



The Newsletter - Volume 9, Issue 1
6th July 2011

Covers events between 1st March 2011 and 31st May 2011

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General

Congratulations to Lin Gilbert and Howard Huckle who were married in Cornwall on 18 April.

MSSL won the Football championship at the 2011 National Astronomy Meeting (NAM) in Llandudno, Wales. Finishing top of the league, MSSL won all their games including a 7 - 1 victory over UCL. The top two teams in the league (MSSL and Sheffield) then played a tense game which ended 1 – 1. The game was decided on penalties with MSSL winning 3 – 2.



Visitors

Shegeki Inoue is here for a year to work with Daisuke Kawata.

Prof E. Dubinin from MPS Lindau, visited the Planetary Science Group and gave a talk on "Induced magnetospheres on Mars and Venus: open questions", 20 April.

Antonia Savcheva (Harvard and Boston University) visited the Solar Group to work with Lucie Green on flux ropes in the solar atmosphere. Antonia models the magnetic configurations in regions on the Sun that produce coronal mass ejections and spent a very productive week working with the group.

Appointments

Roberto Soria has left MSSL and has taken up a research fellowship at the Curtin Institute of Radio Astronomy, Perth, Australia.

Proposals Submitted

R Soria and G Hau - VLT observations of the intermediate-mass black hole HLX1.

The Planetary Science Group – continued operations funds for Cassini, Cluster and XMM-Newton (2011-12) from ESA via UKSA; continued funds for EJSM preparation.

Grants and Contracts Awarded

MSSL is involved in a newly awarded contract from ESA to study potential instrumentation for a 'Dust Environment and Plasma Package' for a lunar lander (L-DEPP). This study kicked off in mid-May and will run for a year. MSSL will contribute to the study by the definition of a lunar electron analyzer (LEA) and a possible combined ion and electron analyzer. MSSL contacts are Dhiren Kataria, Richard Cole and Chris Owen.

Telescope/Satellite Time Awards/Proposals

Roberto Soria:

- has been awarded 4 sessions at the Australia Telescope Compact Array, Narrabri, to study the core and lobe properties of the jet in the Galactic microquasar GRS1758-258. This is an ongoing collaboration with colleagues at Southampton University and Strasbourg Observatory;
- and the international M83 team have obtained 3 sessions at the Australia

Telescope Compact Array, Narrabri, to study young supernova remnants in that galaxy, associate them with X-ray counterparts, and identify the galactic nucleus. An additional Chandra observation will be taken in 2011 August;

- together with M Pakull, C Motch and J Broderick have obtained Hubble Space Telescope images of the ionized nebula around the microquasar S26 in the galaxy NGC7793. VLT time has been allocated in August 2011.

Mission Status and Developments

Cassini - CAPS-ELS is performing well. The team is still highly productive (see paper and talk lists – as well as several ISSI and other papers submitted). Several EGU presentations included CAPS-ELS data and authors. Adam Masters attended the MAPS workshop in Annapolis, 27-19 March.

Cluster – All four Cluster spacecraft and all four PEACE instruments continue to operate well. The first set of observations executed to support Guest Investigator science was carried out. Planning for the next auroral acceleration region campaign is in progress. Iryna Rozum and Natasha Doss attended the CAA Cross-Calibration meeting, in Uppsala, Sweden, each giving reports on recent progress (13-15 April). Andrew Fazakerley attended the Cluster SOWG meeting at ESOC, Darmstadt, Germany (11-12 May). Iryna Rozum, Natasha Doss and Andrew Fazakerley attended and contributed to the CAA Operations Review meeting, in ESTEC, Noordwijk (18-19 May).

EJSM-Laplace – Andrew Coates attended ESA science study team (SST) meetings at ESTEC March/May as well as several telecons, and provided several inputs for the ongoing study. The team are studying the possible inclusion of Europa flybys. Regarding possible instrumentation, Andrew Coates led a JuMMP team meeting in Paris, 11-12 April on plasma instrumentation. Andrew Coates also attended a Europlanet workshop in Helsinki.

ExoMars – A PanCam science team meeting was held on 5 April at VR-Vis, Vienna, attended by AJC, CEL, ADG, JPM. The ExoMars oversight committee (EXOC) met on 8 April, attended by AJC and CEL. Following the US planetary science Decadal Survey, and cost issues on the ESA side, the mission looks likely to become a joint rover mission (ExoMars-C) for launch in 2018. The mission will pursue the life-related objectives from the ESA ExoMars rover and the sample caching goals (in preparation for Mars sample return) from

NASA's MAX-C. The mission as planned includes PanCam as a key part of the payload. Further decisions expected in June.

KuaFu – Andrew Fazakerley attended a KuaFu progress meeting at the EGU Assembly in Vienna.

Solar Orbiter - Activity on the Solar Orbiter SWA program continues at a high level. A full team meeting of the international consortium was held at the University of Michigan, 23-25 March, immediately prior to the 4th Solar Orbiter Workshop, which was held in Telluride, Colorado, 27 March-1 April. In addition, the MSSL team have been involved in a number of face-to-face meetings with ESA and Astrium UK, the spacecraft prime, to discuss and try to agree appropriate contamination, electromagnetic/electrostatic cleanliness, thermal and accommodation requirements for the SWA sensors. In addition, regular monthly telecons with ESA and fortnightly telecons with the SWA team are continuing.

Venus Express and Mars Express – still doing well with papers, presentations being produced.

Publications – Refereed Published

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Soria, R., a review paper on black hole jets for "Australian Physics", monthly publication of the Australian Institute of Physics.

Invited Talks and Conferences

Graziella Branduardi-Raymont gave an invited talk on "High resolution X-ray views of solar system objects" at the American Astronomical Society meeting in Boston on 23 May.

Andrew Coates gave an invited seminar "Negative ions at Titan and Enceladus" Physical and Theoretical Chemistry seminar at School of Chemistry, University of Nottingham, 23 March.

Andrew Coates attended the 10th Annual Astrophysics Conference 'Physics of the heliosphere: a 10-year retrospective,' in Maui, Hawaii and gave an invited plenary talk entitled "Ion pickup and acceleration: measurements from planetary missions".

EGU Assembly in Vienna, April. Colin Forsyth, Andrew Walsh and Andrew Fazakerley attended. Colin Forsyth gave an invited talk on "Substorm and solar wind excitation of the wavy current sheet" and a contributed talk on "Multi-spacecraft observations of auroral acceleration in upward and downward current regions by Cluster". Andrew Walsh gave a poster on "Average Pitch Angle Distributions in the

Magnetotail: The Effect of Geomagnetic Activity".

The Planetary Science Group was represented on several EGU abstracts:

The induced magnetotail of Titan. Cesar Bertucci, Ronan Modolo, Fritz Neubauer, Karoly Szego, Niklas Edberg, and Andrew Coates.

Hot O⁺ ion presence and directional flows in the magnetosheath of Saturn. Nick Sergis, Tom Krimigis, Elias Roussos, Adam Masters, Caitriona Jackman, Michelle Thomsen, Douglas Hamilton, Norbert Krupp, Donald Mitchell, Michele Dougherty, Andrew J. Coates, and Frank J. Cray.

Suprathermal electron spectra in the Venus ionosphere. Jun Cui, Marina Galand, Andrew Coates, Tielong Zhang, and Ingo Mueller-Wodarg.

Observations of a structured ionospheric outflow plume at Titan. Niklas Edberg, Karin Ågren, Jan-Erik Wahlund, Michiko Morooka, David Andrews, Stan Cowley, Anne Wellbrock, Andrew Coates, Cesar Bertucci, and Michele Dougherty.

Non-ideal Alfvén wings and the acceleration of electron beams by Enceladus. Frank Cray, Donald Gurnett, Andrew Coates and Geraint Jones.

Louise Harra gave a seminar entitled "A new view of the Sun from Hinode" at the University of Leicester.

Roberto Soria gave a seminar on microquasars at ESO, Santiago (March), and a seminar at API, University of Amsterdam (April).

NAM/UKSP/MIST meeting, Llandudno, 17-21 April. This meeting was attended by members of the Solar and Stellar Physics Group and Planetary Science Group:

- Santiago Vargas Dominguez was awarded first prize (UKSP/MIST) for his poster entitled "Making the most of a poster to attract non-scientific audience".
- Colin Forsyth co-organised the UKSP & MIST Missions forum with Lucie Green, David Williams and Jim Wild (Lancaster), and presented an overview of the Alfvén proposal. Chuan Li gave a talk entitled "How does the coronal magnetic topology relate solar activities to in-situ electron streams".

The Planetary Science Group were represented on two papers at the Lunar and Planetary Science Conference, Texas, 7-11 March:

Teolis, B.D., G. H. Jones, P. F. Miles, R. L. Tokar, B. A. Magee, J. H. Waite, E. Roussos, D. T. Young, F. J. Cray, A. J. Coates, R. E. Johnson, W.-L. Tseng, R. A. Baragiola, Formation, Distribution and Loss of Rhea's O₂-CO₂ Exosphere;

Cousins, C.R., M. Gunn, A.D. Griffiths, D.P. Barnes, I.A. Crawford and A.J. Coates, Selecting the geological filter wavelengths for the ExoMars Panoramic Camera.

Dhiren Kataria and Chris Owen attended the 4th International Solar Orbiter Workshop, Telluride, Colorado, 27 March-1 April, and presented updates on the work we are doing on the Solar Wind Analyser suite in general, and the Electron Analyser System in particular.

Yulia Bogdanova and Andrew Fazakerley attended the third meeting of the ISSI team 'Conjugate response of the dayside magnetopause and dawn/dusk flanks using Cluster-THEMIS conjunctions and Ground based observations' in Bern, 7-10 March.

Press Releases

Andrew Coates and Geraint Jones featured in UCL press release on electron beams at Enceladus, 22 April.

Media Broadcasts and Features

Chris Arridge:

- interviewed for an article that appeared in the May issue of Sky at Night magazine.

Andrew Coates:

- Electron beams at Enceladus – BBC Radio 4 Material World 21 April 2011, BBC World Today (World Service radio) 22 April, BBC online, Daily Mail, Wired.co.uk, news.com.au, etc;
- quoted in The Times, 19 May 2011, on free floating planets discovery.

Lucie Green:

- The largest radio on Earth, broadcast on BBC Radio 4 and the BBC World Service;
- short film on the Aurora on the BBC's Sky at Night;
- discussing music, science and culture on The Music Group on Radio 4;
- interview about the Sun on Futureproof programme on Irish national radio station.

Sheila Kanani:

- was mentioned in a newspaper article about future science TV presenters -

<http://www.guardian.co.uk/commentisfree/2011/may/15/mrs-brian-cox-tv-science>

Outreach

Chris Arridge:

- was a judge for the National Science and Engineering Competition 2011 as part of The Big Bang Fair held on 10 March at ICC, London ExCel centre;
- gave a talk on "The Plumes of Enceladus" to the Hull and East Riding Astronomical Society on 14 March;
- gave a talk on "The Europa Jupiter System Mission" to Worthing Astronomical Society on 16 May.

Andrew Coates talked on:

- Exploring our solar system, and How to explore our solar system – spacecraft and their missions, to years 5&6 Gifted and Talented pupils, Herne Bay Junior school, Kent, 9 March;
- Exploring our solar system for years 5 and 6 groups, Fairfields Primary School, Basingstoke, 1 April;
- Latest results from Cassini-Huygens, at Farnham astronomical society, 10 May.

Colin Forsyth gave a talk entitled "Compasses and the northern lights: how Earth's magnetic field protects us" to the UCL Certificate of Astronomy graduates.

Lucie Green :

- with Craig, Roger, Jason and Andy Walsh organized a visit to MSSL by St. Michael's Catholic High School & Specialist College who had a rocket workshop run by Lucie;
- talked about the Sun at London's comedy night Festival of the Spoken Nerd;
- Public on the Sun talk at the National Astronomy meeting in Wales.

Louise Harra gave public lectures on:

- "Mapping the Sun" as part of the St. Patrick's Day celebration organized by Armagh Observatory;
- "The Sun and ... the end of the world ?" in which she discussed the impact of the unusual period of low solar activity and how the Sun is emerging out from its slumber .

Sheila Kanani:

- Bright Club "Life" gave a talk and made a comet in a pub in Brighton, 1 March;
- took part in "I'm a scientist get me out of here" competition and came second (for 2 weeks in March);

- gave a talk at "Spacetacular" with Helen Keen at a pub in London and made a comet, 12 April.

George Seabroke gave a public outreach talk called Sailing through the Solar System to 2 classes of 9-10 year olds at Barrow Hill Primary School, 24 May.

Next Issue

The next issue of The Newsletter (Volume 9, Issue 2) will be published in September 2011. This will cover activities from 1 June 2011 to 31 August 2011.