to bring together scientists from the atmospheric sciences, hydrology, geology, and other areas of Geosciences to discuss the advances made and the future directions of nonlinear dynamics. Topics will include predictability, ensemble prediction, nonlinear prediction, nonlinear time series analysis, low-dimensional chaos, error growth in the models, nonlinear modeling, fractals and multifractals, bifurcation, and other aspects of nonlinear science. Submission of abstracts from all areas of Geosciences is welcome. For more information or to register and submit abstracts please visit the conference website.

The cost of the accommodation package is 1290 Euro and includes registration, hotel accommodations at the Hilton resort in Rhodes, all meals (breakfast and lunches at the hotel, dinners at selected restaurants in the island), and an island tour.

If you need further information, or if you have any comments or suggestions, contact the organising committee. The meeting is endorsed by the American Meteorological Society (AMS) and the European Geosciences Union (EGU).

If you intent to participate, the organising committee urges you to pre-register, to help with the planning and the logistics of the conference. Pre-registration does not require paying now. Payment is due March 15. The number of participants is limited to 150.

Organizing committee:
Anastasios Tsonis (aatsonis@uwm.edu) and
James Elsner (jelsner@garnet.acns.fsu.edu).

http://www.aegeanconferences.org

6th Annual Meeting of the European Meteorological Society (Meeting)

03/09/2006 - 07/09/2006 - Ljubljana, Slovenia

Part-and-partner: 6th European Conference on Applied Climatology (ECAC)

From 3 to 7 September 2006, the 6th EMS annual meeting will be held in Ljubljana, Slovenia in the Cankarjev Dom Conference Centre. It will consist of a broad and open scientific conference with oral and poster presentations as well as symposia and special lectures.

As part and partner of EMS6 there will be the 6th European Conference on Applied Climatology (ECAC) which has been set up by the European Climate Support Network (ECSN) and which will be organizing all the climate-related sessions.

EMS6 Session topics - foreseen:
--Atmosphere and the water cycle
--Environmental Meteorology
--Natural Hazards
--Instruments and observations
--Scientific computing
--Media
--Education
--Meteorology and the general public
--History of meteorology
--further topics by way of a call for programme

Organizational matters are dealt with in co-operation with the Copernicus Organization (http://www.copernicus.org/).

Organizer:
European Meteorological Society

http://www.emetsoc.org/EMS6/

International Continental Scientific Drilling Program ICDP Workshop Announcement (Meeting)

18/05/2006 - 21/05/2006 - Twin Falls, Idaho, U.S.A.

HOTSPOT: Scientific Drilling of the Snake River Plain

Hotspot, the Snake River Scientific Drilling Project, announces an inter-disciplinary workshop that will focus on the science issues and logistics central to a comprehensive shallow to intermediate-depth drilling program in the Snake River Plain of southern Idaho, USA. The Snake River Plain represents a world-class example of active mantle plume volcanism in an intra-continental setting. Because it is young and tectonically undisturbed, the complete record of volcanic activity can be sampled only by drilling. The preliminary scientific plan is to core a series of 4-6 drill holes along the axis of the eastern and western Snake River Plain in order to study the geochemical and stratigraphic variations in plume-related volcanism in space and time.

The workshop will include 40 participants from a variety of disciplines, who will develop the rationale and scientific basis for a formal drilling proposal, plan site selection and site selection criteria, and outline a proposal for submission to NSF and ICDP. The target submission date for these proposals is January 2007. We invite participants from all countries, with preference given to those that are members of the International Continental Scientific Drilling Program. Interested researchers are invited to submit a brief summary of their field of research, describing their intended contribution to this international scientific project. Researchers will be invited to the workshop on the basis of their research summary, and we will attempt to cover participation expenses from ICDP funds.

The workshop will be held at the Red Lion Hotel in Twin Falls, Idaho. The workshop will include a field trip to potential drilling sites in the central and western Snake River Plain and posters on current work. Interested parties should submit an application form with their names, contact information, and research interests by e-mail to John Shervais at shervais@cc.usu.edu, or by post at Department of Geology, Utah State University, Logan, Utah, 83422-4505. More information and a filliable application form in pdf format on the web.

Organizer:
Hotspot, the Snake River Scientific Drilling Project

http://www.usu.edu/geo/hotspot/

Second call for papers: 36th COSPAR Scientific Assembly, Beijing 2006 (Meeting)

16/07/2006 - 23/07/2006 - Beijing, China

This is the second call for papers in the session D3.4 Ionosphere-Magnetosphere Coupling and Auroral Particle Acceleration at the 36th COSPAR Scientific Assembly, Beijing 16 – 23 July 2006.

Details of Session: Over the last few years it has become clear that the ionosphere is more than a passive load on the magnetosphere. Hall and Pedersen conductivity gradients for example can result in field-aligned currents flowing into the magnetosphere. The ionosphere and magnetosphere are coupled by the exchange of mass in the form of ion outflow. Ionospheric depletion associated with downward currents can result in a dynamic response to the magnetosphere. These two regions also exchange electromagnetic energy through the propagation of MHD waves along field lines. The coupling is particularly strong in the auroral region, where strong field-aligned currents flow and auroral particles are accelerated to energies in excess of 10 keV. The ionospheric Alfvén resonator can provide a diagnostic for these acceleration processes and may also play a role in cross-field coupling. In addition, the underlying thermosphere-ionosphere coupling can drive neutral wind dynamo currents and the lower altitude portion of the flux tube may be involved in the development of sub-auroral polarisation streams. These processes can be observed by in situ satellite and sounding rocket measurements as well as ground-based radars, magnetometers, and optical measurements. This joint session will focus on combining ground- and space-based observations as well as relevant theory and large- and small-scale modeling to better understand the complex processes that lead to the coupling of magnetosphere and ionosphere and the acceleration of auroral particles.

You are invited to submit your abstracts through the COSPAR web site: http://meetings.copernicus.org/cospar2006/how_to_submit_an_abstract.html

The deadline for abstract submission is 17th February 2006.

Financial support may be available to those under the age of 35. For further details see http://meetings.copernicus.org/cospar2006/financ_support.html

Hope to see you in Beijing.
Best wishes,
Darren Wright (Convener), Darren.Wright@ion.le.ac.uk
Bob Lysak (Co-convener)
Bob Strangeway (organising committee)
Mats André (Organising committee)

Organizer:
Darren Wright
Bob lysak

http://meetings.copernicus.org/cospar2006

Workshop on Sustained Indian Ocean Biogeochemical and Ecological Research (SIBER) (Meeting)

03/10/2006 - 06/10/2006 - Goa, India

Workshop Goals

The SIBER Workshop will convene an international, interdisciplinary group of scientists at the National Institute of Oceanography in Goa, India to:

1) Review the state of our knowledge and scientific understanding of the biogeochemical and ecological dynamics of the Indian Ocean in relation to physical oceanographic variability;

2) Identify prominent gaps in our understanding especially as they pertain to the role of physical and ecological processes in regulating biogeochemical cycles and the carbon cycle in particular; and

3) Formulate a plan for the implementation of a biogeochemical and ecological observational and modeling research program that leverages and substantially enhances the planned CLIVAR/GOOS Indian Ocean observing system.

The SIBER Workshop is designed to elicit maximum interaction among the participants.

Preliminary Program

• Keynote speakers will present overviews and updates on the latest discoveries in the Indian Ocean involving ecological and biogeochemical variability as it relates to the carbon cycle and physical forcing

• Invited presentations will review the current status of the CLIVAR/GOOS Indian Ocean observing system and plans for the future

• Working group breakout sessions

• Poster presentations

• Group banquet and cultural activities

Location

The workshop will be held in Goa, the beautiful state on the west coast of India. Goa is well known for its beaches, its pleasant climate, its scenic splendor and its wonderful culture, a blend of the East and the West. There will be opportunities for sightseeing and exploring.

Registration and Accommodations

Information to follow in the near future.

Organizing Committee

US: Raleigh Hood, Chair (University of Maryland), Lou Codispoti (University of Maryland), Jay McCreary (University of Hawaii), Ajit Subramaniam (Lamont-Doherty Earth Observatory, Columbia University), Jerry Wiggert (Old Dominion University)

International: Wajih Naqvi, co-Chair (National Institute of Oceanography, Goa, India), Satish Shetye (Director, National Institute of Oceanography, Goa, India), Dileep Kumar (National Institute of Oceanography, Goa, India), Prasanna Kumar (National Institute of Oceanography, Goa, India), V.S.N. Murty (National Institute of Oceanography, Goa, India).

www.ian.umces.edu/siber

15th IUAPPA REGIONAL CONFERENCE (Meeting)

05/09/2006 - 05/09/2006 - Lille, France

The IUAPPA (International Union of Air Pollution Prevention Associations) gathers together the scientific associations of some 40 countries that share a common commitment to promoting the exchange of information and development of understanding on air pollution prevention and environmental protection.

The 15th regional conference of IUAPPA will be held in France, in the city of Lille, 5 to 8 September 2006. This congress will concern the scientific communities dedicated to air pollution analysis and monitoring as well as those studying human exposure and health effects of air pollutions.

The call for papers aims at gathering all sorts of papers related to the assessment of particulate air pollution, notably concerning health effects assessment and control strategy.

This topic of particulate matter will provide a good illustration of the need for closer contact, coordinated research and integrated multidisciplinary approaches.

You can ask for paper folders at the following address: secretariat@appa.asso.fr

http://www.iuappa-lille2006.org

First North American Landslide Conference (Meeting)

03/06/2007 - 08/06/2007 - Vail, Colorado

Principal Professional Society Cosponsors: The Geo-Institute of ASCE, Association of Engineering Geologists, American Rock Mechanics Association, the Canadian Geotechnical Society, Engineering Geology Division of the Geological Society of America, and the Transportation Research Board.

Paper Topics: The conference theme is “Landslides and Society: Integrated Science, Engineering, Management, and Mitigation.” The conference is designed to provide a stimulating forum for engineers, geoscientists, planners, economists and other decisionmakers concerned with landslide hazards and their impacts on North American Society.

http://www.mines.edu/academic/geology/landslidevail2007/

Deadline: February 15, 2006

EARSeL Special Interest Group (Meeting)

28/09/2006 - 30/09/2006 - Bonn, Germany

The second workshop of the EARSeL Special Interest Group on Land Use and Land Cover will take place in Bonn from 28 to 30 September 2006.

The workshop will cover the following topics:

- Land use and land cover (LULC) classification
- Land use cover change (LUCC)
- Land degradation & desertification
- Ecological aspects of LULC
- Derivation of biophysical parameters
- Agricultural applications
- Integration of LULC products into modelling
- Accuracy and quality aspects
- New processing methods and algorithms
- Applications with new sensor systems
- Combined SAR and optical remote sensing
- Hyperspectral data sets for LULC

http://www.zfl.uni-bonn.de/earsel/earsel.html