UCL – DEPARTMENT OF SPACE AND CLIMATE PHYSICS
MULLARD SPACE SCIENCE LABORATORY

The Newsletter
Volume 4, Issue 3
16 January 2007

Covers events between 1st September and 30th November 2006

List of Contents

General

We have received confirmation from the Dean of the Faculty that UCL will be joining the LOFAR:UK consortium, via a combined MSSL/P&A bid. This is great news for MSSL since this telescope can be exploited by a wide range of our science interests (whether or not you have prior experience of radio astronomy). Current projects include transient radio sources, AGN surveys, cosmology, solar and solar-terrestrial physics, ionospheric physics.

LOFAR (Low Frequency Array) is a new state-of-the-art radio telescope which will explore the radio sky at low frequencies. With a central core of antennas based in The Netherlands, its spiral arms containing further antennas will extend outwards into (currently) Germany and the UK. The length of these spiral arms and the high numbers of antennas will provide unprecedented resolution and sensitivity. Construction and testing of the central core has begun and the more remote antennas will be added from 2008. The sheer scale of LOFAR has been made possible by the use of new phased array technology, as opposed to the more traditional large mechanical dishes.

Please see http://www.lofar-uk.org or Catherine Brocksopp for more details.

Visitors

Space Plasma Physics Group:-

- Dr Stepan Dubyagin visited for 3 weeks to work on Cluster data analysis (11 Oct-5 Nov). He presented a seminar entitled 'Characteristics of the flapping current sheet as inferred from Cluster observations'.

Planetary Science Group:-

- Zsofia Bebesi visited to work with Chris Arridge and Andrew Coates on Titan plasma environment 20-15 Nov, (EuroPlanet grant).
- Michiko Morooka (IRF-U) visited from 25-26 Oct to discuss the Cassini Langmuir probe and ELS data comparisons with the ELS team.

Appointments

Professor Jan-Peter Muller joined the laboratory as Head of the Imaging Group (15 Sept). Previously he was Professor of Image Understanding and Remote Sensing in the Department of Geomatic Engineering (formerly known as Photogrammetry and Surveying) at UCL. He is very keen to work with different groups at the lab. developing automated solutions to retrieving new information and its increasingly interactive visualisation. This includes 3D information on the surface of Mars (from the upcoming ExoMars rover stereo Panoramic cameras), CMEs from the NASA STEREO sensor and the use of terrain and satellite real-time cloud information for forecasting natural disasters such as floods and tornadoes as well as the use of data mining techniques for the automated detection of Earthlike extra-solar planets.

Dr Dave Walton has been appointed Head of Detector Physics.

We welcomed the following newcomers to MSSL:-

- Laura Bone – Research Fellow in the Solar group.
- Andrew Malpuss – Laboratory technician with Dave Walton.
- Neville Shane joined on 1 Nov to work on Venus Express software.
- Craig Theobald – Mechanical draughtsman.
- Chris Arridge joined on 4 Sept to work on Saturn's magnetosphere with Cassini-ELS

Prizes and Awards

Professor Len Culhane has been awarded the Royal Astronomical Society's highest honour, the Gold Medal. The medal, which has been awarded, more or less annually since 1824, shows William Herschal's great reflecting telescope, of 40 foot focal length and 4 foot aperture, which he built in Slough in 1780. The first recipient was Charles Babbage who received it for his development of the difference engine to compute mathematical and astronomical tables.

Telescope/Satellite time awards/proposals

Gavin Ramsay:-

- successfully bid for 10 nights of time on the Isaac Newton Telescope in La Palma in June as part of his RATS project.

Roberto Soria:-

- was awarded 3 days at the Australian Telscope Compact Array in February 2007 to study the spiral galaxy NGC1313.
- submitted two XMM proposals (as Co-I) - (1) G Fabbiano, G Risaliti, et al. to study the highly-variable Seyfert nucleus of NGC1365, and the nearby ultraluminous X-ray sources; (2) R. DiStefano et al. to study the faint X-ray population of the Sculptor dwarf galaxy.

Grants and Contracts Awarded

Ken Phillips has been successful in his application for a Royal Society International Joint Project with Professor Janusz Sylwester (Poland) – they have been awarded £12,000 to be spent over the period 2007-2010.

Mission Status and Developments

Cassini - Lin Gilbert and Andrew Coates attended and presented at the CAPS team meeting, University of Virginia, 13-15 Nov. Planning for extended mission approved, actual extension not yet approved.

Cluster - All four PEACE instruments are in good condition and returning good data. The MSSL Plasma Group organised and hosted the Cluster PEACE team meeting, 23-25 Oct and hosted the Cluster Cross-Calibration meeting, 26-27 Oct.

Cross-Scale - The first Cross-Scale mission meeting took place from 3-5 Sept. The meeting was attended by approximately 70 scientists from around the globe and was very successful. The mission concept was presented to the wider scientific community and discussion about how the mission could be changed or improved was initiated. The MSSL Plasma Group, in connection with Imperial College London, organised and hosted the meeting at UCL. More details are available at http://www.cross-scale.org/MeetingSept06.html Special thanks go to Paul Henderson and Andrew Walsh for their help in organising the meeting.

Double Star - The PEACE instrument continues to work well.

ExoMars - IIP and ICD submitted on time. PPARC PPRP review (Manchester) of ExoMars supported by A.Coates and A.Griffiths

Jupiter/Europa orbiter - Cosmic visions candidate. Several possible instrumentation interests. We supported meetings at OU, Lindau and London.

Magnetospheric Multi-Scale - presentations to PPARC PPRP (3 Nov).

Mars Escape and Magnetic Orbiter - Cosmic visions candidate. Andrew Coates on steering committee.

Venus Express and Mars Express - Glyn Collinson represented us at the ASPERA meeting 9-10 Oct.

Proposals submitted

The Planetary group have submitted proposals for Magnetospheric Multi Scale (PPRP) and ExoMars PanCam PPRP.

Publications - Refereed

S & CP authors are shown in upper case.

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Invited Talks and Lectures

Graziella Branduardi-Raymont gave an invited talk at a workshop on Comparative Planetary Aurorae in UCL (10 - 11 Nov.): she presented XMM-Newton results on the X-ray emission from Jupiter's aurorae, put them in the wider context of X-rays from solar system bodies and compared these with results on X-ray emission from the Earth's and Saturn's aurorae.

Roberto Soria gave talks at the University of Colorado at Boulder (JILA) and Observatoire de Strasbourg.

Ilya Alexeev gave an invited talk ‘Observational Signatures of Reconnection in the Magnetosphere from Cluster: The Magnetotail’ at RAL Specialist Discussion meeting; Solar Terrestrial Magnetic Fields and Reconnection’, 13 Oct., London

Conferences and Workshops (National and International)

Astrophysics

Roberto Soria – talked at the New England regional workshop on X-ray binaries, Yale.

Alex Blustin attended the Potsdam Thinkshop on 'The role of black holes in galaxy formation and evolution', 9-13 September, and gave a talk on outflows of ionised gas from AGN.

Alex Blustin amd Silvia Zane both gave talks at the Royal Society Discussion Meeting on Gamma-Ray Bursts (18-20 Sept); Alex spoke about a rare event where a gamma-ray burst was observed to evolve into a supernova, and Silvia reviewed recent findings on Soft Gamma Repeaters and short gamma-ray bursts.

Planetary Science

- papers were presented at CAPS/INMS joint team meeting in Charlottesville, Virginia, 11-13 Nov.
- participated in 11 presentations at EPSC #1, European Planetary Science Congress 2006, Berlin, Germany, 18-22 Sept.
- participated in 5 presentations at American Astronomical Society, DPS meeting #38, Pasadena, 8-13 Oct., #36.05, 09/2006
- Chris Arridge and Yasir Soobiah presented talks at UK Planetary Forum Young Persons’ Planetary Meeting, RAS, 3 Nov.
- Peter Muller presented talk (on behalf of A. Griffiths, A. Coates et al.) on ExoMars PanCam at

Geological Society William Smith meeting 2006: Planetary Geosciences, 8-9 Nov., Burlington House, London; also Lewis Dartnell presented on Martian radiation environment at the same meeting.

Plasma Physics Group members participated in the:-

- Cross-scale meeting, 4-5 Sept., UCL, London, UK
- Cluster, Double Star, Ground-Based workshop, 5-7 Sept., Lancaster, UK
- 12th Cluster workshop, 10-16 Sept., Finland. Gill Watson, Claire Foullon and Yulia Bogdanova gave talks.
- RAS discussion meeting, 13th Oct., London, UK. Ilya Alexeev gave an invited talk, Paul Henderson and Andrew Walsh presented posters.
- PEACE team meeting, 23-25 Oct., MSSL, UK. Andrew Fazakerley, Gill Watson, Branislav Mihaljcic, Iryna Rozum, Andrew Lahiff, Hina Khan, Ilya Alexeev, Yulia Bogdanova, Paul Henderson and Andrew Walsh gave talks.
- Cluster cross-calibration meeting, 26-27 Oct., MSSL, UK. Hina Khan gave a talk.
- ISSI team meeting, 6-10 Nov., Bern.
- MIST Autumn meeting, 24th Nov., London, UK. Claire Foullon and Paul Henderson gave talks.
- ISSI team meeting, 28 Nov-1 Dec., Bern.

Media Broadcasts and Features

Andrew Coates:-

- Interview on Mars and ExoMars, BBC R5 Breakfast, 24 Oct.
- Interview on Europa and Mars, BBC Radio Wales, 1 Nov.

Outreach

MSSL held its first Alumni and Local Residents Open Day. Despite the bad weather over 100 people attended talks and activities to learn about the latest research at the laboratory. 2 Sept.

MSSL had a stand at the UKSEDS annual conference (held at the National Space Centre in Leicester between 10-12 Nov.), where Alex Blustin, Roberto Mignani, Houri Ziaeepour, Kinwah Wu and Simon Rosen enjoyed many interesting conversations with students and members of the public about MSSL and space science. Alex Blustin also gave a talk about careers in space research to local sixth formers and college students.

Lucie Green:-

- gave talks to - the PPARC summer school for new PhD students; international PhD students on the Sun's coronal mass ejections; the Institute of Physics south west division in Bristol on recent developments in solar physics. Guildford Astronomy Society visited the lab, and Lucie talked to them about Solar explosions and recent Solar related launches.
- took part in a question and answer session on the Sun's explosions as part of the BA festival in Norwich.
- Lucie Green visited Sandcross Junior School in Reigate to talk to 90 Year 5 children about the formation of the Solar System.

- Lucie started, what is now a monthly feature on BBC radio Wales, discussing the latest space news.

Tracey Poole:-

- talked on comets and gave a demonstration to the Astronomy Club of The Winston Churchill School in Woking as part of National Space Week.
- visited the 3rd West Byfleet Rainbows and talked to them about comets and cooking up a comet nucleus.
- Alice Breeveld and Tracey Poole visited St Nicolas CofE Aided Primary in Cranleigh on 6 Oct. to talk about the Solar System and give a comet demonstration to Y6.

A team from MSSL (Lucie Green, Julia Gaudelli, Glyn Collinson, Andrew Walsh & Tracey Poole) took part in a county Girl Guiding fun day "Lost In Space!" held at Surrey University. Two workshops were run, on Rockets and Telescopes, for over 200 10-14 year olds - they managed to launch just over half of their rockets.

Len Culhane talked to Horsham Astronomical Society who visited the lab on the 8 Nov. for a talk about the Sun. (Organised by Dhiren Kataria).

Lucie Green and Andrew Coates took part in a teachers' event at the National Maritime Museum which delivered space content for the new GCSE specification.

Peter Muller was involved with the exhibition of "A rough guide to Mars" (Murray, Muller and Gupta) at "A Royal Science Day at Buckingham Palace on 24/10/06" This was coordinated by the Royal Society as part of the drive to inspire more young people to study the sciences, and attracted 850 GCSE and A-level students and teachers.

Ian Hepburn talked about MSSL to Billingshurst Probus Club. Probus clubs are organizations for men and women who have retired from their profession or business and want to maintain a social network with others who have similar interests.

Press Releases

PPARC press release on the 'Death Star', a gamma-ray burst that became a supernova, to coincide with the publication of the paper in Nature (authors included Alex Blustin and Mat Page): 31st Aug.

Next Issue

The next issue of the Department of Space and Climate Physics Newsletter (Volume 4, Issue 4) will be published in March 2007. This will cover activities from 1 December 2006 to 28 February 2007.