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The EGU is seeking an Executive Secretary

Applications should be submitted before 31 January 2009

The European Geosciences Union (EGU) is seeking to appoint an Executive Secretary.

The EGU is Europe's premier geosciences union. Its annual meetings attract over 8000 scientists and it has a diverse portfolio of scientific journals, which use an innovative open access format. The EGU also sustains a number of thematic meetings, as well as education and outreach activities.

The successful applicant will have post-graduate qualifications, preferably in geosciences. Experiences in science-administration, management and international collaboration are welcome assets. The Executive Secretary will

• Be responsible for operating the union office with support staff,

• Coordinate and organize the key functions and financial affairs of the Union,

• Manage outside contracts, and

• Take part in the strategic development of the Union.

The location of the EGU office will be determined by the Union in dialogue with the successful applicant. We prefer applications from individuals, but also welcome bids from institutions offering personnel and office space with guaranteed organizational independence.

The position will be for five years initially, with a probation period of one year, and renewable multiple times for consecutive periods of five years, cf. the statutes and by-laws of the Union. The starting salary will be approximately equivalent to the salaryof an Associate Professor in the relevant country.

Applications should include

• CV including a resume of relevant experience and expertise

• Letter of motivation (max. two pages)

• Statement of vision for the union (max. two pages)

• Contact details of three personal referees.

Further information about the position and the application procedure is available on the Union\'s web-site http://www.egu.eu/.

Applications in a single pdf-file should be submitted before 31 January 2009 by email, marked EGU Executive secretary, to Professor Hans Thybo, EGU General Secretary, at thybo@geo.ku.dk and job@geo.ku.dk

EGU

ACP welcomes two new sister journals

with complementary aims and scope

For manuscripts focused on the development, intercomparison and validation of measurement instruments and data processing techniques we recommend submission to the EGU interactive open access journal Atmospheric Measurement Techniques (AMT), http://www.atmospheric-measurement-techniques.net/index.html.

For manuscripts focused on the development and description of numerical models and model components we recommend submission to the EGU interactive open access journal Geoscientific Model Development (GMD), http://www.geoscientific-model-development.net/.

For more information on the aims and scope of the two new journals, as well asguidelines for authors and online submission procedures, please visit their respective home pages. Service charges are currently waived for both journals.

Saturn's radio broadcasters mapped in 3-d

A 3-D picture of the sources of the Saturn Kilometric Radiation (SKR)

22 September 2008.- Observations from NASA's Cassini spacecraft have been used to build, for the first time, a 3-D picture of the sources of intense radio emissions in Saturn's magnetic field, known as the Saturn Kilometric Radiation (SKR). The Saturn Kilometric Radiation (SKR) is the most intense component of radio emissions from Saturn. It was discovered by NASA's Voyager spacecraft in 1980. The radio emissions have frequencies between about 10 kilohertz and 1.2 megahertz. This corresponds to the Long Wave and Medium Wave broadcasting bands.

The results were presented by Dr Baptist Cecconi, of LESIA, Observatoire de Paris, at the European Planetary Science Congress on Tuesday 23rd September.

The SKR radio emissions are generated by high-energy electrons spiralling around magnetic field lines threaded through Saturn's auroras. Previous Cassini observations have shown that the SKR is closely correlated with the intensity of Saturn's UV aurora and the pressure of the solar wind. The measurements were made using Cassini's Radio and Plasma Wave Science (RPWS) experiment.

"The animation shows radio sources clustered around curving magnetic field lines. Because the radio signals are beamed out from the source in a cone-shape, we can only detect the sources as Cassini flies through the cone. When Cassini flies at high altitudes over the ring planes, we see the sources clearly clustered around one or two field lines. However, at low latitudes we get more refraction and so the sources appear to be scattered," said Dr Cecconi.

The model found that the active magnetic field lines could be traced back to near-polar latitudes degrees in both the northern and southern hemisphere. This matches well with the location of Saturn's UV aurora.

Although there were some minor differences between emissions in the northern and southern hemispheres, the emissions were strongest in the western part of Saturn's sunlit hemisphere. This area corresponds to a region of Saturn's magnetopause where electrons are thought to be accelerated by the interaction of the solar wind and Saturn's magnetic field.

The observations were made over a 24-hour period during Cassini's flyby of Saturn on 25-26th September 2006. This flyby was chosen because Cassini would approach from the southern hemisphere and swoop out from the northern hemisphere, allowing the instruments to take measurements from about 30 degrees below to about 30 degrees above the equatorial plane.

The animation can be found at:
http://www.lesia.obspm.fr/~cecconi/files/EPSC-SKR-movie.mp4

The images can be found at:
http://www.europlanet-eu.org/demo/index.php?option=com_content&task=view&id=125&Itemid=41

Europlanet

New view of atmospheric circulation

warm moist air near Earth' s surface that rises into the upper troposphere within mid-latitudes and then is transported polewards accounts for up to half of the air in the upper troposphere in polar regions

21 August 2008.- Mid-latitude storms play a major role in the global atmospheric circulation by lifting warm, moist tropical air into the upper troposphere, according to a report in the Aug. 21 issue of Science.

This previously unappreciated component of atmospheric circulation may play an even more important role in a warmer and moister world, according to authors Olivier Pauluis and colleagues. The global atmospheric circulation transports energy from the equatorial regions to higher latitudes through a poleward flow of high-energy and -entropy parcels and an equatorward flow of air with lower energy and entropy content. The conventional picture of how the atmosphere transports heat from the equator up to the poles is that air rises predominantly in the tropics, within a structure known as a Hadley Cell, and begins its movement toward the poles at high altitudes. That view, however, is based on calculations that ignore the energy content of the water vapor in the air. By including the effects of atmospheric moisture, Pauluis and colleagues show that the total mass transport by the circulation is twice as large when averaged on moist isentropes than when averaged on dry isentropes, hence considerably more air rises in the mid-latitudes than was previously realized. In this new picture, nearly twice as much mass is circulated through Earth's atmosphere, and as much as half of the air in the upper troposphere in polar regions rises into the upper troposphere within mid-latitudes.

Peer reviewed publication: The Global Atmospheric Circulation on Moist Isentropes, Science, 21 August 2008. The authors of the paper are Olivier Pauluis from the Courant Institute of Mathematical Sciences, New York University, Arnaud Czaja from Imperial College London, and Robert Korty from the Department of Atmospheric Sciences, Texas A&M University.

ESF names new chairs

ESF names Professor Ceulemans as the Chair of the Life, Earth and Environmental Sciences Standing Committee

13 October 2008.- ESF names Professor Ceulemans as the Chair of the Life, Earth and Environmental Sciences Standing Committee.

The European Science Foundation (ESF) has named Professor Reinhart Ceulemans as the new chair of the Life, Earth and Environmental Sciences Standing Committee (LESC). The announcement came after the Governing Council of the ESF voiced its endorsement for Professor Ceulemans to replace Professor Alexandre Quintanilha.

"I feel very honoured with the appointment of becoming the chair of LESC after the nomination from the Flemish FWO (the Research Foundation Flanders). I see this as a great challenge that will call for my focus and attention over the next three years", commented Professor Reinhart Ceulemans. The Resarch Foundation Flanders is one of the 77 Member Organisations of ESF.

The 54 year-old Professor Ceulemans is currently the Vice-dean of the Faculty of Sciences, the Director of the Center of Excellence ECO and the head of the Research Group of Plant and Vegetation Ecology at the University of Antwerpen (Belgium). During the period 1999-2005 he was among the 20 most cited authors in plant science in Europe. And during the academic year 2006-2007 he was the titular of the Belgian Francqui Chair at the Université Catholique de Louvain-la-Neuve.

"I very much like the international contacts and the multidisciplinary characters of the ESF's activities, programmes and initiatives. Since the landscape of European science policy and international institutions is now drastically changing, the ESF should also play a key role in the further development of synergies in science and of strategic choices in Europe".

Professor Ceulemans has been an active member of LESC since 2003 and in 2006 his commitment with the Committee deepened after taking on the role of Core Group Member.

"The scientific disciplines covered by LESC, include Life Sciences, Environmental and Geo-sciences, attract a lot of attention nowadays because they all have a number of hot and emergent topics. Examples are the upcoming molecular biological tools (genomics, metabolomics) that are being used to better understand how life processes function; declining species diversity and the threats of extreme events (extreme heat or drought) for ecosystems on earth; anthropogenic mass transfers of geological materials, and others" said Professor Ceulemans.

End-Permian extinction

More evidence in support of hydrogen sulfide from the oceans as the main extinction agent

Geochemical, biomarker, and other evidence suggests that the end-Permian was characterized by extreme oceanic anoxia that may have led to hydrogen sulfide buildup and mass extinction.

In a recent paper in Geology, Meyer et al. use an earth system model to quantify the biogeochemical and physical conditions necessary for widespread oceanic anoxia and hydrogen sulfide release to the atmosphere. They find out that according to the model, greater than threefold increases in ocean nutrient content combined with nutrient-trapping ocean circulation can cause surface-water H2S accumulation in the paleo–Tethys Ocean and in areas of strong upwelling. The incorporation of H2S consumption from sulfide-oxidizing phototrophs in the model suppresses but does not prevent widespread release of H2S to the atmosphere. Evidence from the geologic record is consistent with modeled spatial distributions of nutrient-induced anoxia during the end-Permian, suggesting H2S toxicity and hypercapnia may have provided the kill mechanism for the end-Permian extinction.

Reference: Meyer K, Kump L, Ridgwell A (2008) Biogeochemical controls on photic-zone euxinia during the end-Permian mass extinction. Geology: Vol. 36, No. 9 pp. 747–750

Kelps release iodine under stress

Data provide biological explanation for the presence of large amounts of iodine oxide in the atmosphere above kelp forests

Large brown seaweeds, when under stress, release large quantities of inorganic iodine into the coastal atmosphere, where it can contribute to cloud formation, thus influencing climate.

The large brown kelps of the genus Laminaria are known as extremely effective bio-accumulators of iodine. The chemical speciation and biological role of iodine in kelp was, however, not well known until now.

A paper in the Proceedings of the National Academy of Sciences of the USA (PNAS) identifies that iodine is stored in the form of iodide - single, negatively charged ions - which acts as the first known inorganic and, in fact, the most simple antioxidant in a living system.

"When kelp experience stress, for example when they are exposed to intense light, desiccation or atmospheric ozone during low tides, they very quickly begin to release large quantities of iodide from stores inside the tissues. These ions detoxify ozone and other oxidants that could otherwise damage kelp, and, in the process, produce molecular iodine" says lead author, Dr Frithjof Küpper from the Scottish Association for Marine Science.

The data provide a biological explanation why we can measure large amounts of iodine oxide in the atmosphere above kelp forests. IO can initiate reactions leading to the formation of cloud condensation nuclei.

Similarly, large amounts of iodide are released from kelp tissues into sea water as a consequence to the oxidative stress during a defence response against pathogen attack.

Kelps thus play an important role in the global biogeochemical cycle of iodine. The study comes almost 200 years after the accidental discovery of iodine as a novel element - in kelp ashes. In 1811 Bernard Courtois (1777-1838) discovered iodine, while searching for a way to manufacture gunpowder. Napoleon's army at the time required large quantities of gunpowder and supplies were running short. Saltpeter (potassium nitrate, KNO3) is a major component in gunpowder and requires an abundant source of sodium carbonate in order to be manufactured. Sodium carbonate is extracted from wood ashes, but the war had gone on so long that they'd run out of willow wood, the preferred source. Someone suggested using dried seaweed (burnt to ash), which seemed to be abundant off the coasts of Normandy and Brittany. The suggestion worked and the French were back in business making gunpowder.

However, in the process of making saltpeter, excess sulfur compounds were created, forcing them to add sulfuric acid to the mixture to clean the compounds from their vats. Courtois accidentally added a bit too much acid one day, and a violet vapor cloud appeared and condensed onto colder surfaces forming crystals. Courtois suspected he'd discovered a new element and turned his discovery over to Charles-Bernard Désormes, who, with the help of his son-in-law Nicolas Clément performed the scientific investigation into this new element. Courtous also gave samples to Louis-Joseph Gay-Lussac and André M. Ampère. In November of 1813, at a meeting of the Imperial Institute of France, Désormes and Clément announced their discovery. A few days later Gay-Lussac and André M. Ampère published that this was either an element or a compound of oxygen. No one yet, knew for sure exactly what it was, until the English chemist Sir Humphry Davy got into the picture and did some experiments with samples given him by Ampère.

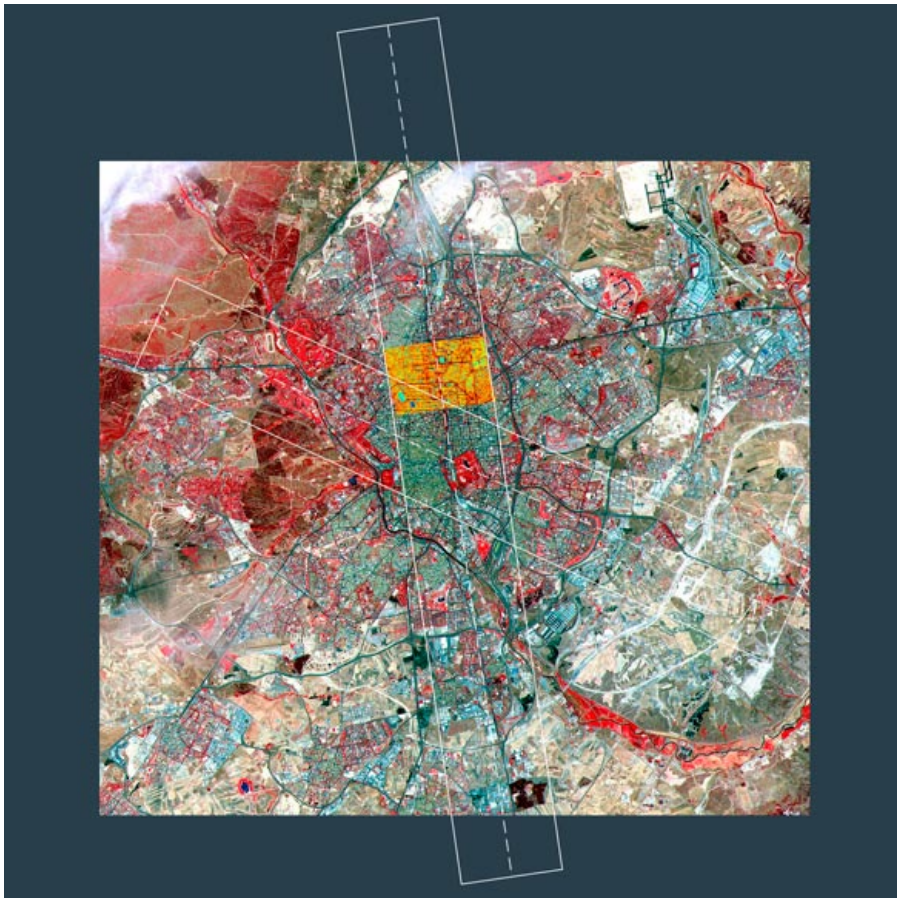
Davy published, on the 10th of December, 1813, a little piece in which he described this substance`s qualities as being similar to chlorine, and that it was quite analogous to both Fluorine and Chlorine. He named it Iodine from a Greek word for "violet colored".

Küpper FC, Carpenter LJ, McFiggans GB, Palmer CJ, Waite TJ, Boneberg E-M, Woitsch S, Weiller M, Abela R, Grolimund D, Potin P, Butler A, Luther III GW, Kroneck PMH, Meyer-Klaucke W, Feiters MC (2008) Iodide accumulation provides kelp with an inorganic antioxidant impacting atmospheric chemistry. Proceedings of the National Academy of Sciences, published online week of 5 May 2008.

Satellite observations help lessen the effects of heatwaves in urban area

An ESA campaign has been carried out to see if a spaceborne thermal infrared sensor could help policy makers and town planners reduce the number of casualties when temperatures soar

17 July 2008.- When heatwaves strike, it's far more difficult to cope with stifling temperatures in built-up areas than it is out in the countryside.



DESIREDESIREX 2008 campaign flight lines. Credits: University of Valencia, INTA and Jet Propulsion Laboratory (ASTER)

An ESA campaign has just been carried out to see if a spaceborne thermal infrared sensor could help policy makers and town planners reduce the number of casualties when temperatures soar. Over the last decade, heatwaves have claimed an increasing number of casualties among the elderly – particularly in southern Europe. The heatwave that hit Europe in 2003, for instance, is estimated to have caused more than 15 000 deaths in France alone, with about 70% of the mortalities occurring in the over 75s. Prolonged periods of high temperatures also put a strain on medical resources and place an additional financial cost to society as a whole.

High densely built-up areas trap the heat, especially at night, causing what is called Urban Heat Islands (UHI) in which city centres can be up to 10º C warmer than surrounding rural areas. Another consequence of UHIs is that energy consumption rises with the increased use of air conditioners and refrigeration appliances. Whilst poor insulation keeps buildings hot in the summer, it also allows heat to escape in the winter months – another factor associated with high-energy consumption and poor efficiency. With the social and financial costs that UHIs bring as well as climate-change issues in mind, many city councils have already adopted a range of energy efficiency policies to assess and monitor energy consumption.

ESA has recently launched a set of activities to aid decision and policy makers mitigate the effects of UHIs though appropriate alert systems, and in terms of reducing risk – through improved urban planning. Within the framework of the proposed activities for the 'Re-orientation of the Fuegosat Consolidation Phase', which falls under the Earth Watch element of ESA's Living Planet Programme, a high-resolution thermal infrared capability was recognised as necessary for Europe in the medium- to long-term.

In addition to the original fire-related application areas, infrared observations have the potential to contribute to reducing the effects of UHIs. To this end, an ESA project called Urban Heat Islands and Urban Thermography, funded through the agency's Data User Element (DUE), is currently the subject of an open and competitive tender, which will be initiated in September 2008 with the participation of 10 European cities.

In preparation for this project, ESA organised a dedicated campaign – DESIREX-2008, which involved taking airborne and ground measurements with infrared sensors. The objective was to produce thermal datasets to support the upcoming trade-off studies that will be made by the Urban Heat Islands and Urban Thermography project, and to perform a preliminary mission analysis for a dedicated satellite sensor for the provision of temperature observations over European cities.

Madrid in Spain was chosen as the test site for the campaign as it is one of the cities in Europe that suffers many heatwaves with air temperatures sometimes reaching 50º C. More than 60 researchers from 14 different institutes gathered in Madrid to participate in the

two-week field campaign, which ended on 4 July. The intensive campaign, organised in close cooperation with the Madrid City Council, involved multiple satellites, airborne and field instruments.

Ana Botella, who is responsible for Environmental Affairs at Madrid's City Council, said: "The City Council of Madrid considers that its participation to the DESIREX-2008 project will provide results of high relevance for the future urban planning and towards a more sustainable development of the city." The campaign successfully generated a representative thermal dataset that will allow the project team to analyse the observational requirements for better assessment and monitoring of UHIs in Madrid. "The datasets produced during the DESIREX 2008 campaign will serve ESA's Urban Heat Island and Urban Thermography," explained Professor José Antonio Sobrino from the University of Valencia, and the Principal Investigator for DESIREX-2008. "The Analysis of such a comprehensive dataset will allow us to better understand the spatial and temporal variability of Urban Heat Islands in the city of Madrid, and should help us to define what would be the best satellite mission for efficient monitoring of European cities during summertime."

The main instrument used during the campaign was the Airborne Hyperspectral Scanner (AHS), which is an imaging line-scanner radiometer, installed on a CASA-212 200 series aircraft owned by Spain's National Institute for Aerospace Technology (INTA). The AHS has 80 spectral channels available in the visible, shortwave infrared and thermal infrared. Thirty acquisition flight lines (15 flights in total) were obtained over Madrid with spatial resolutions varying from 2.5 to 6.8 metres. Multiple field instrumentations operated by the partners in the DESIREX 2008 campaign have provided extremely detailed ground measurements, such as radiometric measurements used for calibration and validation of parameters extracted from the AHS airborne sensor, measurements for characterising the UHI, such as the air and radiometric temperatures in different building terraces. Four cars carrying instrumentation followed the flight paths and analysed the effect and the evolution of the UHI during the experiment.

Many satellite measurements were also acquired during the campaign from a range of satellite sensors, notably the Medium Resolution Imaging Spectrometer (MERIS) and Advanced Along Track Scanning Radiometer (AATSR) instruments aboard Envisat, the Spinning Enhanced Visible and InfraRed Imager (SEVIRI) instrument aboard MSG-1 (Meteosat Second Generation) and the Moderate Resolution Imaging Spectroradiometer (MODIS) and Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) onboard Terra. An extensive analysis of all the DESIREX-2008 data collected from spaceborne, airborne and ground observations will now take place with the first results expected in November 2008.

"The city of Madrid will benefit greatly from the DESIREX-2008 campaign. The results will allow us to have detailed information on Urban Heat Islands for the delineation of these highly sensitive areas and their incorporation into more effective urban planning for heat wave mitigation," said José Manuel Romero Cuadrado, Head of the Cartographic Department with the Madrid City Council. "The availability of information on urban climate should also help our city council to optimise an intelligent use of energy at the level of the city districts but also at building level."

The DESIREX-2008 activity was funded through ESA's Reorientation of the Fuegosat Consolidation Phase. Participants included Spanish teams from Universities in Valencia (UVEG), Madrid (UAM, UCM) and Vigo (UVIGO), along with national institutes (INTA, AEMET, CIEMAT, CECAF, AENA and LABEIN), French teams from the University of Strasbourg and the City Council of Madrid.

ESA, reference URL http://dup.esrin.esa.it/news/news168.asp

GOCE launch delayed until 2009

The Russian authorities have completed the investigation of a failure in the guidance and navigation system of the launcher's Upper Stage (Breeze KM).

24 October 2008.- The Russian authorities responsible for the Rockot launcher that shall carry ESA's GOCE Earth Explorer satellite into orbit have completed the investigation of a failure in the guidance and navigation system of the launcher's Upper Stage (Breeze KM).

The anomaly was discovered during the spacecraft's launch preparation tests on 7 September 2008 in Plesetsk, which subsequently led to the postponement of the launch.

The cause of the anomaly in the guidance and navigation system has meanwhile been identified and reproduced. The necessary hardware changes will require a minimum of two months of additional work by the manufacturer.

As a consequence, the launch of GOCE cannot take place earlier than February 2009; however, the exact launch date will only be decided at a later stage once the corrective measures have been fully implemented and validated.

ESA

Mars residual polar cap

The Mars south polar cap is built by two different mechanisms

22 September 2008.- We are now able to better explain why Mars's residual southern ice cap is misplaced, using data from ESA's Mars Express spacecraft.

Mars has frozen polar caps, made of carbon dioxide ice as well as water ice. During the southern hemisphere's summer, much of the ice cap sublimates, leaving behind what is known as the residual polar cap. While the winter cap is symmetrical about the south pole, the residual cap is offset by some three to four degrees. This misplacement, was solved in 2005 but now, new information is available to explain the misplacement.

Marco Giuranna of the Istituto di Fisica dello Spazio Interplanetario CNR (IFSI), Rome, Italy, and colleagues have used the Planetary Fourier Spectrometer (PFS) onboard Mars Express to measure the temperature of the martian atmosphere from the ground up to an altitude of 50 km above the south polar region. The team used the profiles to chart the way the atmosphere changes in temperature and other characteristics over more than half a martian year. They monitored the way carbon dioxide builds into the southern ice cap as the martian autumn turns into the martian winter. Two regional weather systems developed from mid-fall through the winter. These weather systems are derived from strong eastward winds that characterise the martian atmospheric circulation at mid-latitudes. They blow into the Hellas Basin, the largest impact structure on Mars with a diameter of 2300 km and a depth of 7 km. The crater's depth and the steep rise of the walls deflect the winds and create what are called Rossby waves on Earth. These waves reroute the high altitude winds on Mars and force the weather system towards the south pole. In the western hemisphere of Mars, this creates a strong low-pressure system near the south pole, and a high-pressure system in the eastern hemisphere, again near the south pole.

The team found that the temperature of the low-pressure system is often below the condensation point for carbon dioxide, so the gas condenses and falls from the sky as snow and builds up on the ground as frost. In the high-pressure system, the conditions are never appropriate for snow, so only ground frost occurs. Thus, the south polar cap is built by two different mechanisms. The areas that have extensive snow cover do not sublimate in the summer because they reflect more sunlight back into space than the surface frost. Frost grains tend to be larger than snow grains and have rougher surfaces. The ragged texture traps more sunlight, driving the sublimation.

So the western area of the southern polar cap, built of snow and frost, not only has a larger amount of carbon dioxide ice deposited but also sublimates more slowly during the summer, while the eastern area built of frost disappears completely. This explains why the residual cap is not symmetrically placed around the south pole.

ESA

Rosetta observes asteroid

Steins, collecting information about this rare type of Solar System body

Paris, 6 September 2008.- ESA's comet chaser, Rosetta, last night flew by a small body in the main asteroid belt, asteroid Steins, collecting a wealth of information about this rare type of minor Solar System body.

At 20:58 CEST (18:58 UT) last night, ESA's Rosetta probe approached asteroid 2867 Steins, coming to within a distance of only 800 km from it. Steins is Rosetta's first nominal scientific target in its 11 and half year mission to ultimately explore the nucleus of Comet 67P/Churyumov-Gerasimenko.

Steins is a small asteroid of irregular shape with a diameter of 4.6 km. It belongs to the rare class of E-type asteroids, which had not been directly observed by an interplanetary spacecraft before. Such asteroids are quite small in size and orbit and are mostly found in the inner part of the main asteroid belt located between Mars and Jupiter. They probably originate from the mantle of larger asteroids destroyed in the early history of the Solar System, and are thought to be composed mainly of silicate minerals with little or no iron content.

Over two years ago, in March 2006, the Osiris camera onboard Rosetta observed the brightness variations of this rotating asteroid from a distance of 159 million kilometres, and was able to determine that the tiny asteroid spins around its axis in about six hours.

Rosetta's instruments have initially been focusing on the asteroid's orbital motion, rotation, shape and density. As the distance has diminished, the investigation has broadened to take in the observation of surface properties and features, and the analysis of the chemical and mineralogical composition of the terrains, as well as their relative ages and the effects of the solar wind on the surface.

At its closest approach, Rosetta flew by Steins at a relative speed of 8.6 km/s.

Science observations of Steins will continue until 10 September.

Since its launch by an Ariane 5 rocket on 2 March 2004, Rosetta has travelled about 3.7 thousand million kilometres and swung by the Earth twice and Mars once for gravity-assist manoeuvres. On 17 December this year Rosetta will reach the maximum distance from the Sun in its current orbit, and will then head back towards Earth for the next and last gravitational kick from our planet on 13 November 2009. This will give the probe its final push toward its cometary target.

On its way, Rosetta is scheduled to conduct another flyby, this time with the much larger (21) Lutetia asteroid, on 10 July 2010. Arrival at 67P/Churyumov-Gerasimenko is due by mid-2014. By that time the probe will have covered a distance of about 6.5 thousand million kilometres.

ESA PR

Arctic summer ice extent also very low this year

while ice thinning at a record rate

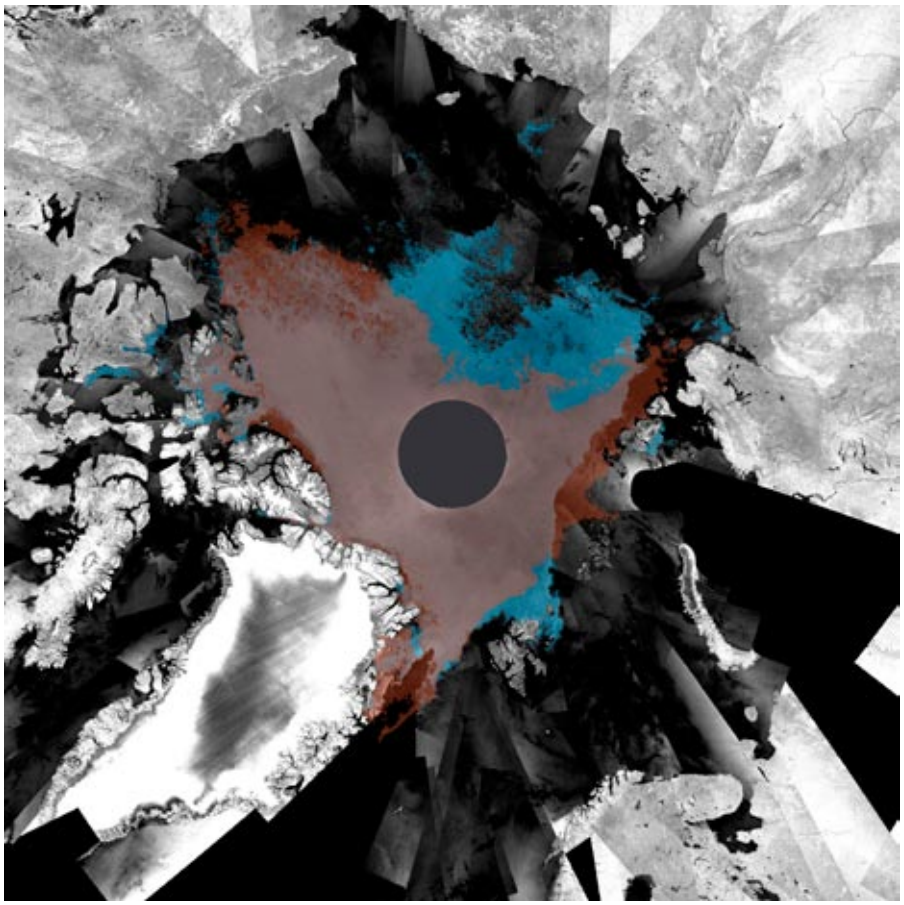
28 August and 28 October 2008.- Following last summer's record minimum ice cover in the Arctic, August observations from ESA's Envisat satellite suggested that the extent of polar sea-ice may again shrink to a level very close to that of last year.

Envisat observations from mid-August depicted that a new record of low sea-ice coverage could be reached in a matter of weeks, although September observations showed that this was not the case (see Figure).

Mid-August ice coverage in the Arctic has reached the second absolute minimum since observations from space began 30 years ago.

The direct route through the Northwest Passage was this year also almost free of ice, while the indirect route, the Amundsen Northwest Passage, has been passable for almost a month. This is the second year in a row that the most direct route through the Northwest Passage has opened up.

Prof. Heinrich Miller from the Alfred Wegener Institute (AWI) in Bremerhaven, Germany commented that, `Our ice-breaking research vessel 'Polarstern' is currently on a scientific mission in the Arctic Ocean. Departing from Iceland, the route has taken the ship through the Northwest Passage into the Canadian Basin where geophysical and geological studies will be carried out along profiles into the Makarov Basin to study the tectonic history and submarine geology of the central Arctic Ocean. In addition, oceanographic as well as biological studies will be carried out. Polarstern will circumnavigate the whole Arctic Ocean and exit through the Northeast Passage.`



Arctic sea ice extent as seen by Envisat's Advanced Synthetic Aperture Radar (ASAR) sensor during mid-September 2007 and mid-September 2008. The Arctic sea areas covered by ice in September 2008, but ice-free in September 2007, are visible in blue. The Arctic sea areas covered by ice in September 2007, but ice free in September 2008, are visible in dark brown. The Arctic sea covered by ice both in September 2007 and September 2008 are visible in light brown. Credits: ESA.

Also, new data suggest that the thickness of sea ice in large parts of the Arctic declined by as much as 19% last winter compared to the previous five winters, according to data from ESA's Envisat satellite.

Using Envisat radar altimeter data, a team led by Dr Katharine Giles of the Centre for Polar Observation and Modelling at University College London (UCL) measured sea ice thickness over the Arctic from 2002 to 2008 and found that it had been fairly constant until the record loss of ice in the summer of 2007.

Unusually warm weather conditions were present over the Arctic in 2007, which some scientists have said explain that summer ice loss. However, this summer reached the second-lowest extent ever recorded with cooler weather conditions present.

The research, reported in GRL, showed that last winter the average thickness of sea ice over the whole Arctic fell by 26 cm (10%) compared with the average thickness of the previous five winters, but sea ice in the western Arctic lost around 49 cm of thickness.

ESA

Diffusion caused Jupiter's Red Spot Junior to colour up

From white to red in a period o a few months

19 September 2008.- A study has given new insights into why Oval BA, a giant anticyclone on Jupiter also known as Red Spot Junior, suddenly turned from white to red in a period of a few months.

Dr Santiago Pérez-Hoyos, of the Planetary Science Group of the University of the Basque Country in Spain, presented the findings at the European Planetary Science Congress in Münster on Monday 22nd September.

Oval BA was formed in 2000 by the merger of smaller vortices called the White Ovals in a chain of collisions that started back in 1998. The apparent reddening was first reported by amateur astronomers in early 2006, but it was not until April that professional astronomers were able to image the impressive alteration of the second largest storm in the Solar System after the Great Red Spot (GRS).

Using data from Cassini, the Hubble Space Telescope, NASA's New Horizons mission and computer models the Planetary Science Group analysed possible causes for the colour change, including alterations to dynamical, photochemical and diffusion processes.

The most likely cause appears to be an upward and inward diffusion of either a coloured compound or a coating vapour that may interact later with high energy solar photons at the upper levels of Oval BA.

Comparing Oval BA with the GRS, the group found that the GRS is still redder than BA, most likely because it is higher in Jupiter's atmosphere, thicker and contains a higher concentration of the mysterious unknown chemical agents (cromophores) that give Jupiter its browny-red colour.

The group were able to rule out that the reddening was caused by any dynamical processes. They found no change to the strength of the "hurricane" and, although some changes in the circulation around the spot had taken place, the maximum wind speeds (which may range up to 400 kilometres per hour or more) were consistent with measurements previous to 2000 of the Oval or its white predecessors.

The group modelled the wind flow in detail using high resolution simulations, in order to understand why the red material may be confined to the annulus region and how the colour change happened in the observed time scales. The model accounts well for the temperature and wind structure inside the oval BA.

Models also showed that the change could not be attributed to interactions of Oval BA with the GRS, which were relatively close at the time. The flow around both vortices is in the zonal directions and is so strong that separates both storms.

The oval height did not change over the period and there were no large changes in the temperature gradient of the oval.

Dr Pérez-Hoyos said, "There is much to be understood about this problem yet. Future spacecraft missions and a continuous observation of the planet (as done by amateur astronomers) will surely give us new clues on the behaviour of Jupiter's atmosphere that will result in a better understanding of it."

Europlanet

Oklahoma City Micronet

An operational network designed to improve atmospheric monitoring across the Oklahoma City metropolitan area

8 November 2008.- Today, the Oklahoma City Micronet was commissioned as part of the festivities of the National Weather Festival in Norman, OK, USA. The Oklahoma City Micronet (OKCNET) is an operational network designed to improve atmospheric monitoring across the Oklahoma City metropolitan area and includes important partnerships between the Oklahoma Climatological Survey at the University of Oklahoma, the City of Oklahoma City, and the Oklahoma Mesonet (a joint project between the University of Oklahoma and Oklahoma State University). Some important facts about the Micronet include:

* The 40-station network consists of four Oklahoma Mesonet Stations (www.mesonet.org) and 36 stations mounted on traffic signals across Oklahoma City.

* All OKCNET stations collect real-time observations of air temperature, relative humidity, pressure, rainfall, wind speed, and wind direction.

* Observations from the OKCNET traffic signal stations are collected, quality assured, and displayed every minute while observations from the Oklahoma Mesonet sites installed in Oklahoma City are collected, quality assured, and displayed every five minutes.

* The multipurpose network was designed to provide critical weather information for the daily operations of the City of Oklahoma City, to spur new scientific research focused on urban meteorology, and to serve as a resource for the citizens of Oklahoma City.

* The Oklahoma City Micronet is a direct result of the Joint Urban 2003 (JU2003) experiment conducted during June and July of 2003 in Oklahoma City. The results of JU2003, the largest urban dispersion experiment ever conducted, demonstrated (a) the need for the rapid collection of atmospheric observations in urban areas and (b) the feasibility of deploying a dense network across the Oklahoma City metropolitan area.

It is also important to note that the Oklahoma City Micronet was designed to provide information to scientists as well as the public. As such, OKCNET is unique anywhere in the world in terms of rapid data collection, data quality assurance, and data provided to a variety of customers and end users. For more information about OKCNET or to view live data, please visit http://okc.mesonet.org/. For information regarding collaborations or datasets focused on scientific research, please contact Dr. Jeff Basara (jbasara@ou.edu)

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QualityCoast Awards 2009

from the largest network of coastal practitioners, planners and experts in Europe

QualityCoast aims to establish a world wide network of coastal communities that share the same values and practices on sustainable development holistically integrating their natural, cultural and social values and that at the same time maintain high standards in the quality of their tourism. It has been developed by EUCC – The Coastal Union in a European Union project involving 21 partners from 11 countries. EUCC is one of the largest coastal expert networks in the world.

QualityCoast provides new ways of cooperation between coastal communities. The communities will join a network of like-minded communities and be able to share their experiences and exchange best practices in order to improve sustainability in the fields of nature, environment and socio-economic. Furthermore, their performance in these fields can be connected to international tourism marketing through the QualityCoast Award.

QualityCoast has been developed for coastal communities: cities, towns and islands, at the level of municipalities, provinces and regions. Small adjacent communities can participate together in order to work more cost effectively; they can also apply for the QualityCoast Award together.

The QualityCoast Award website, including guide for entrants, registration and application forms are available at www.qualitycoast.net

EUCC – The Coastal Union

EUCC - The Coastal Union is an association with 2700 members and member organisations in 40 countries. It is the largest network of coastal practitioners, planners and experts in Europe, with 14 National Branches and offices in seven countries.

EUCC's mission is to promote coastal and marine management that integrates biodiversity conservation with those forms of development that sustain the integrity of landscapes, the cultural heritage and the social fabric of our coasts taking into account the effects of climate change.

EUCC is a member of ECOTRANS and a partner to DestiNet, the Sustainable Tourism Information Portal of the European Union's Environment Agency, http://destinet.ew.eea.europa.eu.

From 2004 to 2006 EUCC - The Coastal Union led a network initiative within the EU INTERREG IIIC Project Coastal Practice Network (CoPraNet), in partnership with 20 coastal councils and institutes from 11 countries, who have taken up the challenge to develop an international information programme, resulting into a transparent quality label for tourism destinations. Since 2003, this programme and quality label are running under the name QualityCoast. QualityCoast has been registered by EUCC as a European Union trademark; the use of the name is restricted under European law.

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Climate-relevant gas dimethyl sulphide

genes needed to make DMS identified

The climate-relevant gas dimethyl sulphide (DMS) is being made by microbes at the rate of about 200 million tonnes a year in the world's seas, according to a report at the April 2008 Society for General Microbiology's 162nd meeting at the Edinburgh International Conference Centre.

The source of DMS is another sulphur compound, DMSP, made by many seaweeds and marine plankton as an anti-stress protection. Some marine bacteria can break down this compound to release chemical energy, and dimethyl sulphide is given off as a by-product, with a fraction finding its way up into the atmosphere.

A team by Dr Andrew Curson from the University of East Anglia in Norwich, UK, using genetic analysis, found that different types of bacteria could degrade the sulphurous compound made by phytoplankton in different ways. They found some species of bacteria that could use multiple methods to break down and release DMS. The research identified the genes needed to make DMS, with three interesting findings. The first was that different bacteria use completely different biochemical mechanisms to break down compounds from phytoplankton. Secondly, the mechanisms that scientists predicted bacteria would use were generally not the ones observed during the investigation. Finally, some terrestrial microbes were found producing DMS, a fact that may have interesting ecological and evolutionary consequences.

These multiple-use genes, which the authors of the report were particularly interested in, are rampantly transferred between microbes that are very distantly related. By comparing the gene sequences to databases, they could predict which other microbes could also make dimethyl sulphide, even though no-one had previously suspected that they had this ability.

Dr Curson says they do not yet know the entire biochemical pathway for any of the three systems they have studied.

Society for General Microbiology

Chandrayaan-1 successfully launched

India's first mission to the Moon will orbit at a height of 100 km

22 October 2008.- Chandrayaan-1, India's first mission to the Moon, was successfully launched earlier this morning from the Satish Dhawan Space Centre (SHAR) in Sriharikota, India.

The PSLV-C11 rocket, an upgraded version of the Indian Space Research Organisation's (ISRO) Polar Satellite Launch Vehicle, lifted off at 02:52 Central European Summer Time (CEST) and, about 20 minutes later, injected the spacecraft into a highly elongated orbit around Earth.

This marked the beginning of Chandrayaan-1's journey to the Moon, which will culminate with the lunar orbit insertion in about two weeks. Once the spacecraft is orbiting the Moon, further manoeuvres will progressively lower its altitude to the final 100 km-high circular orbit.

At the earliest opportunity, the spacecraft will eject the 'Moon Impact Probe' to provide information about the lunar surface. The mission will then continue from orbit, with remote-sensing studies carried out by 11 instruments. Three of these instruments were provided by Europe (UK, Germany, Sweden) through ESA.

ESA is making the expertise gained thanks to its SMART-1 lunar mission (2003–2006) available for this collaboration. Apart from coordinating and supporting the provision of the three European instruments (C1XS, SIR-2 and SARA, versions of the first two of which flew on SMART-1), ESA assisted in areas such as flight dynamics and is supporting data archiving and processing. As a result of the collaboration, ESA and ISRO will share the data from their respective instruments.

`In an era of renewed interest for the Moon on a worldwide scale, the ESA-ISRO collaboration on Chandrayaan-1 is a new opportunity for Europe to expand its competence in lunar science while tightening the long-standing relationship with India - an ever stronger space power`, said Prof. David Southwood, ESA Director of Science and Robotic Exploration.

Chandrayaan-1 is led by ISRO. In addition to ESA, other international partners in the mission include Bulgaria and the USA.

The European instruments on board are:

-The Chandrayaan-1 Imaging X-Ray Spectrometer (C1XS), developed by the Rutherford Appleton Laboratory (RAL) in the UK in collaboration the ISRO Satellite Centre, Bangalore. It will measure the abundance of magnesium, aluminium, silicon, iron and titanium over the surface of the Moon.

-The Smart Near-Infrared Spectrometer (SIR-2), developed by the Max Planck Institute for Solar System Science, Germany. It will explore the mineral resources of the Moon, the formation of its surface features and the different layers of the Moon's crust.

-The Sub-kiloelectronvolt Atom Reflecting Analyser (SARA), developed by the Swedish Institute of Space Physics in collaboration with the Space Physics Laboratory of Vikram Sarabhai Space Centre in Thiruvananthapuram, India. It will study the way the Moon's surface interacts with the solar wind, and the surface's magnetic anomalies.

ESA

German satellite fleet RapidEye is launched

fleet to provide support for decision making tools in agriculture, forestry and cartography

29 August 2008.- At 09:15 CEST (13:15 local time) the RapidEye satellite fleet launched successfully on a DNEPR-1 launch vehicle from Baikonur spaceport in Kazakhstan. The fleet consists of five identical Earth observation satellites.

The satellites are in a shared orbit at 630km and will circle the globe 15 times daily. RapidEye. The collected imagery will be an integral part of providing important decision making tools for RapidEye's customers in industries such as agriculture, forestry and cartography. The constellation will image any area in the world at all latitudes between below 75 degrees north and south within one day on demand. It will also take an average of five days to produce a complete data set for the agricultural land of North America and Europe. The constellation is designed to provide insurance and food companies, farmers, governments, and other agencies and institutions throughout the world with up-to-date, customised information products and services.

RapidEye's applications extend to the area of disaster relief. Future products include thematic maps for harvest planning and provision of crop damage and digital elevation models. RapidEye will also make this information available to international organisations.

Each of the five satellites is about the size of a refrigerator and weighs about 150 kilograms. The multi-spectral push broom style imager onboard each spacecraft will image the Earth in five spectral bands, scanning a 77 km swath at 6.5 metre resolution, each strip with a maximum length of 1500 kilometres. After about three months, data will be made available for commerical products as well as for scientists and researchers.

On 21 October 2008, the first image from the RapidEye satellite constellation, was presented in Brandenburg by RapidEye AG, the satellite operator.

DLR

Online-coupled meteorology and chemistry models

History, current status and outlook of the development and application of online-coupled meteorology and chemistry models

The climate-chemistry-aerosol-cloud-radiation feedbacks are important processes occurring in the atmosphere. Accurately simulating those feedbacks requires fully-coupled meteorology, climate, and chemistry models and presents significant challenges in terms of both scientific understanding and computational demand. This paper reviews the history and current status of the development and application of online-coupled meteorology and chemistry models, with a focus on five representative models developed in the US including GATOR-GCMOM, WRF/Chem, CAM3, MIRAGE, and Caltech unified GCM. These models represent the current status and/or the state-of-the science treatments of online-coupled models worldwide. Their major model features, typical applications, and physical/chemical treatments are compared with a focus on model treatments of aerosol and cloud microphysics and aerosol-cloud interactions. Aerosol feedbacks to planetary boundary layer meteorology and aerosol indirect effects are illustrated with case studies for some of these models. Future research needs for model development, improvement, application, as well as major challenges for online-coupled models are discussed.

The full paper is available free of charge at
http://www.atmos-chem-phys.net/8/2895/2008/acp-8-2895-2008.html

Zhang, Y.: Online-coupled meteorology and chemistry models: history, current status, and outlook, Atmos. Chem. Phys., 8, 2895-2932, 2008.

Diagnosing the extreme surface melt event over southwestern Greenland in 2007

Analysis of passive microwave brightness temperatures from the space-borne SSM/I documents a record surface snowmelt over elevations above 2000 m of the Greenland ice sheet during summer of 2007

Analysis of passive microwave brightness temperatures from the space-borne Special Sensor Microwave Imager (SSM/I) documents a record surface snowmelt over high elevations (above 2000 m) of the Greenland ice sheet during summer of 2007. To interpret this record, results from the SSM/I are examined in conjunction with fields from the National Centers for Environmental Prediction/National Center for Atmospheric Research reanalysis and output from a regional climate model.

The record surface melt reflects unusually warm conditions, seen in positive summertime anomalies of surface air temperatures, downwelling longwave radiation, 1000–500 hPa atmospheric thickness, and the net surface energy flux, linked in turn to southerly airflow over the ice sheet. Low snow accumulation may have contributed to the record through promoting anomalously low surface albedo.

The full paper is available free of charge at
http://www.the-cryosphere.net/2/159/2008/tc-2-159-2008.html

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Surface features on Sahara soil dust particles

made visible by atomic force microscope phase images

The authors show that atomic force microscopy (AFM) phase images can reveal surface features of soil dust particles, which are not evident using other microscopic methods. The non-contact AFM method is able to resolve topographical structures in the nanometer range as well as to uncover repulsive atomic forces and attractive van der Waals' forces, and thus gives insight to surface properties. Though the method does not allow quantitative assignment in terms of chemical compound description, it clearly shows deposits of distinguishable material on the surface. The authors apply this technique to dust aerosol particles from the Sahara collected over the Atlantic Ocean and describe micro-features on the surfaces of such particles.

The full paper is available free of charge at
http://www.atmos-meas-tech.net/1/1/2008/amt-1-1-2008.html

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TEC variations over the Mediterranean during the seismic activity period of the last quarter of 2005

The Total Electron Content data of eight Global Positioning System stations in the area of Greece were analysed using wavelet analysis in order to detect any frequency dependence of the correlation between TEC over different stations

In this paper the Total Electron Content (TEC) data of eight Global Positioning System (GPS) stations of the EUREF network (AUT1, Thessaloniki, TUC2, Crete in Greece, MATE, Matera, LAMP, Lampedusa in Italy, GAIA, in Portugal, RABT, Rabat, EVPA, Evpatoria in Ukrain and TRAB, Trabson in Turkey) were analysed using wavelet analysis in order to detect any frequency dependence of the correlation between TEC over different stations. In the same time frequency dependence of Dst (Global geomagnetic field disturbances) and TEC variations over each GPS station are searched in order to detect any correlation between them.

The main conclusion of this analysis is that the components of TEC variation with periods <3 h are more suitable in searching for earthquake precursors. On the base of this conclusion the analyzed TEC series are searched for possible precursory phenomena on the occasion of the seismic activity of the last quarter of 2005 in the area of Greece. An exalting (i.e. an increase in the amplitude) of variations with periods up to the tidal ones (period of 6 h,8 h,12 h) may be observed a month before and during the seismic activity over the stations TUC2 and AUT1 and may be attributed to this tectonic activity. Statistical properties of the 1.5 h component of the Total Vertical Electron Content (TVEC) over the nearest GPS stations (TUC2 and AUT1) of the areas of the seismic activity indicate that this component presents characteristic exalting in the time period of 15 days before the shock.

The full paper is available free of charge at http://www.nat-hazards-earth-syst-sci.net/8/1267/2008/nhess-8-1267-2008.html

This paper is part of a NHESS Special issue on Earthquakes precursors and seismic hazard. See issue at http://www.nat-hazards-earth-syst-sci.net/special_issue80.html

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A new global database of trace gases and aerosols from multiple sources of high vertical resolution

technical note about a new database of trace gases and aerosols from different satellite and groundbased measurement systems

A new database of trace gases and aerosols with global coverage, derived from high vertical resolution profile measurements, has been assembled as a collection of binary data files; hereafter referred to as the `Binary DataBase of Profiles` (BDBP). Version 1.0 of the BDBP, described here, includes measurements from different satellite- (HALOE, POAM II and III, SAGE I and II) and ground-based measurement systems (ozonesondes). In addition to the primary product of ozone, secondary measurements of other trace gases, aerosol extinction, and temperature are included. All data are subjected to very strict quality control and for every measurement a percentage error on the measurement is included. To facilitate analyses, each measurement is added to 3 different instances (3 different grids) of the database where measurements are indexed by: (1) geographic latitude, longitude, altitude (in 1 km steps) and time, (2) geographic latitude, longitude, pressure (at levels ~1 km apart) and time, (3) equivalent latitude, potential temperature (8 levels from 300 K to 650 K) and time.

In contrast to existing zonal mean databases, by including a wider range of measurement sources (both satellite and ozonesondes), the BDBP is sufficiently dense to permit calculation of changes in ozone by latitude, longitude and altitude. In addition, by including other trace gases such as water vapour, this database can be used for comprehensive radiative transfer calculations. By providing the original measurements rather than derived monthly means, the BDBP is applicable to a wider range of applications than databases containing only monthly mean data. Monthly mean zonal mean ozone concentrations calculated from the BDBP are compared with the database of Randel and Wu, which has been used in many earlier analyses. As opposed to that database which is generated from regression model fits, the BDBP uses the original (quality controlled) measurements with no smoothing applied in any way and as a result displays higher natural variability.

The full paper is available free of charge at http://www.atmos-chem-phys.net/8/5403/2008/acp-8-5403-2008.html

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Presentation, calibration and validation of the low-order, DCESS Earth System Model

The model features modules for the atmosphere, ocean, ocean sediment, land biosphere and lithosphere and has been designed to simulate global change on time scales of years to millions of years

A new, low-order Earth System Model is described, calibrated and tested against Earth system data. The model features modules for the atmosphere, ocean, ocean sediment, land biosphere and lithosphere and has been designed to simulate global change on time scales of years to millions of years. The atmosphere module considers radiation balance, meridional transport of heat and water vapor between low-mid latitude and high latitude zones, heat and gas exchange with the ocean and sea ice and snow cover. Gases considered are carbon dioxide and methane for all three carbon isotopes, nitrous oxide and oxygen. The ocean module has 100 m vertical resolution, carbonate chemistry and prescribed circulation and mixing. Ocean biogeochemical tracers are phosphate, dissolved oxygen, dissolved inorganic carbon for all three carbon isotopes and alkalinity. Biogenic production of particulate organic matter in the ocean surface layer depends on phosphate availability but with lower efficiency in the high latitude zone, as determined by model fit to ocean data. The calcite to organic carbon rain ratio depends on surface layer temperature. The semi-analytical, ocean sediment module considers calcium carbonate dissolution and oxic and anoxic organic matter remineralisation. The sediment is composed of calcite, non-calcite mineral and reactive organic matter. Sediment porosity profiles are related to sediment composition and a bioturbated layer of 0.1 m thickness is assumed. A sediment segment is ascribed to each ocean layer and segment area stems from observed ocean depth distributions. Sediment burial is calculated from sedimentation velocities at the base of the bioturbated layer. Bioturbation rates and oxic and anoxic remineralisation rates depend on organic carbon rain rates and dissolved oxygen concentrations. The land biosphere module considers leaves, wood, litter and soil. Net primary production depends on atmospheric carbon dioxide concentration and remineralization rates in the litter and soil are related to mean atmospheric temperatures. Methane production is a small fraction of the soil remineralization. The lithosphere module considers outgassing, weathering of carbonate and silicate rocks and weathering of rocks containing old organic carbon and phosphorus. Weathering rates are related to mean atmospheric temperatures.

A pre-industrial, steady state calibration to Earth system data is carried out. Ocean observations of temperature, carbon 14, phosphate, dissolved oxygen, dissolved inorganic carbon and alkalinity constrain air-sea exchange and ocean circulation, mixing and biogeochemical parameters. Observed calcite and organic carbon distributions and inventories in the ocean sediment help constrain sediment module parameters. Carbon isotopic data and carbonate vs. silicate weathering fractions are used to estimate initial lithosphere outgassing and rock weathering rates. Model performance is tested by simulating atmospheric greenhouse gas increases, global warming and model tracer evolution for the period 1765 to 2000, as forced by prescribed anthropogenic greenhouse gas inputs and other anthropogenic and natural forcing. Long term, transient model behavior is studied with a set of 100 000 year simulations, forced by a slow, 5000 Gt C input of CO2 to the atmosphere, and with a 1.5 million year simulation, forced by a doubling of lithosphere CO2 outgassing.

The full paper is available free of charge at http://www.geosci-model-dev.net/1/17/2008/gmd-1-17-2008.html

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Seasonal-hour variation scales in abundance and production of total and particle-attached bacteria

The vertical and temporal dynamics of total and particle-attached bacterial abundance and activity over a 5 week period under summer to autumn transition in NW Mediterranean Sea

The authors present the vertical and temporal dynamics of total vs. particle-attached bacterial abundance and activity over a 5 week period under summer to autumn transition in NW Mediterranean Sea.

At a weekly time scale, total bacterial biomass and production in the euphotic layers was significantly correlated with phytoplanktonic biomass. At an hourly time scale, total bacterial biomass responded very rapidly to chlorophyll a fluctuations, suggesting a tight coupling between phytoplankton and bacteria for resource partitioning during the summer-autumn transition. In contrast, no influence of diel changes on bacterial parameters was detected. Episodic events such as coastal water intrusions had a significant positive effect on total bacterial abundance and production, whereas the authors could not detect any influence of short wind events whatever the magnitude. Finally, they show that particle-attached bacteria

can represent a large proportion (up to 49%) of the total bacterial activity in the euphotic layer but display rapid and sporadic changes at hourly time scales. In the mesopelagic layers, bacterial abundance and production linearly decreased with depth, except some production peaks at 400–750 m.

This study underlines the value of large datasets covering different temporal scales to clarify the biogeochemical role of bacteria in the cycling of organic matter in open seawater.

The full paper is available free of charge at http://www.biogeosciences.net/5/1573/2008/bg-5-1573-2008.html

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The total solar eclipse of March 2006

overview of an integrated, multi-disciplinary effort to study the effects of the 29 March 2006 total solar eclipse on the environment, with special focus on the atmosphere

This paper provides the overview of an integrated, multidisciplinary effort to study the effects of the 29 March 2006 total solar eclipse on the environment, with special focus on the atmosphere. The eclipse has been visible over the Eastern Mediterranean, and on this occasion several research and academic institutes organised co-ordinated experimental campaigns, at different distances from eclipse totality and at various environments in terms of air quality.

Detailed results and findings are presented in a number of component scientific papers included in a Special Issue of Atmospheric Chemistry and Physics. The effects of the eclipse on meteorological parameters, though very clear, were shown to be controlled by local factors rather than the eclipse magnitudes, and the turbulence activity near surface was suppressed causing a decrease in the Planetary Boundary Layer. In addition to the above, the decrease in solar radiation has caused change to the photochemistry of the atmosphere, with night time chemistry dominating. The abrupt `switch off` of the sun, induced changes also in the ionosphere (140 up to 220 km) and the stratosphere. In the ionosphere, both photochemistry and dynamics resulted to changes in the reflection heights and the electron concentrations.

Among the most important scientific findings from the experiments undertaken has been the experimental proof of eclipse induced thermal fluctuations in the ozone layer (Gravity Waves), due to the supersonic movement of the moon`s shadow, for the first time with simultaneous measurements at three altitudes namely the troposphere, the stratosphere and the ionosphere. Within the challenging topics of the experiments has been the investigation of eclipse impacts on ecosystems (field crops and marine plankton). The rare event of a total solar eclipse provided the opportunity to evaluate 1 dimensional (1-D) and three dimensional (3-D) radiative transfer (in the atmosphere and underwater), mesoscale meteorological, regional air quality and photochemical box models, against measurements.

The full paper is available free of charge at http://www.atmos-chem-phys.net/8/5205/2008/acp-8-5205-2008.html

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Limitations of wind power availability over Europe: a conceptual study

A conceptual study which demonstrates the limitations of wind power integration over Europe

Wind field statistics are evaluated from the ERA-40 data bank covering a period of 44 years with a temporal resolution of 6 h. Instantaneous wind speed values are provided in geographic cells of size 1°×1° (lat/long) for surface (10 m) and 1000 hPa pressure heights.

Potential wind power generation is estimated in two steps. Firstly, the wind speed at hub height is approximated from surface data based on the statistical analysis of the wind and geopotential records for 1000 hPa pressure level. Secondly, the wind speed values are transformed by an idealised power curve fitted for measured data. The model time series are fed into various hypothetical electric networks. The main quantity of interest is the aggregated output from the networks. A reference power time series is determined for a static network connecting each continental site and an envelope of 1° around the shorelines (representing off-shore locations) over Europe. This time series exhibits a low average value and a marked annual periodicity. Wind power integration over limited areas results in higher average outputs at the expense of stronger fluctuations. The long-range spatial correlations of the wind field limit the level of fluctuations strongly which can not be eliminated either by an increase of the area of integration or by dynamic control. This study is fully conceptual, however it demonstrates the limitations of wind power integration over Europe.

The full paper is available free of charge at http://www.nonlin-processes-geophys.net/15/803/2008/npg-15-803-2008.html

Kiss, P. and Jánosi, I. M.: Limitations of wind power availability over Europe: a conceptual study, Nonlin. Processes Geophys., 15, 803-813, 2008.

N2O release from agro-biofuel production

might negate global warming reduction by replacing fossil fuels

The relationship, on a global basis, between the amount of N fixed by chemical, biological or atmospheric processes entering the terrestrial biosphere, and the total emission of nitrous oxide (N2O), has been re-examined, using known global atmospheric removal rates and concentration growth of N2O as a proxy for overall emissions.

For both the pre-industrial period and in recent times, after taking into account the large-scale changes in synthetic N fertiliser production, we find an overall conversion factor of 3–5% from newly fixed N to N2O-N. The authors assume the same factor to be valid for biofuel production systems. It is covered only in part by the default conversion factor for "direct" emissions from agricultural crop lands (1%) estimated by IPCC (2006), and the default factors for the "indirect" emissions (following volatilization/deposition and leaching/runoff of N: 0.35–0.45%) cited therein. However, as the authors show in the paper, when additional emissions included in the IPCC methodology, e.g. those from livestock production, are included, the total may not be inconsistent with that given by the top-down method. When the extra N2O emission from biofuel production is calculated in CO2-equivalent global warming terms, and compared with the quasi-cooling effect of `saving` emissions of fossil fuel derived CO2, the outcome is that the production of commonly used biofuels, such as biodiesel from rapeseed and bioethanol from corn (maize), depending on N fertilizer uptake efficiency by the plants, can contribute as much or more to global warming by N2O emissions than cooling by fossil fuel savings. Crops with less N demand, such as grasses and woody coppice species, have more favourable climate impacts.

The full paper is available free of charge at
http://www.atmos-chem-phys.net/8/389/2008/acp-8-389-2008.html

Crutzen, P. J., Mosier, A. R., Smith, K. A., and Winiwarter, W.: N2O release from agro-biofuel production negates global warming reduction by replacing fossil fuels, Atmos. Chem. Phys., 8, 389-395, 2008.

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European Project on Ocean Acidification

The European FP7 project EPOCA (European Project on OCean Acidification) was recently launched in Nice with the overall goal to fill the numerous gaps in our understanding of ocean acidification and its consequences. The research of this 4-year long project, coordinated by Jean-Pierre Gattuso, is divided into four themes. Theme 1 will focus on past and present spatiotemporal changes in ocean chemistry and biogeography of key marine organisms. Theme 2 will quantify impacts of ocean acidification on marine organisms and ecosystems and assess the potential for acclimation and adaptation. Theme 3 will improve biogeochemical, sediment, and coupled ocean-climate models to better account for how ocean acidification will affect ocean biogeochemistry and ecosystems. Finally, Theme 4 will synthesize results obtained in Themes 1, 2 and 3 for business leaders, policy-makers and the general public and evaluate uncertainties, risks and thresholds (tipping points) related to ocean acidification.

Since the beginning of the industrial revolution, about one third of the CO2 released in the atmosphere by anthropogenic activities has been absorbed by the worldÂ's oceans, which therefore play a key role in moderating climate change. As CO2 reacts with sea water, it generates dramatic changes in the carbonate chemistry, including decreases in pH and in the concentration of carbonate ions. Average surface water pH values are in an accelerating decline: 8.3 during the last glacial maximum, 8.2 just prior to the industrial era, and 8.1 at present; surface pH may reach 7.8 by the end of this century. This pH level is probably unprecedented in several tens of millions of years and the changes in carbonate chemistry are happening at a speed 100 times greater than has ever been seen before. The impacts of this phenomenon, known as ocean acidification, on marine ecosystems are only poorly known. As oceans continue to acidify, there is an increasing risk of loss of biodiversity and of profound ecological shifts. One of the most likely consequences is the slower growth of organisms forming calcareous skeletons or shells, such as corals and mollusks.

Fig. 1: EPOCA Partners.

The research interests of EPOCA are divided into four themes:

--Theme 1 focuses on past and present spatiotemporal changes in ocean chemistry and biogeography of key marine organisms. Paleo-reconstruction methods will be used on several archives, including foraminifera and deep-sea corals, to determine past variability in ocean chemistry (carbonate, nutrients, and trace metals) and to tie this variability to present-day chemical and biological observations.

--Theme 2 aims to quantify impacts of ocean acidification on marine organisms and ecosystems. Molecular, physiological and ecological approaches will be used to study climate-relevant biogeochemical processes, including calcification, primary production and nitrogen fixation. Laboratory and field perturbation experiments will focus on key organisms in terms of their ecological, biogeochemical, or socioeconomic importance. The potential for adaptation and acclimation will be assessed. EPOCA will focus on areas where ocean acidification is thought to strike first (Arctic Ocean and the North Atlantic).

--Results from themes 1 and 2 will be integrated in biogeochemical, sediment, and coupled ocean-climate models to project future responses of the Earth system to ocean acidification. Special attention will be paid to feedbacks of physiolog-

ical changes on the carbon, nitrogen, iron, and sulfur cycles and how these changes will affect and be affected by future climate change.

--Theme 4 will synthesize results obtained in Themes 1, 2 and 3 to evaluate uncertainties, risks and thresholds (Â“tipping pointsÂ”) related to ocean acidification at molecular, cellular and organismal levels and from local to global scales. It will also assess the decrease in CO2 emissions required to avoid these thresholds and describe the change to the marine environment and Earth system, should these emissions be exceeded.

In addition to these four research themes, EPOCA comprises several overarching activities including research and training workshops, educational activities, data management, and outreach.

Research workshops: Several research workshops are planned throughout the projectÂ's lifetime. These workshops will enable specialists in different fields to come together and discuss the research being carried out and decide on future approaches. EPOCA will organise this fall, together with IOC-UNESCO and SCOR, an international research workshop on best practices for ocean acidification research (November 2008 in Kiel, Germany; chair: Ulf Riebesell). The need for standardised protocols and reporting of data has been highlighted at numerous ocean acidification workshops over the past few years. This workshop will produce short technical reports for each major topic covered (e.g., perturbation and calcification experiments), as well as a Guide to Best Practices for Ocean Acidification Research and Data Reporting.

Training: EPOCA will organise several training workshops for Ph.D students and young researchers. The first one, organised by Richard Bellerby (University of Bergen), will take place in Bergen in early 2009. It will cover the fundamentals of the marine carbon dioxide system and carbon biogeochemistry with ecosystem controls and feedbacks. The course will provide a comprehensive insight into the global carbon cycle, pH scales and dissociation constants, biogenic calcification and the CaCO3 cycle, and the physiological processes of autotrophic carbon assimilation.

Education: An important aspect of EPOCA is to share the knowledge on ocean acidification with young people. One of the EPOCA Consortium members; Philippe Saugier International Educational Projects (PSIEP), will produce an educational package on ocean acidification for secondary school pupils and initiate educational projects in Europe with a strong scientist Â– teacher Â– pupil interaction. EPOCA Ph.Ds and Post Docs will be invited to get involved in these school projects as part of their training to raise their skill to communicate with non-scientific audiences.

Data Management: The EPOCA Data Management Team consists of Anne-Marin Nisumaa, Observation Data Manager, and a Model Data Manager who will be hired by the end of 2008. The Data Management team will collect, quality control, archive, and publish data as well as disseminate information in order to secure a consistent information exchange while protecting intellectual property rights. Two major types of data will be handled: (1) direct measurements from Themes 1 and 2 (e.g., proxy data, water column data, data from process studies, mesocosms and laboratory experiments) and (2) model outputs from Themes 2 and 3 (e.g., 4-D velocity and tracer fields, material fluxes, various biogeochemical and ecological parameter estimates). Data will be archived in the World Data Center for Marine Environmental Sciences (WDC-MARE), a sub-contractor of the EPOCA consortium.

Outreach: The EPOCA consortium combines expertise in various fields of marine research. The results of this multidisciplinary collaboration will be presented to the non-scientific community (business leaders, organisations and the general public) to inform about the risks and what can be done to avoid deleterious effects of ocean acidification (for example, defining CO2 emissions targets). The EPOCA strategy aims to contribute high quality science directly to expert groups and policy-makers through government and intergovernmental committees, and to provide clear information to the media. To this end, an EPOCA Reference User Group (RUG) comprising targeted stakeholders has been established. The RUG works with the consortium to examine the user-related issues (types of data, analyses and products that will be most useful to managers, policy advisors, decision makers and politicians, the format and nature of key messages arising from the EPOCA research, and the dissemination procedures).

For more information please contact the EPOCA Project Office: Jean-Pierre Gattuso, project coordinator, (gattuso@obs-vlfr.fr)

or Lina Hansson, project manager, (hansson@obs-vlfr.fr) Laboratoire d`Océanographie, CNRS-Université Pierre et Marie Curie-Paris 6, BP 28, 06234 Villefranche-sur-mer Cedex, France.

Project Web site: http://epoca-project.eu

Climate Change and Variability: Impact on Central and Eastern Europe

A presentation of the FP6 CLAVIER Project by Daniela Jacob et al

The nations in Central and Eastern Europe (CEE) face triple challenges through the ongoing economic and political transition, continuing vulnerability to environmental hazards and longer term impacts of global climate change. To make a contribution to successfully cope with these challenges, the European Commission supported the specific targeted research project CLAVIER.

The project is running from 2006 till 2009 under the Thematic Sub-Priority Â"Global Change and EcosystemsÂ" of the 6th Framework Programme and is coordinated by Dr. Daniela Jacob from the Max-Planck Institute for Meteorology in Hamburg, Germany. The project addresses the following main scientific goals:

- investigation of ongoing and future climate changes and their associated uncertainties in Central and Eastern European Countries (CEEC);
- analysis of possible impacts of climate change in CEEC on weather pattern and extremes, air pollution, human health, natural ecosystems, forestry, agriculture and infrastructure as well as water resources;
- evaluation of the economic impacts of climate change on CEEC economies, concentrating on four economic sectors, which are agriculture, tourism, energy supply and the public sector.

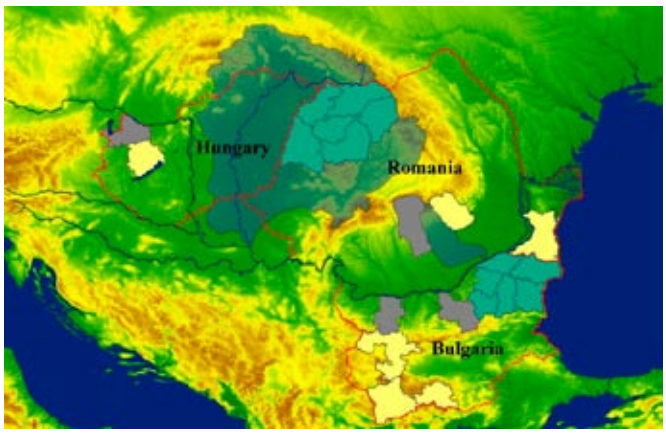

Figure 1. CLAVIER Target regions: cyan – hydrological/water management; green – agriculture; grey - energy; yellow – tourism

Three CEE Countries - Hungary, Romania and Bulgaria Â– are studied in detail. Figure 1 shows the CLAVIER target regions. To fulfil the need of local and regional impact assessment, ongoing and future climate changes are analysed with very high detail based on available data and on climate projections. In the CLAVIER project, three different regional climate models are used to form a small model ensemble: two versions of the REMO model (REMO5.0 operated at the Hungarian Meteorological Service, REMO5.7 developed at the Max-Planck Institute for Meteorology in Hamburg) and the LMDZ model from CNRS in Paris.

With each of these models, a simulation of a past period from 1961 to 2000 and a long transient simulation for the

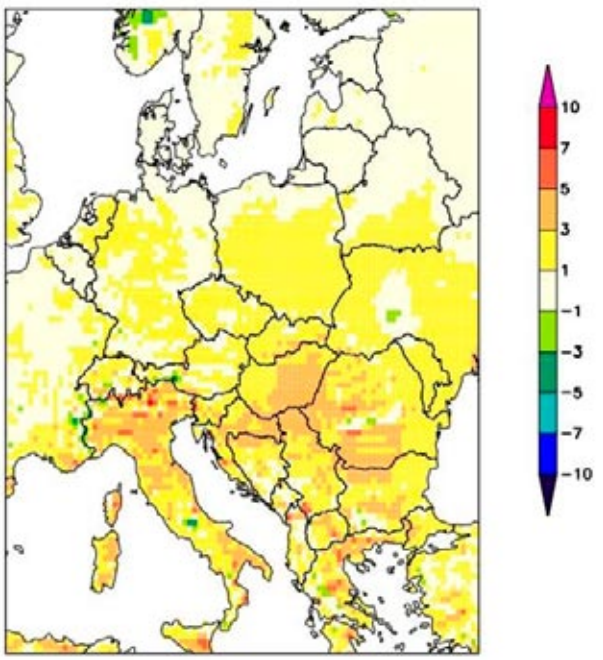

Figure 2. Difference of the summer mean (2m) temperature (in degree Celsius) between the model results and the CRU dataset for the period of 1961–2000 (JJA mean). The REMO 5.7 experiment was driven by the ERA40 reanalyses.

hundred years of 1951 to 2050 were carried out. Such an exhaustive combination is designed to evaluate the uncertainties existing in the different stages of regional climate change information. Figure 2 shows as example the difference between simulated summer temperatures and the CRU observational dataset [New et al. 2002] for the model simulations performed at the Max-Planck Institute for Meteorology by the regional climate model REMO.

A crucial part of the project is the establishment of an effective interface between the project participants, particularly those from the climate modelling and the climate impact assessment communities. Thus, empirical-statistical methodologies for bridging the Â“scale-gapÂ” between modelling data and the needs of particular impact studies and for mitigating climate model errors are evaluated and further developed by Wegener Center for Climate and Global Change, University of Graz, Austria (WegCenter). Figure 3 shows the effect of two different empirical-statistical post-processing methods for daily temperature (upper panel) and precipitation errors (lower panel) of a REMO hindcast simulation (black) over Hungary compared to the gridded observational dataset of the ECA&D project [Haylock et al., 2008].

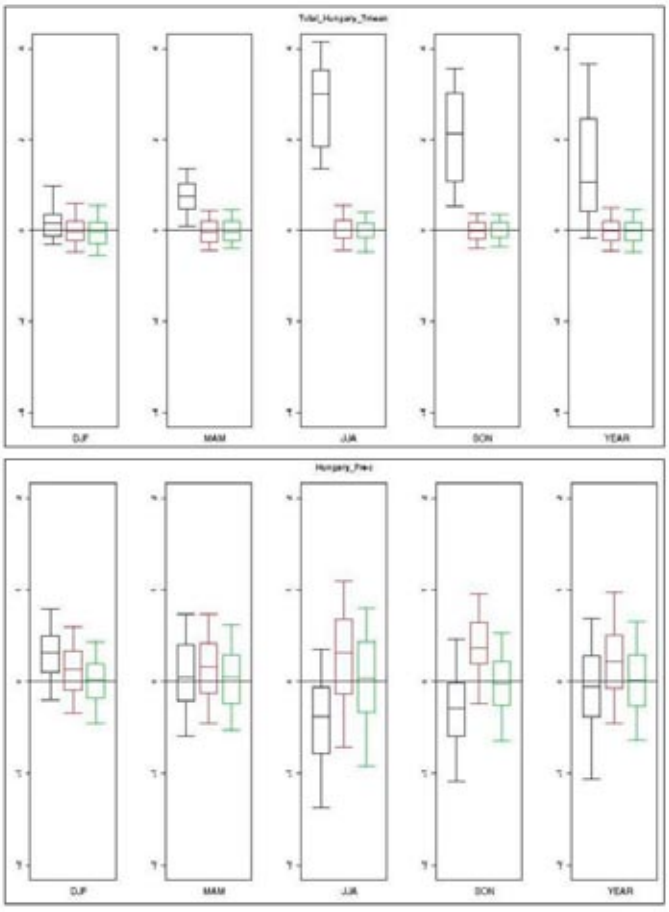

Figure 3. Seasonal and annual differences between daily temperatures (upper panel) and daily precipitation sums (lower panel) of a REMO simulation (1961-2000) driven by the ERA-40 reanalysis over Hungary (black). The median, 25/75 quantiles, and the 5/95 quantiles are indicated. The differences after post-processing using and multi-linear regression and a quantile mapping approach are shown in red and green, respectively

Median errors are displayed together with the 25/75 and the 5/95 quantiles of the errors for the individual seasons and the entire year. While both methods Â– a multilinear regression approach (MLR, red) and a quantile mapping approach (QM, green) Â– are very successful in reducing temperature errors, the linear nature of the MLR approach limits the performance of the method with respect to daily precipitation. QM shows good performance for both parameters. Weather regimes are believed to be a main factor in organizing the local weather and climate of Central and Eastern Europe. They are associated with significant anomalies of temperature, precipitation and wind.

Therefore, one CLAVIER objective is to make a complete analysis of weather regimes for the selected region including the study of ongoing and future changes as well as their implication to air pollution levels. Figure 4 illustrates how relative frequency of macro-circulation patterns changes in the last 40 years over the Central-European region.

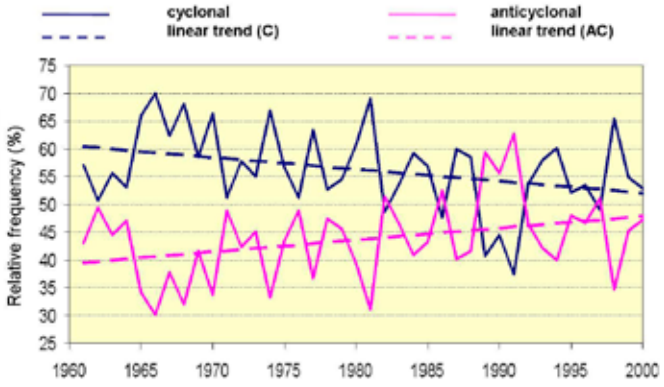

Figure .4 Annual relative frequency of cyclonic (dark blue) and anticyclonic (pink) Hess-Brezowsky macro-synoptic types and linear trends for the period 1961-2000 over the Central-European region)

These calculations are performed by the Hungarian Meteorological Service (OMSZ) in Budapest. It is generally expected within the climate research community that the frequency of extreme events will be significantly modified under climate change conditions. It could be heavy extra-tropical storms or heavy precipitation events. In the framework of CLAVIER, 24 indices for extreme events have been identified based on the STARDEX definitions and on the requirements of the project partners. They are typical for the CLAVIER study area and mainly based on temperature, precipitation and wind speed. Based on the output of regional climate models mentioned above, CLAVIER aims at the production of future hydrological and agricultural scenarios.

Analysis of the simulation results received from hydrological models serves as direct or indirect input to water management decision support systems. Within the project, the transboundary Tisza Basin and Arges catchments as well as the hydrological regime of Lake Balaton are studied in detail. One example of this study is presented in Figure 5 and shows estimated annual evaporation rates for Lake Balaton. The comparison between observational and simulated data has been done by the Budapest University of Technology and Economics (BUTE).

As it was already mentioned above, one of the main objectives of CLAVIER is to evaluate the economic impacts of climate changes in Hungary, Romania and Bulgaria. Four eco-

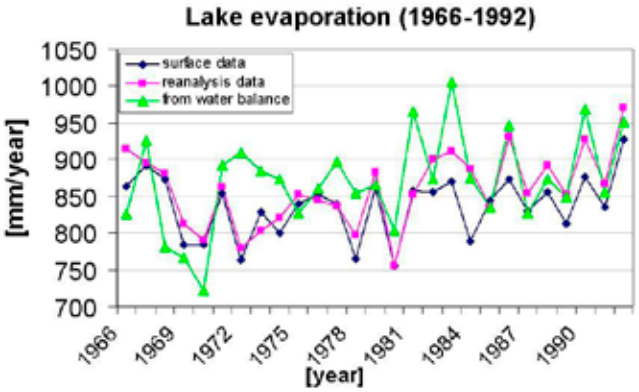

Figure 5. Estimated annual evaporation rates for Lake Balaton

nomic sectors are of particular interest of CLAVIER: agriculture, tourism, energy supply and the public sector. In addition, the risk transfer mechanisms and institutional settings that can deal with economic risks, e.g. from flood events or droughts, are analysed.

Based on the findings of the case studies, the influence of climate change scenarios on the national economies will be estimated and conclusions on the overall macroeconomic relevance of the studied phenomena will be drawn. Figure 6 shows the case study areas selected in Romania for winter tourism (the Prahova Valley and the limitrophe mountain region Bucegi Mts) and for summer tourism (Southern littoral region, between Constanța and Vama Veche Â– Constanța County).

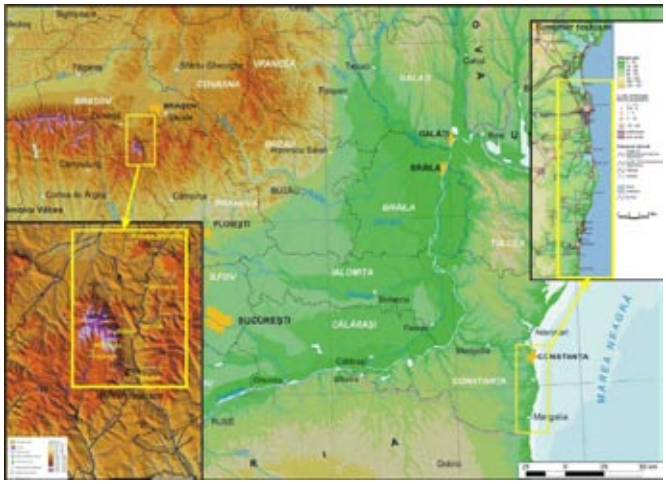

Figure 6. Case study areas selected in Romania for winter and summer tourism

A substantial part of the project is also to establish contacts with a wide range of user groups from CEE countries, who will benefit from the CLAVIER results. CLAVIER closely cooperates with the EU projects ENSEMBLES and CECILIA. Please visit the project website to find more information about CLAVIER: www.clavier-eu.org.

Acknowledgements

We acknowledge the climate dataset from the EU-FP6 project ENSEMBLES (http://www.ensembles-eu.org) and the data providers in the ECA&D project (http://eca.knmi.nl)

Reference

Haylock, M.R., N. Hofstra, A.M.G. Klein Tank, E.J. Klok, P.D. Jones and M. New. 2007: A European daily high-resolution gridded dataset of surface temperature and precipitation. Journal of Geophysical Research, Vol. 113, D20119, doi:10.1029/2008JD010201, 2008 New, M., Lister, D., Hulme, M., and Makin, I., 2002: A high-resolution data set of surface climate over global land areas. Climate Research, 21, pp. 1-25.

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EducaPoles

the International Polar Foundation`s educational site

EducaPoles is one of the four International Polar Foundation`s (IPF) educational sites.

Three other complementary websites focusing on various aspects of the IPF activities are available: IPF website, SciencePoles and ExploraPoles.

EducaPoles seeks to sensitize young people and their teachers to the importance and the fragile nature of the polar environments, and to enable them to approach the phenomenon of climate changes from this angle.

To this end EducaPoles offers the educational world a number of tools (teaching dossiers, multimedia animations, comic strips, etc.). It has also set up a series of international teaching projects in cooperation with institutes, universities and NGOs (Antarctica2003, ClimaTIC, Soleil Noir sur Continent Blanc,...).

The EducaPoles site offers teachers and pupils direct access to key information, as well as up-to-date news on current and upcoming projects, and a space for latest news on teaching events and materials linked to the polar environment and climate changes.

Through this site, IPF is looking to:

--Highlight polar regions` unique character as planetary climate archives and their importance in keeping the global ``climate machinery`` in equilibrium;

--Offer the necessary theoretical background for an understanding of climate change. The complexity of this phenomenon calls for a global, simplified and cross-disciplinary approach to grasp the origins of the phenomenon and its likely effects;

--Sensitize young people to their environment and their local climate situation;

--Enable young people to develop a personal position on this phenomenon and to map out their involuntary contributions, so as to initiate a process of commitment to reduce their ecological footprint.

More than 30 teaching dossiers have been put together by the International Polar Foundation. All are intended for primary school teachers, and cover different topics.

More info and access to the educational material:
http://www.educapoles.org

Online chemistry lessons

not focused on geosciences but with some relevant presentations of classroom activities

Why does our hair stand on end when we take off certain items of clothing? How can solar energy be used to transform salt water into fresh water?

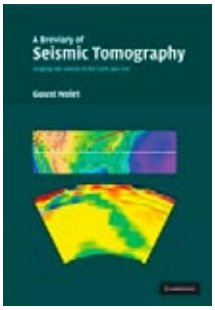
These are a few of the experiments proposed by the Xperimania website. Accessible in 22 languages, the website is targeted at primary and secondary school teachers and provides teaching packs for each experiment, together with a range of teaching aids (texts, photos and videos). In addition, it enables teachers to participate in online chats with experts. Pupils can include their own work on the site and participate in competitions.

An initiative of the APPE (Association of Petrochemicals Producers in Europe), the website is coordinated by European Schoolnet, a network of 28 European education ministries. One of the aims of Xperimania is to further exchanges between schools in different countries. The website's proposed activities focus mainly on concrete outcomes and the field of materials. The aim is to help European teachers and pupils to understand some of the processes involved in creating materials used in everyday objects and to explore their properties.

Although not focused on geosciences, some of the presented classroom activities are relevant to some geoscience disciplines (e.g. energy efficiency, air and protection from cold).

You can find out more at
www.xperimania.net

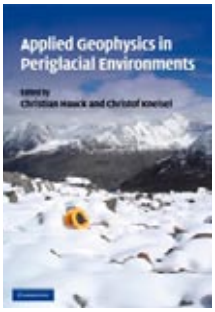
A Breviary of Seismic Tomography



Authors: Guust Nolet
Publisher: Cambridge University Press
ISBN: 9780521882446
YEAR : 2008
EDITION : 1st
PAGES : 344
PRICE : 48.00 €
Hardback

This is the first textbook to cover the essential aspects of the topic at a level accessible to students. While focusing on applications in solid earth geophysics, the book also includes excursions into helioseismology, thereby highlighting the strong affinity between the two fields. The book provides a comprehensive introduction to seismic tomography, including the basic theory of wave propagation, the ray and Born approximations required for interpretation of amplitudes, and travel times and phases. It considers observational features while also providing practical recommendations for implementing numerical models. Written by one of the leaders in the field, and containing numerous student exercises, this textbook is appropriate for advanced undergraduate and graduate courses. It is also an invaluable guide for seismology research practitioners in geophysics and astronomy.

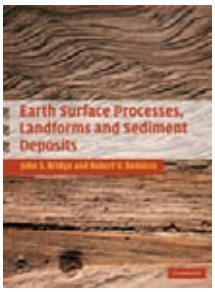
Applied Geophysics in Periglacial Environments



Authors: Christian Hauck and Christof Kneisel
Publisher: Cambridge University Press
ISBN: 9780521889667
YEAR : 2008
EDITION : 1st
PAGES : 240
PRICE : 109.00 €
Hardback

Many important problems in cryospheric science, such as global warming-induced permafrost degradation, concern subsurface properties and processes that take place some metres below the surface. Geophysical techniques can be used to study ground ice and characterise areas of permanently frozen ground, but surveys in mountainous and polar areas demand specialized techniques for sensor coupling; data acquisition and interpretation; inversion routines; and logistical issues in cold and remote environments. This book starts with an introduction to the main geophysical methods and then demonstrates their application through case studies written by a team of international experts in the various field techniques. The final part of the book presents a series of reference tables with typical values of geophysical parameters for periglacial environments. Written as a reference guide for the application of geophysical techniques in mountainous and polar terrain, this will serve as a handbook for planning and conducting field surveys. It is a valuable resoursce for glaciologists, geomorphologists and geologists requiring an introduction to geophysical techniques, as well as for geophysicists lacking experience of working in periglacial and glacial environments.

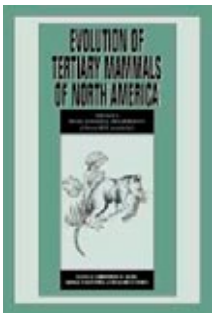
Earth Surface Processes, Landforms and Sediment Deposits



Authors: John S. Bridge and Robert V. Demicco
Publisher: Cambridge University Press
ISBN: 9780521857802
YEAR : 2008
EDITION : 1st
PAGES : 815
PRICE : 66.00 €
Hardback

Earth surface processes, landforms and sediment deposits are intimately related - involving erosion of rocks, generation of sediment, and transport and deposition of sediment through various Earth surface environments. These processes, and the landforms and deposits that they generate, have a fundamental bearing on engineering, environmental and public safety issues; on recovery of economic resources; and on our understanding of Earth history. This unique textbook brings together the traditional disciplines of sedimentology and geomorphology to explain Earth surface processes, landforms and sediment deposits in a comprehensive and integrated way. It is the ideal resource for a two-semester course in sedimentology, stratigraphy, geomorphology, and Earth surface processes from the intermediate undergraduate to beginning graduate level. The book is also accompanied by a website hosting illustrations and material on field and laboratory methods for measuring, describing and analyzing Earth surface processes, landforms and sediments.

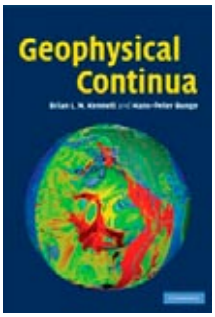
Evolution of Tertiary Mammals of North America



Authors: Christine M. Janis, Gregg F. Gunnell and Mark D. Uhen
Publisher: Cambridge University Press
ISBN: 9780521781176
YEAR : 2008
EDITION : 1st
PAGES : 795
PRICE : 210.00 €
Hardback

This second volume completes the unique survey of North American Tertiary mammals, and covers all the remaining taxa not contained in Volume 1. It provides a database of mammalian diversity over time and space, and evaluates the effect of biogeography and climatic change on evolutionary patterns and faunal transitions. As with Volume 1, this book lays out in a standardized format, the distribution in time and space of each taxon. It summarizes the current state of the systematics of the various mammal groups, and it discusses their paleobiology and evolutionary patterns. It contains six summary chapters that integrate systematic and biogeographic information for higher taxa, and provides a detailed account of the patterns of occurrence for different species at hundreds of different fossil localities, with the inclusion of many more localities than were contained in the first volume. With over thirty chapters, each written by leading authorities, and an addendum that updates the occurrence and systematics of all of the groups covered in Volume 1, this will be a valuable reference for paleontologists and zoologists.

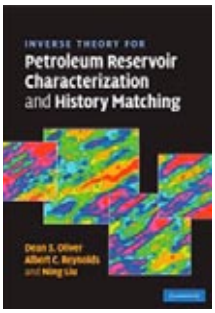
Geophysical Continua: Deformation in the Earth's Interior



Authors: Brian L. N. Kennett, Hans-Peter Bunge
Publisher: Cambridge University Press
ISBN: 9780521865531
YEAR : 2008
EDITION : 1st
PAGES : 432
PRICE : 55.00 €
Hardback

Geophysical Continua presents a systematic treatment of deformation in the Earth from seismic to geologic time scales, and demonstrates the linkages between different aspects of the Earth's interior that are often treated separately. A unified treatment of solids and fluids is developed to include thermodynamics and electrodynamics, in order to cover the full range of tools needed to understand the interior of the globe. The emphasis throughout the book is on relating seismological observations with interpretations of earth processes. Physical principles and mathematical descriptions are developed that can be applied to a broad spectrum of geodynamic problems. Incorporating illustrative examples and an introduction to modern computational techniques, this textbook is designed for graduate-level courses in geophysics and geodynamics. It is also a useful reference for practising Earth Scientists.

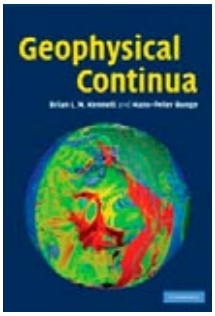
Inverse Theory for Petroleum Reservoir Characterization and History Matching



Authors: Dean S. Oliver, Albert C. Reynolds and Ning Liu
Publisher: Cambridge University Press
ISBN: 9780521881517
YEAR : 2008
EDITION : 1st
PAGES : 380
PRICE : 96.00 €
Hardback

This book is a guide to the use of inverse theory for estimation and conditional simulation of flow and transport parameters in porous media. It describes the theory and practice of estimating properties of underground petroleum reservoirs from measurements of flow in wells, and it explains how to characterize the uncertainty in such estimates. Early chapters present the reader with the necessary background in inverse theory, probability and spatial statistics. The book demonstrates how to calculate sensitivity coefficients and the linearized relationship between models and production data. It also shows how to develop iterative methods for generating estimates and conditional realizations. The text is written for researchers and graduates in petroleum engineering and groundwater hydrology and can be used as a textbook for advanced courses on inverse theory in petroleum engineering. It includes many worked examples to demonstrate the methodologies and a selection of exercises.

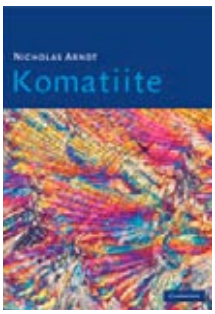
Komatiite



Authors: Nicholas Arndt
Publisher: Cambridge University Press
ISBN: 9780521874748
YEAR : 2008
EDITION : 1st
PAGES : 467
PRICE : 105.00 €
Hardback

Komatiites erupted billions of years ago as pulsating streams of white-hot lava. Their unusual chemical compositions and exceptionally high formation temperatures produced highly fluid lava that crystallized as spectacular layered flows. Investigation of the extreme conditions in which komatiites formed provides important evidence about the thermal and chemical evolution of the planet, and the nature of the Precambrian mantle. This monograph, written by three experts with long experience in the field, presents a complete account of the characteristics of komatiites including their volcanic structures, textures, mineralogy and chemical compositions. Models for their formation and eruption are evaluated, including discussion of the controversial issue of whether komatiites originated from anhydrous or hydrous magmas. A chapter is also devoted to the valuable nickel and copper ore deposits found in komatiites. Komatiite is a key reference for researchers and advanced students interested in petrology, Archaean geology, economic geology, and broader questions about the evolution of the Earth's crust and mantle.

Inverse Theory for Petroleum Reservoir Characterization and History Matching



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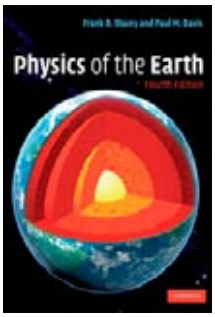
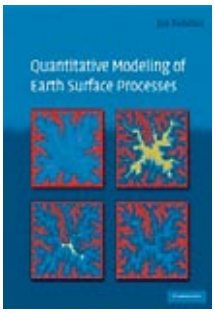
Physics of the Earth



Authors: Frank D. Stacey, Paul M. Davis
Publisher: Cambridge University Press
ISBN: 9780521873628
YEAR : 2008
EDITION : 4th
PAGES : 532
PRICE : 58.00 €
Hardback

The fourth edition of Physics of the Earth maintains the original philosophy of this classic graduate textbook on fundamental solid earth geophysics, while being completely revised, updated, and restructured into a more modular format to make individual topics even more accessible. Building on the success of previous editions, which have served generations of students and researchers for nearly forty years, this new edition will be an invaluable resource for graduate students looking for the necessary physical and mathematical foundations to embark on their own research careers in geophysics. Several completely new chapters have been added and a series of appendices, presenting fundamental data and advanced mathematical concepts, and an extensive reference list, are provided as tools to aid readers wishing to pursue topics beyond the level of the book. Over 140 student exercises of varying levels of difficulty are also included.

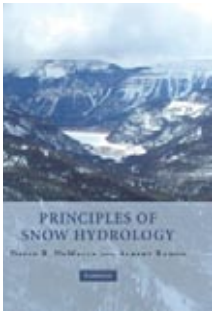
Quantitative Modeling of Earth Surface Processes



Authors: Jon D. Pelletier
Publisher: Cambridge University Press
ISBN: 9780521855976
YEAR : 2008
EDITION : 1st
PAGES : 295
PRICE : 62.00 €
Hardback

Geomorphology is undergoing a renaissance made possible by new techniques in numerical modeling, geochronology and remote sensing. Earth surface processes are complex and richly varied, but analytical and numerical modeling techniques are powerful tools for interpreting these systems and the landforms they create. This textbook describes some of the most effective and straightforward quantitative techniques for modeling earth surface processes. By emphasizing a core set of equations and solution techniques, the book presents state-of-the-art models currently employed in earth surface process research, as well as a set of simple but practical research tools that can be used to tackle unsolved research problems. Detailed case studies demonstrate application of the methods to a wide variety of processes including hillslope, fluvial, aeolian, glacial, tectonic, and climatic systems. The computer programming codes used in the case studies are also presented in a set of appendices so that readers can readily utilize these methods in their own work. Additional references are also provided for readers who wish to finetune their models or pursue more sophisticated techniques. Assuming some knowledge of calculus and basic programming experience, this quantitative textbook is designed for advanced geomorphology courses and as a reference book for professional researchers in Earth and planetary science looking for a quantitative approach to Earth surface processes. Exercises at the end of each chapter begin with simple calculations and then progress to more sophisticated problems that require computer programming. All the necessary computer codes are available online at www.cambridge.org/9780521855976.

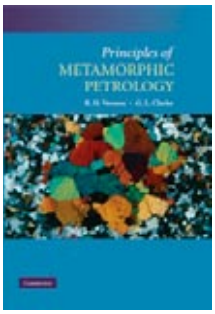
Principles of Snow Hydrology



Authors: David R. DeWalle, Albert Rango
Publisher: Cambridge University Press
ISBN: 9780521823623
YEAR : 2008
EDITION : 1st
PAGES : 410
PRICE : 105.00 €
Hardback

Principles of Snow Hydrology describes the factors that control the accumulation, melting and runoff of water from seasonal snowpacks over the surface of the earth. The book addresses not only the basic principles governing snow in the hydrologic cycle, but also the latest applications of remote sensing, and techniques for modeling streamflow from snowmelt across large mixed land-use river basins. Individual chapters are devoted to climatology and distribution of snow, snowpack energy exchange, snow chemistry, ground-based measurements and remote sensing of snowpack characteristics, snowpack management, and modeling snowmelt runoff (including the SRM model developed by Rango and others). Many chapters have review questions and problems with solutions available online. This book is a reference book for practicing water resources managers and a text for advanced hydrology and water resources courses which span fields such as engineering, earth sciences, meteorology, biogeochemistry, forestry and range management, and water resources planning.

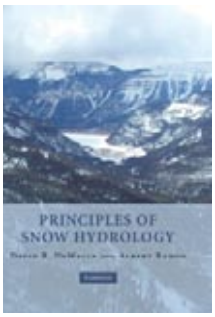
Principles of Metamorphic Petrology



Authors: R. H. Vernon, G. L. Clarke
Publisher: Cambridge University Press
ISBN: 9780521871785
YEAR : 2008
EDITION : 1st
PAGES : 446
PRICE : 49.00 €
Hardback

Principles of Metamorphic Petrology provides a modern introduction to the latest ideas, techniques and approaches in the study of metamorphic rocks. The book begins with basic concepts, but advances further than most other metamorphic petrology texts. Examples of this include the latest chemographic approaches, the correct use of pseudosections and the application of x-ray compositional mapping to metamorphic problems. It also covers recent advances in thermobarometry and the application of modern geochronological techniques to the absolute timing of tectonometamorphic events. Determination of parent rocks is covered in detail and there is a modern exposition of partial melting reactions, melt extraction and deformation of migmatites. The book includes a large number of references to lead students into independent investigation. A valuable text for advanced undergraduate and graduate courses in metamorphic petrology, that serves as the most current reference for researchers and exploration geologists.

The Concise Geologic Time Scale



Authors: James G. Ogg, Gabi Ogg and Felix M. Gradstein
Publisher: Cambridge University Press
ISBN: 9780521898492
YEAR : 2008
EDITION : 1st
PAGES : 177
PRICE : 28.00 €
Hardback

This concise handbook presents a summary of Earth`s history over the past 4.5 billion years as well as a brief overview of contemporaneous events on the Moon, Mars and Venus. The authors have been at the forefront of chronostratigraphic research and initiatives to create an international geologic time scale for many years, and the charts in this book present the most up to date, international standard, as ratified by the International Commission on Stratigraphy and the International Union of Geological Sciences. This book is an essential reference for all geoscientists, including researchers, students, and petroleum and mining professionals. The presentation is non-technical and illustrated with numerous colour charts, maps and photographs. The book also includes a detachable laminated card of the complete time scale for use as a handy reference in the office, laboratory or field.

NASA AOP Workshop - (Course)

13/01/2009 - 15/01/2009 -
University of California, Santa Barbara

The Ocean Biology and Biogeochemistry Calibration and Validation Office (CVO) at GSFC will be hosting an AOP Workshop at the University of California Santa Barbara. The workshop will be concerned with AOP data processing in general, and the forthcoming hosting of the CVO AOP data processor on the Web in particular. The latter will allow AOP data collectors to ingest their data, select the processing parameters (e.g., extrapolation intervals) and corrections (e.g., self-shading), and derive the data products (Lw, Rrs, OC4V5, etc.) for submission to SeaBASS. Although the CVO AOP processor includes the processing of both above- and in-water methods to derive AOP data products, the focus of this workshop will be on in-water measurements collected as vertical profiles or at two or more discrete depths (with contemporaneous solar reference observations).

The purpose of the workshop is to agree on the needed capabilities and functions of the Web-based processor as well as to discuss whatever issues the assembled team members think are appropriate--which might include data acquisition aspects of the problem, because they directly determine what is possible during the data processing component--and make recommendations for the larger community to evaluate. The governing philosophy for the stewardship of the processor is to have it evolve based on community-wide objectives, and to make the source code publicly available for inspection and comment (what is usually called “open source” software). All of the workshop recommendations will be considered within an upcoming revision to the Ocean Optics Protocols, which were last updated and distributed at the end of the SIMBIOS project.

The workshop will benefit from the participation of many kinds of AOP practitioners. PIs who make significant contributions to public AOP archives, manufacturers of AOP instruments, international scientists who are interested in having access to a community-maintained processor, and scientists who are planning on making AOP observations over the next few years and providing the resulting data products to NASA are all welcomed to attend. This working meeting will require the submission of prepatory material before the workshop, a presentation during the workshop, and participation in a workshop report to be made available on the Goddard Ocean Color Web page for interested scientists who could not attend. All of the presentations will also be made available on line. More details on the working requirements will be provided once the full scope of the workshop is defined by the composition of the assembled team.

The venue for the workshop cannot support an unbounded number of participants, so anyone interested in attending should contact Stan Hooker (Stanford.B.Hooker@nasa.gov) at GSFC (+1-301-286-9503). A limited amount of travel support for domestic scientists is available.

Organizer:

Ocean Biology and Biogeochemistry Calibration and Validation Office

International Conference Megacities: Risk, Vulnerability and Sustainable development - (Meeting)

07/09/2009 - 10/09/2009 -
Leipzig, Germany

Megacities worldwide are an outstanding feature of urbanization. They are both culprits and victims of dramatic global change processes. In this context, the conference organizers invite interdisciplinary contributions from all fields of urban research worldwide such as: land use, social polarization, security, energy, water and sanitation, waste, mobility and transportation, information and communication, infrastructure, air quality, health, food supply, economic productivity, climate, ecology.

The contributions should address these topics with respect to the following essential questions:

· What does sustainable development mean for megacities?

· What risks are associated with the trend towards mega-urbanization and what are the driving forces behind it?

· How can the transformation of the complex risk habitat megacity be described and analysed appropriately?

· How vulnerable is the mega-urban system and how are risks distributed across cities and social groups?

· On the other hand, what opportunities for sustainable development do megacities offer?

· What strategies can steer the urban system towards sustainable development and what institutional and organizational preconditions need to be in place for effective implementation of these strategies?

· How can the interrelation of megacities with their hinterland and with global change processes be assessed and conceptualized?

Contributions are expected to present interdisciplinary research that connects to any of the three main themes Risk, Vulnerability and Sustainable development.

The Scientific Coordination Committee invites submission of abstracts for contributions for:

a. individual presentations to thematic sessions in one of the conference themes/topics

b. proposal for an entire thematic sessions (chair and presentations)

c. poster sessions in the central hall of the venue

d. presentation at young researchers sessions with individual contributions from ongoing PhD work chaired by a senior colleague

Submission of abstracts for these categories are accepted through submittal forms which are available for download from the conference homepage: Submittal forms

Deadline for abstract submission is March 30, 2009.

Please send your abstract using the official submittal forms until March 30 per e-mail to the conference secretary:

F&U confirm, Leipzig, Germany
e-mail: megacity.2009@fu-confirm.de
phone: +49 341 235 2264
fax: +49 341 235 2782

Authors will receive notification of acceptance in May 2009.

Organizer:
On behalf of the Organizing Committee: Hilde Feldmann, hildegard.feldmann@ufz.de
Dr. Hildegard Feldmann
F&U confirm
Permoserstr. 15
04318 Leipzig
phone: +49(0)341/235-2264 or -2413
fax: +49(0)341/235-2782
e-mail: feldfrau@fu-confirm.de
http://www.fu-confirm.de, http://www.leipziger-kubus.de

www.megacity-conference2009.ufz.de

International Conference on Urban Climate ICUC-7 - (Meeting)

29/06/2009 - 03/07/2009 - Yokohama, Japan

Invitation

The International Association for Urban Climate (IAUC) invite you to the Seventh International Conference on Urban Climate (ICUC-7) to be held in Yokohama, Japan from June 29 to July 3, 2009. ICUC-7 is the continuation of a series of similar conferences starting in Kyoto, Japan in 1989, followed by those in Dhaka, Bangladesh in 1993, Essen, Germany in 1996, Sydney, Australia in 1999, Lodz, Poland in 2003, and Göteborg, Sweden in 2006. The success of this series helped to create a cohesive international community of urban climatologists.

The aims of the conference remain as before, to provide an international forum where the world's urban climatologists can meet to showcase and discuss modern developments in research, and the application of climatic knowledge to the design of better cities. ICUC-7 wishes to cater to the interests of a diverse community of meteorologists, climatologists, hydrologists, ecologists, engineers, architects and planners and others interested in these topics.

Host city

Yokohama is the second most populated city in Japan following Tokyo. The total population is 3,584,895 (as of March 2006). The City of Yokohama is a beautiful resort and port city located on Tokyo Bay, where you can discover the truly Japanese beauty of the futuristic waterfront skyscrapers. As the first Japanese port to open its gates to the world in 1859, Yokohama has created an interesting blend of Japanese and western cultures. Yokohama has an extensive range of convention facilities from the world-class convention complex, PACIFICO Yokohama to Nissan Stadium, which hosted the FIFA World Cup final in 2002. Yokohama is also known as a city rich in excitement with unique attractions such as the world's biggest Chinatown, expansive shopping districts and a traditional Japanese garden and hot-spring facility. PACIFICO Yokohama are the main facilities serving Minato Mirai 21 (MM21). MM21 is the name of a project launched with an intention to dramatically transform the metropolitan area of Yokohama. Many people have come to know the spectacles of Minato Mirai 21 (MM21), which include Japan's tallest building, Yokohama Landmark Tower, a large Ferris wheel called Cosmo Clock 21 which has made many appearances on TV commercials, and the city's new landmark, Yokohama Akarenga (Red Brick Warehouse).

Abstract submission deadline: December 15, 2008

Contact Information
Secretariat of ICUC-7
Department of International and Development Engineering
Tokyo Institute of Technology
2-12-1, Ookayama, Meguro-ku, Tokyo 152-8552, Japan
Phone /Fax :+81- 3- 5734- 2768
e-mail: icuc7secretariat.mk@ide.titech.ac.jp

Organizer:
International Association for Urban Climate (IAUC)
http://www.ide.titech.ac.jp/~icuc7/

33rd International Symposium on Remote Sensing of Environment - (Meeting)

04/05/2009 - 08/05/2008 - Stresa, Lago Maggiore, Italy

You are cordially invited to the 33rd International Symposium on Remote Sensing of Environment (ISRSE) which will take place on May 4-8, 2009 in Stresa, Italy.

The overall theme of the Symposium is the use of Earth Observation systems and airborne techniques for understanding and managing the Earth environment and natural resources.

ISRSE-33 will specifically address the UN Millennium Development Goals and be structured along the societal benefit areas of the GEO (Group on Earth Observations) initiative.

Abstract submission deadline is set for December 1, 2008.

Please upload your abstracts online to be included in the Preliminary Program.

http://isrse-33.jrc.ec.europa.eu/index.php?page=home

Annual Meeting of the Association of American Geographers - (Meeting)

22/03/2009 - 27/03/2009 - Las Vegas, United States of America

The Annual Meeting of the Association of American Geographers attracts geographers and related professionals from around the world. Our meeting forum stimulates discussion about research, education, accomplishments, and developments in geography.

This year's program will feature:

* 4,000 presentations by leading scholars and researchers from more than 60 countries

* An international networking reception

* Exhibitions showcasing recent scholarly publications, advanced geographic technologies, and expanding employment

opportunities

* Numerous field trips to explore the rich cultural and physical geography of Las Vegas and the surrounding region

Organizer:
Association of American Geographers
http://aag.org/annualmeetings/2009/index.htm

The Age of the Arctic - (Meeting)

18/01/2009 - 23/01/2009 -
Tromsø, Norway

Policy conference, 19-20 January 2009

Arctic Frontiers conference will take place during January 18 to 23 in 2009. The opening will be held on Sunday 18 January at Polar Environmental Centre, while the conference itself will take place at the University of Tromsø.

The main theme of the conference is changing from year to year. The selected theme for 2009 The Age of the Arctic was first used by Professor Oran Young in 1986. He was then forecasting an increasing major human focus, exploitation and conflicts in the Arctic on a political, economical and environmental scale. During the recent few years his forecast has been moved to the top of the global agenda.

Arctic marine ecosystems in an era of rapid climate change

Arctic Ocean Governance

Science conference, 21-23 January 2009

The scientific conference of Arctic Frontiers 2009 will focus primarily on the structure and biogeochemical cycling of Arctic marine ecosystems in a period of rapid climate changes.

The conference will also focus upon sustainable management of Arctic regions. ImageIn cooperation with ArcticNet, the conference is organised by ARCTOS and assembles key results from a suite of recent and ongoing international research efforts that have contributed significantly to the current understanding of climate and ecosystem interactions in the pan-Arctic region.

This is a rather demanding task: the understanding of marine Arctic ecosystems is still limited geographically and temporally, particularly for the winter ice covered period. Climate change alteration of these ecosystems is occurring before a basic understanding of these systems has been achieved.

Scope

The scientific conference of Arctic Frontiers 2009 will focus primarily on two main topics:

* The structure and biogeochemical cycling of Arctic marine ecosystems in a period of rapid climate changes

* The sustainable management of Arctic regions

Interested scientists are kindly asked to submit abstracts that fall within the scope of this conference.

Important dates

* 01.11.2008: Confirmation of accepted oral and posters presentations

* 03.12.2008: Deadline for final updated abstracts

Organizer:
Arctic Frontiers
http://www.arcticfrontiers.com/

10 years operational VEGETATION monitoring - (Meeting)

09/12/2008 - 10/12/2008 -
Egmont Palace, Brussels, Belgium

For 10 years, the VEGETATION mission has played an important role in meeting the need for information on the state of our planet offering the international community high quality data from a truly global Earth Observing System, which uniquely acquires data of the entire terrestrial surface on a daily basis.

Today, the VEGETATION instruments are still going strong and we are pleased to celebrate their 10th anniversary during a 2-day conference.

This conference will be a forum where data users, scientists, system engineers, environmental managers and policy makers can meet. It wants to look back at the past by commemorating the operational achievements yet at the same time intends to map the way ahead, with a VEGETATION follow-on mission and Sentinel 3 taking over.

Organizer:
http://www.spot-vegetation.com

5th Urban Research Symposium - Cities and Climate Change: Responding to an Urgent Agenda - (Meeting)

28/06/2009 - 30/06/2009 -
Marseille, France

Preparation of the ambitious Urban Research Symposium on Cities and Climate Change: Responding to an Urgent Agenda is advancing well along the timetable. The international Scientific Committee has recently selected some of the commissioned researchers, which are world-class teams. The partnership is broadening, for example OECD and the United Nations Environment Programme will hopefully be active participants.

The Symposium is structured around five broad research clusters which represent the most relevant issues faced by cities and peri-urban areas on climate change.

Cluster 1: Science and Indicators of Climate Change and Related Impacts: Understanding and measuring how cities impact, and are impacted by, climate change.

Cluster 2: Infrastructure, Built Environment, and Energy Efficiency: Planning efficiently and effectively to increase the resilience of cities.

Cluster 3: Role of Institutions, Governance, and Urban Planning: Improving management, coordination, and planning of cities to meet climate change challenges.

Cluster 4: Incentive policies, economics and finance: Un-

derstanding how and why cities respond to climate change.

Cluster 5: Social aspects of climate change: Understanding and reducing vulnerability of urban populations to climate change.

This call for papers is for researchers but also for cities and their practitioners willing to present and analyse their practices and policies.

www.urs2009.net

2009 International Symposium on Environmental Science and Technology - (Meeting)

02/06/2009 - 06/06/2009 - Shanghai, China

2009 International Symposium on Environmental Science and Technology (2009ISEST) is to be held at Donghua University in Shanghai, China, June 2–6, 2009. It is a continuation of the 2007ISEST held in Beijing, November 13-16, 2007. The purpose of this symposium is to provide an up-to-date discussion in the field of environmental science and technology in general. All papers intended to be presented at the symposium will be published in Progress in Environmental Science and Technology (Vol. II).

Subjects and topics

Papers will cover fundamental aspects, technical approaches and/or the related areas as follows:

- Water Pollution and Water Quality Control
- Air Pollution and Air Quality Control
- Land (Soil, Waste Solid) Pollution and Remediation
- Waste Recycling
- Environmental Monitoring and Assessment
- Environmental Toxicology
- Environmental Chemistry
- Ecosystem Restoration

Instructions for abstract preparation

All those interested in presenting a contribution are invited to submit a proposed Title, Author(s) Name, Institution(with mailing address and e-mail address) and a 300–500 words abstract that may include the purpose, results, significance of the paper and comparison with the previous state of art to the secretariat. The deadline for receipt of the abstracts is January 1, 2009.

Instructions for full papers preparation

The full papers should include a Title with the Name(s) of the Author(s) and Affiliation(s) of Author(s) and an Abstract of 150–200 words followed by sections including an introduction, the main body of text, conclusions, acknowledgements, and references. Full paper is to be submitted through e-mail to BIT@isest.com.cn NO LATER THAN February 10, 2009- which is a deadline for full paper submission to be included into the printed Proceedings and CDs so as to distribute at the Conference. The length to the papers is limited to 14 pages. Submit in Microsoft Word 2000 or later format:

1) Text area, 257mm×170mm, single column, on A4 size paper, centered

2) Title, 14pt, Times New Roman, Bold, Center

3) Author, 10.5pt, Times New Roman, Capitalize the first letter of Firstname and all the letters of LASTNAME, Centered

4) Affiliation(s), 9pt, Times New Roman, Center

5) Abstract/Keywords, 8pt, Times New Roman, 3–8 Keywords.

6) Text body, 9pt, Times New Roman, single spaced, fully justified

7) Heading level 1, 10.5pt, Times New Roman, Bold, Align left, Capitalize all the first letters

8) Heading level 2, 9pt, Times New Roman, Bold, Align left, Capitalize all the first letters

9) Heading level 3, 9pt, Times New Roman, Align left

10) All tables/figures must have a number and title, 9pt, Times New Roman, Bold; Words in Table/Figure, 9pt, Times New Roman

11) All equations and expressions in the paper must be numbered consecutively. The equation is centered while the equation number in parentheses is right aligned.

12) Graphics (including photographs) should be black and white. Resolution should be at least 600 DPI.

13) Cite each reference in text in numerical order and list in the References section. Indicate references in the text using superscript numbers in brackets.

References section: 8pt, Times New Roman.

The working language of the Symposium is English, which will be used for all the presentations and printed materials.

Schedule of events

January 1, 2009: Deadline for the receipt of abstract

January 10, 2009: Notification and classification of accepted abstracts

February 10, 2009: Deadline for submission of full papers

February 20, 2009: Acceptance of full papers

April 10, 2009: Distribution of final announcement

June 2–6, 2009: Conference

Registration fee

The registration fee is US$500. This includes one copy of the Proceedings of the Symposium, reception, banquet, meals, coffee breaks and the tour after the technical session. The fee for each accompanying visitor is US$250. This includes reception, banquet, meals, shopping guide and the tour after the technical session. Additional fees are charged for special functions.

Accommodations

Accommodations are arranged at the Howard Johnson Hotel Songjiang Shanghai. The blocks of rooms designated for symposium attendees will be held for reservation at the special symposium rate of US$60/night. Reservations must be made through the Secretariat, NOT directly with the hotel.

Visas

A valid passport and visa is required for entry into China. Participants are encouraged to contact the Chinese Embassy

or Consulate in their region for entry requirements. If an official letter of invitation is required, please send us the following information:

Name on passport, Passport No., Nationality, Organization, Position and Date of Entry.

Exhibition

Limited exhibition space in the lobby of the symposium hall is provided for products, equipment and advertising material relevant to the topics of the symposium.

Secretariat

All those interested in attending the Symposium and in receiving further information are welcome to contact:

Prof. FENG Changgen or Dr. LI Shengcai
Editorial Department of Journal of Safety and Environment
Beijing Institute of Technology
P. O. Box 327
Beijing 100081, China
Email: BIT@isest.com.cn
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Organizer:

Beijing Institute of Technology and Donghua University
http://www.isest.com.cn

1st International Workshop on "Intelligent Systems for Environmental Engineering and EcoInformatics" - (Meeting)

16/03/2009 - 19/03/2009 - Fukuoka, Japan

The complexity and diversity of knowledge and terminology within environmental engineering is one of the key obstacles for successful interdisciplinary studies. Relevant data is difficult to be located, retrieved and managed due to varying formats, schemas and semantics. For example, for a typical modeling assignment a researcher needs to acquire knowledge of individual computational models, search, gather and analyze raw data, ensure the high quality of data, transform the data into formats compatible to the computation models that he or she is to use and then finally perform the modeling. This process may take several days to months. To address these problems, the use of metadata/semantics can be a key solver. Semantics can be understandable to both humans and machines, improving data sharing and integration. Semantics can be used to specify several domain concepts and describe a variety of domain models being used within environmental engineering. The overall goal is to achieve efficient content-based retrieval of environmental datasets and integration of environmental heterogeneous data. By solving this problem, we believe that the roadmap to Intelligent Systems for engineering environmental data, metadata/semantics and knowledge is open to meet current and future environmental engineering challenges.

Based on Wikipedia definition about EcoInformatics, the workshop also deals with Informatics in Ecology and Environmental science, integrating environmental and information sciences to define entities and natural processes with language common to both humans and computers. EcoInformatics focus not only on the creation of tools to access and analyze natural system data but also to facilitate environmental research and management by developing ways to access and integrate databases of environmental information, and to develop new algorithms enabling different environmental datasets to be combined to test ecological hypotheses. EcoInformatics deal with the semantics of natural system knowledge. For this reason, much of today\\\\\\\'s ecoInformatics research relates to Knowledge Representation. Active ecoInformatics projects are having close relations to technologies such as the Semantic Web. Examples of key research areas of EcoInformatics are:

* Technology assisted systematic collection of data

* Easy access to relevant information (data and analysis), requiring interoperability and integration across formats (syntax) and concepts (semantics)

* Development of conceptual and computational frameworks for advanced modelling and analysis (e.g. complex ecosystems)

* Visualization and communication of analysis results and scenarios

Based on the above description, we seek innovative work that can demonstrate intelligent applications and technologies which use semantics to solve environmental engineering and ecoInformatics problems, e.g. problems that involve water and air pollution control, recycling, energy control, waste disposal, and public health issues.

Furthermore, we seek innovative work that can demonstrate tools/systems focusing on the efficient management and integration of environmental and ecological data, metadata/ semantics and knowledge.

The topics of interest include, but are not limited to:

* Expert Systems for Environmental/Ecological Technology

* Environmental/Ecological Knowledge Engineering Systems

* Intelligent Tutoring Systems for Environmental/Ecological Education

* Environmental/Ecological terminology

* Engineering environmental/ecological metadata/ semantics

* Semantics for efficient environmental/ecological data management

* Environmental/ecological data integration using metadata/semantics

* Environmental/ecological metadata/semantics integration

* Engineering environmental/ ecological applications using metadata/ semantics

* Metadata/semantics frameworks for environmental/ ecological systems

* Metadata/semantics - based decision support environmental/ecological systems

* Environmental/ecological awareness content and applications with metadata/semantics support

* Semantic technologies in environmental/ecological sensors networks

Proceedings of the Workshops will be published by IEEE Computer Society Press.

http://www.cisis-conference.eu/

European Conference Towards eEnvironment - (Meeting)

25/03/2009 - 27/03/2009 - Prague, Czech Republic

The European conference Towards eEnvironment is dedicated to information exchange among scientists, public administrations, environmental agencies and institutions involved in environmental information processing as well as environmental informatics end-users. The conference is a meeting place for experts from leading edge technologies, fostering information flows in Europe and beyond, standardization, necessary for a sustainable development. Driving topics for the conference will include best practices of European Member States in the implementation of the Shared Environmental Information System (SEIS) and research towards the development of a Single Information Space in Europe for the Environment (SISE).

The forthcoming conference will cover the specialised scope of environmental informatics. It will show the state-of-the-art at research, development and implementation of SEIS and SISE, with a special focus on the main topics:

• ICT research towards SISE and building the European Research Area in the field of ICT for environmental sustainability.

• SEIS best practices of environmental data and information processing and dissemination.

• Environmental modelling of air pollution, global climate change, energy efficiency and security to support decision making in environment protection.

The European conference Towards eEnvironment is open to scientists, academicians, managers, politicians, businesses, public administration and decision makers in the field of environmental information, experts from ICT industry, governmental institutions, international and intergovernmental organisations, environmental agencies and networks, specialists of theoretical and applied informatics, consultants, students and the concerned public.

Conference motto is Integrating Environmental Knowledge in Europe.

Important dates:

September 30, 2008: Deadline for abstracts
November 1, 2008: Notification of abstract acceptance
December 1, 2008: Registration – early rate deadline
January 31, 2009: Publishing of detailed programme
February 15, 2009: Camera ready submission of presentations

http://www.e-envi2009.org/

Information Technologies in Environmental Engineering (ITEE-2009) - (Meeting)

28/05/2009 - 29/05/2009 - Thessaloniki, Greece

Scope

Information technologies have evolved into an enabling science for natural resource management and conservation, environmental engineering, scientific simulation and integrated assessment studies. Computing plays a significant role in everyday practices of environmental engineers, natural scientists, economists, and social scientists. The complexity of natural phenomena require interdisciplinary approaches, where computer science offers the infrastructure for environmental data collection and management, scientific simulations, decision support, documentation and reporting.

Ecology, environmental engineering and natural resource management comprise an excellent real-world testbed for IT system demonstrations, while bringing up new challenges for computer science. Complexity, uncertainty and scaling issues of natural systems set up a demanding application domain for sensor networks and earth observation systems; modelling, simulation and scientific workflows; data management and reporting; decision support and intelligent systems; distributed computing environments; geographical information systems; heterogeneous systems integration; software engineering; accounting systems; and control systems.

The 4th International Symposium on Information Technologies in Environmental Engineering aims to present recent success stories in ecoinformatics, promising ideas and new challenges, demonstrating new paradigms for problem solving and decision making.

Following a peer-review, accepted papers will be published in an edited volume by Springer-Verlag.

http://www.itee2009.org

Atmospheric Sciences-Academic

Post-doctoral research fellows

Company: Guy Carpenter Asia-Pacific Climate Impact Centre
Location: China-Hong Kong
Date Posted: 02/09/2008
[show details...]

Endowed chair in the area of Atmosphere-Biosphere Interactions

Company: University of Wyoming
Location: USA-Wyoming
Date Posted: 15/10/2008
[show details...]

PhD position at FZJ

Company: Forschungszentrum Jülich
Location: Germany-Jülich
Date Posted: 04/11/2008
[show details...]

FACULTY POSITIONS - UC San Diego - Scripps Institution of Oceanography

Company: University of California, San Diego - Scripps Institution of Oceanography
Location: USA-La Jolla
Date Posted: 13/11/2008
[show details...]

Research Assistantship Opportunity

Company: Northern Illinois University
Location: USA-DeKalb, Illinois
Date Posted: 08/12/2008
[show details...]

Hydrological Sciences-Academic

Hydrology and Water Resources Faculty Position

Company: University of Washington, Civil and Environmental Engineering
Location: USA-Seattle
Date Posted: 05/11/2008
[show details...]

Interdisciplinary / Other-Academic

PhD CASE Studentship

Company: King`s College London
Location: United Kingdom-London
Date Posted: 19/11/2008
[show details...]

Research Fellow in "Environmental Exposure and Health Impact Assessment"

Company: London School of Hygiene & Tropical Medicine, University of London
Location: United Kingdom-London
Date Posted: 01/12/2008
[show details...]

Climate-Academic

PhD Student

Company: Institute for Meteorology and Climate Research Atmospheric Environmental Research (IMK-IFU)
Location: Germany-Garmisch-Partenkirchen
Date Posted: 20/11/2008
[show details...]

Energy Resources and the Environment-Academic

PhD position at KCL

Company: King`s College London
Location: United Kingdom-London
Date Posted: 25/11/2008
[show details...]

Geomaterials-Industry

Minerals Petrologist

Company: GNS Science
Location: New Zealand-Lower Hutt
Date Posted: 09/11/2008
[show details...]

Marine Geophysicist

Company: GNS Science
Location: New Zealand-Lower Hutt
Date Posted: 09/11/2008
[show details...]

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