



The Newsletter
Volume 4, Issue 4
1st April 2007

Covers events between 1st December and 28th February 2007

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General

Congratulations go to David Brockley and Chris Brockley-Blatt and to Tracey Poole on the birth of their sons and to Gill Watson on the birth of her twins.

Congratulations also go to Hazel McAndrews who was married on March 23.

Visitors

Space Plasma Physics Group:-

- Dr. Bertrand Lefebvre from Imperial College London visited and gave a seminar entitled “Electron dynamics and cross-shock potential at the quasi-perpendicular Earth bow shock” on 4 Dec 2006.
- Dr Adrian Grocott from the University of Leicester visited and presented a seminar entitled “Tail reconnection during IMF-northward non-substorm intervals” on 30 Jan 2007.

Planetary Science Group:-

- Dr. Nicolas André from ESTEC visited from 5-9 Feb to work with Andrew Coates, Hazel McAndrews and Chris Arridge on spin-periodicities in Saturn’s magnetosphere. He presented a seminar on Saturn’s magnetosphere.
- Dr. Marina Galand from Imperial College visited Andrew Coates to work on Titan on 19 Feb and delivered a seminar on Titan photoelectrons and proton aurorae.
- Dr. Caitriona Jackman from Imperial College visited on Wednesday 28 Feb to discuss observations of tail reconnection at Saturn with Hazel McAndrews and Chris Arridge.

Prizes and Awards

Chris Arridge won an AGU Outstanding Student Presentation award for his talk, “[Magnetodisc formation at Jupiter and Saturn](#)” at the Fall AGU Meeting 2006 in San Francisco.

Gemma Attrill won the Alan Johnstone Award for Outstanding Scientific Achievement by a Research Student.

Giulio Del Zanna has been offered the (highly competitive) 5-year PPARC Advanced Fellowship, to be held at MSSL (start date yet to be decided).

Claire Foullon has been awarded funding from the British Council, through its Researcher Exchange Programme. She is using this award to visit the Space Science Center at the University of New Hampshire (Durham, USA) for three months (from mid-January until mid-April 2007).

Adam Lea won the Robert Boyd Award for Outstanding Scientific Achievement.

Tracey Poole won the Elizabeth Puchnarewicz Award for her Outstanding Contribution to Public Outreach.

Jason Tandy and Ady James received an award from NRL: the 2006 Alan Berman Publication/Edison Patent award. This was related to a Solar B/Hinode paper “Optics and Mechanisms for the Extreme-Ultraviolet Imaging Spectrometer (EIS) on the Solar-B Satellite”, and was presented (in absentia) at the Bolling Air Force Base.

Jason Tandy won the John Raymont Award for his Outstanding Commitment to MSSL's Technology Programme.

Telescope/Satellite time awards/proposals

Roberto SORIA carried out radio observations of the starburst galaxy NGC 1313 from the Australia Telescope Compact Array.

Grants and Contracts Awarded

A proposal for development work on the electron analyser system (EAS) which is intended to be part of the Solar Wind Analyser (SWA) package on Solar Orbiter was considered at the December meeting of the PPARC Project Peer-Review Panel (PPRP), where Chris Owen presented the case. PPARC have decided to fund the proposal in full.

Mission Status and Developments

Cassini – Both the ELS instrument and the spacecraft are in good condition and returning good science data. Two MSSL-led papers were submitted.

Cluster – All four PEACE instruments are in good condition and returning good data. The recent GRL

paper by Paul Henderson, "Cluster PEACE observations of electron pressure tensor divergence in the magnetotail", was selected for ESA Cluster highlights and will be the top story on the ESA Cluster website: <http://clusterlaunch.esa.int/science-e/www/object/index.cfm?fobjectid=40761>

http://www.esa.int/esaCP/SEMZN9Q11ZE_index_0.html

Cosmic Visions Candidates - Supported activities on LunaEx (MSSL-led), Jupiter/Europa, Mars Escape and Magnetic Orbiter, Titan/Enceladus, Near Earth asteroid sample return, Venus Entry Probes. In all cases we are involved in working groups and/or have attended meetings.

Cross-Scale – Chris Owen has been involved with the 'core group' representing the community interested in the Cross-Scale concept for ESA's Cosmic Vision 2015. Activity in the last 3 months has concentrated on providing feedback for ESA and the industrial partners who are undertaking the TRS study on the mission. Given the release of the CV2015 AO in early March, the next 3 months are likely to be busy on this front.

Double Star – The PEACE instruments continue to work well.

ExoMars – Andrew Coates presented at the PPRP meeting in Manchester on 5 Dec and at the PPRP Site visit in Swindon on 23 Jan. PPARC funding and ESA selection is hoped for soon.

Magnetospheric Multi-Scale – PPARC science committee declined to fund this despite good reviews.

Venus Express and Mars Express – ASPERA is operating well and an MSSL-led paper has been submitted.

Proposals submitted

ExoMars bridging grant to cover PanCam activities at MSSL until the ExoMars payload review.

Publications - Refereed

S & CP authors are shown in upper case.

A. Published

- Barabash, S., Lundin, R., Andersson, H., Brinkfeldt, K., Grigoriev, A., Gunell, H., Holmstrom, M., Yamauchi, M., Asamura, K., Bochsler, P., Wurz, P., Cerulli-Irelli, R., Mura, A., Milillo, A., Maggi, M., Orsini, S., COATES, A.J., LINDER, D.R., KATARIA, D.O., Curtis, C.C., Hsieh, K.C., Sandel, B.R., Frahm, R.A., Sharber, J.R., Winningham, J.D., Grande, M., Kallio, E., Koskinen, H., Riihela, P., Schmidt, W., Sales, T., Kozyra, J.U., Krupp, N., Woch, J., Livi, S., Luhmann, J.G., McKenna-Lawlor, S., Roelof, E.C., Williams, D.J., Sauvaud, J.-A., Fedorov, A & Thocaven, J.-J., The Analyzer of Space Plasmas and Energetic Atoms (ASPERA-3) for the Mars Express Mission, *Space Sci. Rev.*, 2007. [10.1007/s11214-006-9124-8](https://doi.org/10.1007/s11214-006-9124-8)
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B. In press

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- Yukita, M., Swartz, D.A., SORIA, R. & Tennant, A.F., Discovery of a transient X-ray source in the compact stellar nucleus of NGC2403, *Astrophys. J.*, 2007.

Publications - Non-refereed

A. Published

- DARTNELL, L.R., Ward, J.M. & COATES, A.J., Modelling the Martian radiation environment and implications for astrobiology, in 36th COSPAR Scientific Assembly, Beijing, China, 13-23 July 2006, 36, 2386-, 2006.

B. In Press

- Goncalves, A.C. & SORIA, R., Soft-excess in ULX spectra: disc emission or wind absorption?, in *Proceedings of the multicoloured landscape of compact objects*, Sicily, June 2006.
- Kilgard, R.E., SORIA, R., Prestwich, A.H. & Kalogera, V., X-ray binaries in the Fornax Local Group Dwarf, in *American Astronomical Society Meeting 209*, 155.02-, 2007.

PhDs Awarded

Congratulations to the following who successfully defended their PhD theses:

- Hazel McAndrews, "Cassini observations of low energy electrons in and around Saturn's magnetosphere". (MSSL/UCL)

- Alec McCalden, "User Interfaces in Space Science Instrumentation". (MSSL/UCL)
- Chris Arridge (PDRF in Planetary Science group), "On the configuration and dynamics of Saturn's magnetosphere" (Imperial College).
- Laura Bone (PDRF in the Solar group) "Multiwavelength observation and modelling of thermal and non-thermal electrons in the solar corona" (University of Glasgow).

Invited Talks and Lectures

Chris Arridge: "Magnetodisc Formation at Jupiter and Saturn" - invited talk presented at the AGU Fall Meeting, (with C.T. Russell, K.K. Khurana, D.J. Southwood, and M.K. Dougherty), 11-15 Dec 2006.

Andrew Coates: "Planetary Magnetospheres - how the Sun's hot atmosphere affects planets", invited presentation at 2nd Appleton Space Conference, Rutherford Appleton Laboratory, 6 Dec 2006.

Mark Saunders: "Hurricane Activity & Forecasts: Key Current Issue". Benfield Catastrophe Summit, Orlando, Florida, USA, 7 Feb 2007.

Roberto SORIA: Invited talk at the 5th Stromlo Symposium, "Disks, winds and jets", Australian National University, Dec 2006.

Conferences and Workshops (National and International)

Astrophysics Group

In early December Graziella gave a talk about Jupiter's X-ray emission at the Kyoto conference on 'The Extreme Universe in the Suzaku Era'. Images from this work have been posted at the UCL Website <http://www.ucl.ac.uk/news/news-articles/0702/07020802> and at the XMM-Newton Image Gallery at http://xmm.vilspa.esa.es/external/xmm_science/gallery/public/level2a.php?p=0&cat=1&subcat=1.

Graziella also attended the LISA Science Team meeting in Potsdam, Germany, last December, in support of our interest in LISA's 'multi-messenger' potential (i.e. in the work to correlate gravitational wave data with astronomical studies over the electromagnetic spectrum).

Roberto SORIA gave a talk at the 27th Texas Symposium on Relativistic Astrophysics, Melbourne, Australia, Dec 2006.

Planetary Science Group

Members of the Planetary Science Group attended the American Geophysical Union, Fall Meeting 2006, 11-15 Dec 2006. 29 papers which included MSSL authors were presented with MSSL lead authors on the following 5:

- C.S. ARRIDGE, C.T. Russell, K.K. Khurana, D.J. Southwood, and M.K. Dougherty, Magnetodisc Formation at Jupiter and Saturn.
- C.S. ARRIDGE, D.J. Southwood, C.T. Russell, K.K. Khurana, N. Andre, A.J. COATES, M.K. Dougherty, H.J. MCANDREWS, D.G. Mitchell, E.C. Sittler, Structure and Properties of Saturn's Magnetospheric and Magnetotail Current Sheets.
- COATES, A J, Crary, F J, Young, D T, Szego, K, Sittler, E C, Goldstein, R., Cassini's low Titan encounters: negative ion observations.
- GRIFFITHS, A D and COATES, A J, The Hyperspectral Stereo Camera Project.
- SOOBIAH, Y I, COATES, A J, Winningham, D, Frahm, R., Lundin, R, Barabash, S, Altitude Dependence of Electron Signatures from 2004-2006 in Mars Express ASPERA-3 ELS Data.

The Plasma Physics Group organised and hosted the Europlanet Cluster-Ground-Based Meeting, 31 Jan-2 Feb 2007. Chris Owen, Ilya Alexeev, Paul Henderson, Andrew Walsh and Andrew Fazakerley participated and gave talks.

Group members also participated in the American Geophysical Union, Fall Meeting 2006, San Francisco, 11-15 Dec 2006. 16 papers were presented with MSSL lead authors on 2.

- HENDERSON, P., OWEN, C., LAHIFF, A., ALEXEEV, I., FAZAKERLEY, A., Lucek, E., Reme, H., Cluster PEACE Observations of Electron Pressure Tensor Divergence in the Magnetotail.
- WALSH, A.P., FAZAKERLEY, A.N., Wilson, R.J., ALEXEEV, I.V., HENDERSON, P.D., OWEN, C.J., Lucek, E., Carr, C.M., Dandouras, I., Near-Simultaneous Flux Rope Observations With Cluster and Double Star

Media Broadcasts and Features

Andrew Coates

- Interview/phone-in on BBC Radio Wales, interviews Sky News and Al-Jazeera International, about moon exploration, 5 Dec 2006
- Interview on BBC R4 Today programme, on space exploration, 4 Jan 2007
- Interview for BBC1 6 o'clock news, on dark matter structure, 8 Jan 2007.
- Interviews for BBC TV news, R4 World Tonight, R5 live, News 24, 96.4 Eagle, Daily Telegraph, Mail, Times, Surrey Advertiser, PA on lunar penetrators, 9 Jan 2007
- Interview on 96.4 Eagle on moon mission and MSSL space science research, 1-hour feature, 16 Jan 2007.
- Rosetta Mars swingby – Andrew Coates was quoted in PPARC news release, coverage included Mars Today.com, Cosmos Magazine, Malaysia Sun.

Lucie Green

- Latest space topics discussion, BBC Radio Wales, 5 Dec 2006.
- Latest space topics discussion, BBC Radio Wales, 4 Jan 2007.
- Discussion on latest space research, BBC radio Wales, 30 Jan 2007

Outreach

Lucie Green would like to thank everyone for their efforts for Outreach. Please let her know if any activities have been missed off the list.

Chris Arridge

- Latest results from Cassini talk, Ewell Astronomical Society, 12 Jan 2007.

Andrew Coates

- Talk for Flamsteed Astronomical Society, Greenwich, on 'Where did Mars' water go?', 8 Jan 2007.
- Talk The Venus Express mission, for Richmond & Kew Astronomical Society, 26 Jan 2007.

Lucie Green

- Sun-Earth connection adult learners workshop, Cardiff University, 9 Dec 2006.
- Sun-Earth connection in the classroom, the Association for Science Education annual conference, 6 Jan 2007.
- The active Sun talk, Galway Star Festival, 27 Jan 2007.
- The active Sun talk, Highgate School, 1 Feb 2007.
- The active Sun talk, Eastbourne Astronomical Society, 3 Feb 2007.
- Saturday Science for the Royal Institution, New Cross, 10 Feb 2007.
- Venus: Goddess of love or Earth's evil twin?, UCL's Bloomsbury theatre, 14 Feb 2007.

Lucie Green, Gemma Attrill & Alice Breeveld

- Spectroscopy workshop, Glebelands school, 30 Jan 2007.

Hazel McAndrews

- Spent a day at St Christopher's school in Letchworth talking to the assembly about Cassini, working with a class on satellites and talking about careers in space to the 6th formers.

Tracey Poole & Lucie Green

- Brownie star gazing badge, MSSL, 5 Feb 2007.

Roberto Soria

- Uploaded a 20-min video and summary of his presentation at the IAU Symposium 238 (Prague, Aug 06) on Google Video - "[The most massive stellar black holes](#)".

Kinwah Wu

- Provided an exhibition at the UCL Parents' Day with help from Martin dela Nougerede, Alex Blustin, Roberto Mignani, Curtis Saxton and Rosalind Medland.

Press Releases

Louise Dartnell (COMPLEX) and Andrew Coates

- "Dig deeper to find Martian life", [UCL press release](#) based on Dartnell, Coates et al. GRL paper on astrobiology at Mars – national and international coverage included Telegraph, Guardian, Sun, Times, Metro, Scotsman, Irish Independent, Manchester Evening News, BBC News Online, space.com, spaceflight now, Fox News, MSNBC, Cosmos, African News dimension, IRN, R5 live.

Mark Saunders

- TSR predicts an active hurricane season in 2007. 7 Dec 2006. <http://tsr.mssl.ucl.ac.uk/docs/TSR-Hurricanes2007.pdf>
- TSR adds rainfall forecasts for tropical storms worldwide. (For insurance audience). 15 Feb 2007. <http://tsr.mssl.ucl.ac.uk/docs/TSRRain-Insurers.pdf>
- TSR adds rainfall forecasts for tropical storms worldwide. (For humanitarian audience). 15 Feb 2007. <http://tsr.mssl.ucl.ac.uk/docs/TSRRain-Humanitarian.pdf>

Other News

The EuroTempest project (www.eurotempest.com) developed with funding from Benfield and Royal&SunAlliance will, from 1 March 2007, become the first research project in the Department of Space and Climate Physics to transition to a Business Joint Venture. EuroTempest provides quantitative weather risk warnings to support risk management, loss mitigation and decision making for the European insurance industry.

Graziella Branduardi-Raymont is promoting the inclusion of X-ray imaging/spectroscopic capabilities onboard planetary missions in the context of the ESA Cosmic Vision call for proposals, and she has attended a number of meetings in the UK in view of preparing a response to this call. In the same context she is contributing to the preparation of a proposal for the X-ray astronomy mission EDGE, led by a Dutch-Italian consortium.

Yulia Bogdanova visited the Max-Planck Institute for Extraterrestrial Physics to work on the Heliospheric International Year project, 28 Nov-3 Dec 2006.

Next Issue

The next issue of the Department of Space and Climate Physics Newsletter (Volume 5, Issue 1) will be published in June 2007. This will cover activities from 1 March 2007 to 31 May 2007.