



international society
for seed science

issss newsletter

number 4

June 2003

issss membership

Our membership continues to rise but not as greatly as we would like. Present members are encouraged to campaign for ISSS and to persuade your seed colleagues to join. Membership really does confer benefits such as cheaper access to ISSS meetings. Now that our meetings programme is up and running (see below) this concession is a valuable attraction. **ISSS might also support your local meeting provided it meets certain of the Society's requirements.** So if you are running a seed meeting, contact the ISSS Secretary and the Treasurer to see if it qualifies. And don't forget that members have substantially reduced subscription rate to *Seed Science Research* (the official ISSS journal) and generous discounts on the price of books on seeds from the publishers, CABI. Brochures describing the ISSS and containing a membership registration form are available from the Secretary if you have an opportunity to distribute them and recruit additional members.

officers

To remind you, your officers are:

President, Ralph Obendorf (rlo1@cornell.edu)

President-Elect, Derek Bewley (dbewley@uoquelp.ca)

Secretary, Kent Bradford (kjbradford@ucdavis.edu)

Treasurer, Ken Thompson (ken.thompson@sheffield.ac.uk)

Contact them if you have any queries or suggestions.

Also note that Kent Bradford's term as Secretary ends this year and a call for nominations for this position will follow shortly.

8th international workshop on seed biology, brisbane, australia, 2005

Steve Adkins writes:

As you will know, we are to host the 8th International Workshop on Seed Biology in Brisbane in 2005. Here is a brief update on progress so far.

We are well on the way to establishing our Committee structure. We plan to have an Executive Committee of six people and have a further seven people involved with subcommittees. The Executive Committee includes people in or near Brisbane while the subcommittees will have Interstate and International representatives from New Zealand. Below is the Committee structure we are working towards. Not everyone has agreed at this stage but we hope to have the Committee structure finalized by early June 2003.

Executive Committee

Dr Steve Adkins, (SWA) (Chair), University of Queensland (UQ)

Dr Sheldon Navie, (SN) (Secretary), UQ

Dr Owen Nicholes, (ON) (Treasurer) Australian Centre for Mining & Environmental Research

Dr Mary Paterson, (MP) (Sponsorship), Centre for Mined Land Rehabilitation (CMLR), UQ

Ms Sally Dibben, (SD) (Social), UQ

Dr Sarah Ashmore, (SA) (Program), Griffith University

Members of three subcommittees

Dr Margaret Johnstone, (MJ), UQ

Mr Geoff Borschmann, (GB), Greening Australia

Ms Mandy Gravina, (MG), CMLR, UQ

Mr Jack Butler, (JB), Australian Seeds
Dr Sean Bellairs, (SB), Northern Territories University – Interstate
Dr Kathryn Steadman, (KS), University of Western Australia – Interstate
Dr David Fountain (DF), Massey University – International

Subcommittee structure

Sponsorship (Chair MP, with JB, SB, GB)
Field trips (Chair SD, with MG, GB, MJ)
Proceedings and Program (SA, with DF, KS, MJ, MG)

We have appointed a conference organizer, Organizers Australia LTD, and expect to hold our first full Executive Committee Meeting in early June.

Following considerable feed-back about the original suggested time of September/October, and considering that early May was an excellent time for most people to attend in Salamanca, we propose to hold the Workshop again in May 2005. The weather in Brisbane at this time of the year is fairly good (25/15C day/nights with little rains) and travel up north to the reef and rain forest is at its best. The First Flyer advertising the Workshop will be sent out and a web page will be set up by August.

Steve Adkins for the Workshop Organising Committee (s.adkins@mailbox.uq.edu.au)

news from around the world

Davis, California

ISSS members will have heard about the Seed Biotechnology Center at the University of California, Davis, headed by Kent Bradford. The mission of the Seed Biotechnology Center (SBC) is to mobilize the research, educational and outreach resources of the University of California, in partnership with the seed and plant biotechnology industries, to facilitate discovery and commercialization of new germplasm and seed technologies for agricultural and consumer benefit.

The Center began in 1999 and has offered a number of courses, workshops and seminars focused on seed biology and technology and biotechnology. The Center has also published a number of bulletins that are available from the website at <http://sbc.ucdavis.edu>. More recently, the SBC is developing its research program. To name a few, projects underway include a web-based isolation mapping program, cotton and alfalfa pollen flow studies, and a project that is developing a deletion mutant population that represents the majority of the genes in tomato.

The SBC has also been working closely with the seed industry to develop a partnership for building a facility dedicated to strengthening the seed industry through outreach, education and research activities. In March 2003, Center staff moved into the new building, located at University of California, Davis. For questions about the Seed Biotechnology Center, please contact Sue Webster at 530-754-7333 or at sbc@ucdavis.edu. Additional information is also available at <http://sbc.ucdavis.edu>.

Xishuangbanna, China

Songquan Song writes:

I would like to inform ISSS members about our **Section of Seed Biology, Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences**. Our staff includes:

Songquan Song, Professor, Head of Section of Seed Biology, Hundreds Talent Program of Chinese Academy of Sciences
Shouhua Yin, Associate Professor
Xiangyun Yang, Associate Professor
Bin Wen, Assistant Research
Qinying Lan, Engineer
Huiying He, Research Assistant

Our research interests include:

- **Dehydration behaviour in seeds.** Effects of development stage, drying rate and temperature upon dehydration; rehydration effects (e.g. rate, temperature) on desiccation tolerance of seed and/or axis; effects of artificial repair treatments (e.g., Ca²⁺, antioxidant, water potential) on dehydration damage of seeds and/or a repair mechanisms; changes of cellular and sub-cellular structure of seeds/axes during dehydration and rehydration and after repair.
- **Seed storage behaviour.** Changes in mitochondria, reactive oxygen and antioxidant systems, programmed cell death, and proteomics during storage and ageing of seeds; technology of pre-treatment and long-term storage, including ultra-drying storage.
- **Natural habitat and seed dormancy and germination characteristics.** Dormancy and germination; ABA, GA in seed dormancy and germination.
- **Cryo-preservation of seeds.** Technology of dehydration of seeds/axes, water status and desiccation tolerance of recalcitrant seeds; optimal drying conditions and drying protective agents to improve embryonic axis desiccation tolerance; use of osmotic stress (priming) and phytohormones to improve embryonic axis desiccation tolerance; antifreezes; temperature regimes, culture conditions in vitro; cryo-preservation of embryonic axes; seedling re-establishment.
- **Seed recalcitrance and the natural habitat.** Polymorphism of seed recalcitrance; natural distribution of different recalcitrance types; ecological significance of seed recalcitrance in evolution.
- **Soil seed bank and seedling bank.** Tropical plant species with seeds with different recalcitrance types; dynamics of their parental seed bank, seed rain, soil seed bank and seedling bank; relationship between the dynamics of soil seed bank and seed recalcitrance; adaptation strategy under stress conditions of seeds of different recalcitrance type in soil seed bank.

Rare and Endangered Plant Germplasm Bank

The Section of Seed Biology has a Rare and Endangered Plant Germplasm Bank. Its main aim is to collect, evaluate and preserve important plant germplasm resources, especially rare and endangered species in tropical and subtropical areas in China, and to establish and develop techniques for preservation of plant germplasm materials in long-term storage. This Bank consists of four storage chambers, i.e., -18°C, 4°C and two 15°C chambers. Its storage capacity is about 150,000 seed accessions, and seeds of 7,000 species have been now preserved.

Current research projects include:

- Mechanism of seed recalcitrance and long-term conservation of seeds
- Studies on storage behavior and germination characteristics of *Cyanopsis tetragonoloba* L and *Dracaena cambodiana* Pierre ex Gapnep. seeds.
- Studies on the mechanism of desiccation sensitivity of seeds and vegetative plant tissues and their repair
- Repair of dehydration injury of seeds
- Studies on collection and preservation of wild plant germplasm resources in Yunnan

These projects are supported by the Chinese Academy of Science, Yunan Province, NSF of Guangdong, IPGRI and the Chinese Ministry of Science

Please contact Prof. Songquan Song for further information (sqsong@xtbq.org.cn).

South Africa

Patricia Berjak writes:

The 4th Desiccation Workshop, an ISSS-sponsored event which covers desiccation-sensitivity and -tolerance of seeds, will take place during the last week in August 2003. The venue, *Blouwaterbaai* (literally, Blue Water Bay), is a resort complex and conference centre about 100 km NW of Cape Town (as the crow flies, but somewhat further by road). While the end of August is also only the start of spring in the southern hemisphere, and the weather will not be what is usually expected of Africa, the date and venue were chosen to optimise on the extravaganza of flowers to be expected when the arid region blossoms after the winter rains. The resort is on the coast, adjacent to the West Coast

National Park, with the Langebaan Lagoon as another major focus. This is a RAMSAR site (indicating its high conservation status in terms of the International Convention on Wetlands) and offers magnificent opportunities for birding and observation of halophytes *in situ*.

All these attractions notwithstanding, the primary objective of the Workshop *is* science and, if this occasion follows the trend of its predecessors, exciting developments emanating from research progress on seeds, plants and perhaps a few other types of organisms can be expected. A few further participants might still be accommodated: if you are interested, send a message to: deswork@biology.und.ac.za.

Research on amaryllid seeds is a new direction for investigators in Durban, and is being carried out in collaboration with the Kew Millennium Seed Bank. The family Amaryllidaceae appears to be one of the few among the monocots producing non-orthodox seeds. Compounding the ephemeral nature of these propagules, individual species are heavily utilised for traditional medicinal preparations, the plant organ generally used being the bulb. As a bulb harvested means a plant lost, conservation of the germplasm and genetic resources of these species is considered a priority. In fact, many amaryllid species are included in the Plant Red Data Lists for southern Africa, as a consequence of four major factors: their over-exploitation in the wild; predation of the plants by the amaryllis caterpillar; habitat loss; and significantly, because of the nature of their seeds.

The Silver Glen Nature Reserve Nursery in the greater Durban metropolitan area has, for the past 10 years, been working with traditional healers to propagate medicinal species to supply the trade and take pressure off wild populations. Our current lack of understanding of the post-harvest seed physiology of many of these species impacts seriously on their propagation and supply. Hence investigations are underway on the seed storage behaviour of a range of amaryllid species; development of methods to conserve the germplasm of the seeds and/or the genetic resources represented by alternative explants; testing for retention of genetic fidelity after storage; and conditions for optimal re-establishment of plants from seeds or other forms of the germplasm that have been successfully stored.

seeds in the news

The GM (genetic modification) debate rages with passion all over the world, and seeds are always mentioned – GM seeds. Grain (for food) from GM maize is viewed with great suspicion by certain African countries, and the USA and the EU are in a battle through the World Trade Organization over the acceptance of GM seed. A recent EU review of 81 studies of GM plants involving over 400 international teams of scientists “has not shown any new risks to human health or the environment, beyond the usual uncertainties of conventional plant breeding” (<http://europa.eu.int/comm/research/quality-of-life/gmo/index.html>). Nonetheless, field trials in the UK on GM crops are ongoing, mainly with respect to their possible environmental impact. Included in these considerations is concern about ‘volunteers’ – will seed dispersed from GM crops remain in the soil to ‘contaminate’ the field in subsequent years? Seed biology lies at the heart of this problem: To what extent are the seeds actually dispersed (seed ecology)? What is the size of the soil seed bank (ecology again)? What is the extent of soil seed predation (more ecology)? What is the seed viability and longevity (ecology and physiology)? So there is plenty of scope for the seed biologist to become involved in the debate – and if there are any ISSS members out there actually working on these problems, let us know!

GM seed is viewed with terror in some quarters but there is a non-GM seed that has recently raised much more international alarm in relation to terror – *Ricinus communis*, castor bean seed. Some of our older members may have had childhood experiences with the seed oil, and pretty terrifying they may have been. But readers will know that it is not the laxative properties of a *Ricinus* seed product that is in the news but the toxic protein, ricin. About 1 mg of ricin is enough to kill an adult, and it's a very nasty death too. Approximately 5% of castor bean protein consists of ricin and an agglutinating protein, so the seed should be treated with great caution, especially when children are around. Ricin is one biological agent that it is thought could be used by international terrorists, and terrorist-related

incidents involving the protein have already occurred, in the UK, for example. The toxin is thought to have been used in the Cold War days to kill a Bulgarian émigré in London who was injected with the protein using the sharpened tip of an umbrella. Ricin is toxic because it inactivates eukaryotic ribosomes. The same ribosome inactivating protein as in ricin is also present in many other seeds (such as wheat and barley) but here it is not combined with a second protein monomer for carrying it across the outer cell membrane, and so it is not toxic.

For more information about this seed protein in the news see

<http://www.ansci.cornell.edu/plants/toxicagents/ricin/ricin.html#ricimech>

● did you know?

As seed scientists we are interested in seeds in particular contexts – in the natural environment, in agriculture, in biological science, in conservation etc, but did you know that seeds are or have been prominent in other areas too? For example, seeds were central to the development of weights and measures in many parts of the world. Mustard seeds were used in India as a standard weight for gold. Some Mediterranean weights, especially for precious objects, were originally based on seeds of liquorice (*Glycyrrhiza glabra*) and carob (*Ceratonia siliqua*). The carob (Arabic, *quirrat*; Greek, *keration*) gives its name to the measure used for gemstones, the carat (the metric carat is now 200 mg). These seeds have been reported to be so uniform in size that they differ by no more than 10 mg. Grains of wheat and barley were also early units of weight. In the Middle East, weights were based on the *shekel* consisting of 180 barley or wheat grains. Weights of cereal grains were used in Europe as standards for pharmaceutical ingredients as early as 1270, and the standard 'grain' (of that name) survived as a measure in British pharmacy until relatively recently. Elizabeth I of England decreed that the pound consisting of 7000 cereal grains should be a standard for weights of all materials other than precious metals. And from this the English volume, the gallon, was fixed at eight pounds of water. Units of length, at least in England, were also derived from seeds. In the 13th century the standard inch was fixed as the length of three barley grains laid end to end. Unlike good seed scientists, though, the metrologists of the time may not have been aware of variations due to varietal differences, to provenance and to climatic conditions occurring during grain development. The longer unit, the yard, is said to be the distance from the tip of Henry II's nose to the end of his outstretched arm. But that doesn't count as anything of particular interest to the ISSS!

● seed puzzler

There are some properties of seeds that seed scientists seem to take for granted though there is no explanation of how the process occurs. Your editor thought that in this and subsequent newsletters he might put some of these to you for your ideas. If you would like to offer some explanation, send it to me for publication in the next issue. Unfortunately, there are no prizes – but there could eventually be glory!

The poser for this month is:

"How do seeds of different species have vastly different germination rates – and is this worth knowing?"

● books

Nicolás, G., Bradford, K.J., Come, D. and Pritchard, H. (eds) (2003) *The Biology of Seeds: Recent Research Advances*. CABI Publishing, Wallingford, UK. This book contains presentations from the ISSS Salamanca meeting, May 2002. Free to those who attended the meeting. Publication expected in the next few months.

Gutterman, Y. (2002) *Survival Strategies of Annual Desert Plants. Adaptations of Desert Organisms*. Springer, Berlin, Heidelberg, New York. Among other topics, this book deals with environmental factors during seed maturation affecting subsequent seed germinability. Included are the influences of environmental factors following seed maturation affecting the duration of primary dormancy as well as the distribution of seeds in aerial and soil seed banks. This is in addition to other stages of the life cycle of an ephemeral plant under desert conditions.

Black, M. and Pritchard, P (eds) (2002) *Desiccation and Plant Survival: Drying without Dying*. CABI Publishing, Wallingford, UK. This book covers desiccation damage and tolerance in seeds, spores, pollen and vegetative tissues of plants.

ISSS meetings

International Workshop on Applied Seed Biology: New Developments in Seed Quality Improvement, 23–25 October 2003, Lodz, Poland

Organised by the Research Institute of Pomology and Floriculture in Skierniewice, University of Lodz and Warsaw Agricultural University, Poland; Université Pierre et Marie Curie, Paris, France; TNO Applied Plant Sciences, Leiden, The Netherlands; under the auspices of the European Society for Agronomy (ESA) and ISSS. The meeting will be held in the Conference Centre, University of Lodz (Centrum Szkoleniowo-Konferencyjne Uniwersytetu Łódzkiego), Kopcynskiego 16/18, 90-242 Lodz, Poland. Information and registration materials can be found at <http://www.insad.pl/seedconf.htm>.

Address of local organiser:

Prof. dr. Mieczyslaw Grzesik
Research Institute of Pomology and Floriculture
Pomologiczna 18
96-100 Skierniewice. Poland
Phone: +48 46 8332041
Fax: +48 46 8332088
e-mail: kgornik@insad.pl - correspondence address.

Workshop on Molecular Aspects of Germination and Dormancy, 23-24 May 2004, Wageningen University, The Netherlands

This two-day Workshop on this rapidly evolving topic will include speakers who are leaders in molecular research into germination and dormancy. The program is detailed below. The intention is for this Workshop to be interactive, with new and exciting ideas and collaborations resulting from the discussions. To facilitate discussion, time is set aside after each invited speaker for participants in the Workshop to make a 5-minute presentation of their latest and emerging data, relevant to the topic, using a maximum of two overhead slides. There will be no posters.

This Workshop immediately precedes the Third Dormancy Symposium (May 25th-28th; see below) also held at Wageningen University. Workshop organizer: J. Derek Bewley (dbewley@uoguelph.ca). On-site organizer, and also for the Dormancy Symposium: Henk W.M. Hilhorst (congres.dorm2004@pph.dpw.wau.nl). Registration may be for either event or both, with a discount for the latter. *Details on registration, participation, etc. will follow, and are not presently available.*

Confirmed Speakers

Day 1. May 23 . Germination.

- 08:30 Opening remarks
- 08:45-09:15 Henk Hilhorst, The Netherlands. Germination and dormancy: a perspective for molecular studies.
- 09:30-10:15 Mike Holdsworth, UK. Regulatory processes involved in the transition from embryo development to germination.
- 10:15-10:45 Discussion
- 11:15-12:00 Paolo Costantino, Italy. Transcriptional regulators involved in germination.
- 12:00-12:30 Discussion
- 14:00-14:45 Estela Sánchez de Jimenez, Mexico. Mechanisms that regulate protein synthesis during germination.
- 14:45-15:15 Discussion
- 15:15-16:00 Jorge Vásquez-Ramos, Mexico. DNA replication and the cell cycle during germination.
- 16:00-16:30 Discussion
- 16:45-17:30 Kent Bradford. USA. Enzymes associated with germination and emergence.

17:30-18:00 Discussion

Day 2. May 24. Dormancy

08:30-09:15 Maarten Koornneef, The Netherlands. Genetic analysis of dormancy.

9:15-9:45 Discussion

9:45-10:30 Mike Foley. USA. Identification of genes that regulate dormancy in wild oat.

10:30-11:00 Discussion

11:30-12:15 Jinrong Peng, Singapore. GA-regulated genes associated with seed dormancy.

12:15-12:45 Discussion

14:00-14:45 Eiji Nambara, Japan. ABA-mediated seed dormancy in Arabidopsis.

14:45-15:15 Discussion

15:45-16:30 Dominique Job, France. Prospects for understanding dormancy and germination using proteomics and genomics.

16:30-17:00 Discussion

17:00 Closing session

Third International Symposium on Plant Dormancy, 25-28 May 2004, Wageningen University, The Netherlands.

Dormancy is a complex phenomenon that can be found among most forms of life, including spores, larvae, cysts, seeds, bulbs, tubers, buds, whole plants, and even higher animals. It is generally characterized by the virtual absence of metabolic activity and a lack of further development and growth. Dormancy is a device for organisms to survive long periods of adverse conditions. Plant dormancy has been widely studied since the beginning of the last century, with an emphasis on seeds and buds. With the availability of modern molecular, physiological and morphological techniques, this field of research is expanding more rapidly than ever. Thus, almost four years after the 2nd Symposium in Angers, France, it is opportune to gather scientists from this exciting field of research to present and discuss recent developments. The Symposium immediately follows the Workshop on Molecular Aspects of Germination and Dormancy on May 23rd and 24th, organized by J. Derek Bewley (see above).

Organizing committee

Henk Hilhorst and Wytse Nijenhuis (Wageningen University), Steven Groot (Plant Research International).

Scientific Committee

Marc A. Cohn (Louisiana State University), Maarten Koornneef and Henk Hilhorst (Wageningen University), Allison Kermode (University of Victoria), Rina Kamenetski, Eti Or, Moshe Flaishman and Amnon Erez (Volcani Center, Bet-Dagan).

Details of the program, registration, venue and accommodation of Workshop and Symposium) will appear soon on the web site of the Wageningen Seed Centre, (www.seedcentre.nl). Please send your name and (E-mail) address to congres.dorm2004@pph.dpw.wau.nl if you want to be put on our mailing list to receive announcements.

Seed Ecology 2004 - an International Meeting on Seeds and the Environment, Rhodes Island, Greece, provisional dates: 29 April - 4 May 2004

This meeting will showcase the diverse aspects of Seed Ecology, including dispersal, seed predation, soil and canopy seed banks, ecophysiology of dormancy and germination, seed research issues related to evolution, conservation and ecosystem functioning. The University of Athens, Greece and the International Society for Seed Science (ISSS) will act as co-organisers while the British Ecological Society (BES) is already a valuable sponsor. Seed Ecology 2004 is scheduled to run partly concurrently with MEDECOS X (the 10th Mediterranean Ecology Conference), also to take place in

Rhodes (April 25 - May 1, 2004). On Friday, April 30th, we intend to run one or two common sessions on Mediterranean seed ecology.

Visit the web page of the meeting at <http://www.biology.uoa.gr/SeedEcology2004.htm> where you will find a preregistration form and regularly updated information. For additional information, contact co-organizers Costas Thanos (cthanos@biol.uoa.gr) or Ken Thompson (Ken.Thompson@sheffield.ac.uk).

other meetings

IUFRO Tree Seed Symposium, 10-14 August 2003, Athens, Georgia, USA

The International Union of Forestry Research Organizations [IUFRO], Seed Physiology and Technology Research Group [RG 2.09.00] will hold their annual symposium at the University of Georgia, Athens, Georgia, USA. All interested people are requested to contact Gary Johnson. Pre-registration forms and information about the symposium are posted on the web page: <http://ntsl.fs.fed.us>. For further information, contact:

Gary Johnson
National Tree Seed Laboratory
5675 Riggins Mill Road
Dry Branch, GA 31020 USA
Telephone: (478) 751-3555
Facsimile: (478) 751-4135
E-mail: wjohnson03@fs.fed.us

CORESTA Agronomy and Phytopathology Study Groups, Bucharest, Romania, 12-17 October 2003

The working programme of the meeting will include scientific papers and sub-group reports. Further details are available on the CORESTA web-site, www.coresta.org.

Seed Testing of Forest Tree and Shrub Seeds, Prague, Czech Republic, 20-25 October 2003

The International Seed Testing Association (ISTA) FTS Committee and Forestry and Game Management Research Institute of the Czech Republic have the pleasure to invite you to their workshop dealing with practical problems related to tree seed testing of both conifer and broadleaf species. For more information, contact:

Zdenka PROCHÁZKOVÁ
FGMRI RS Uherske Hradiste
686 04 Kunovice
Czech Republic
e-mail: prochazkova@vulhmuh.cz
FAX +420 572 549 119

ISTA Seed Symposium 2004, 17- 19 May 2004, Budapest, Hungary

The International Seed Testing Association (ISTA) will hold a Seed Symposium under the title 'Towards the Future in Seed Production, Evaluation and Improvement' in Budapest, Hungary, from 17-19 May 2004, as part of the 27th ISTA Congress. This is possibly the largest international gathering of applied seed scientists and offers a unique forum for the interchange of ideas between scientists and technologists. The Symposium will include seven sessions covering the following topics: application of advanced technologies; seed quality systems in emerging and developing economies; organic and conventional seed production; viability and vigour: evaluation and impact; seed lot hygiene; seed improvement and physiological basis of seed quality. The last session will be held in collaboration with the ISSS. ISTA invites the submission of both oral and poster papers that have their basis in scientific, technological, or organisational aspects of any of the session topics.

Further details of the symposium, guidelines for paper presentation and deadlines for submission can be found on the ISTA website (www.diamond-congress.hu/ista27/). For further information, contact: Dr Alison A. Powell, Convenor (a.a.powell@abdn.ac.uk).

Federation of European Societies of Plant Biology (FESPB) 14th Congress, 23-27 August 2004, Krakow, Poland

For further information: <http://www.zfr-pan.krakow.pl/konf/>

● and finally

The ISSS is your society so please involve yourself in it. If you have any suggestions, complaints, comments etc. send them along to your Officers. They want to run the ISSS as best as they can to satisfy the needs of its members. And remember to inform this newsletter about seed science in your lab, country, region etc, including any news about meetings or workshops. Send your news for inclusion in the Newsletter to the editor: Michael Black (michael.black@kcl.ac.uk).

Have a good summer, or winter, wherever you are!