



## Department of Space and Climate Physics Newsletter

### Volume 1, Issue 4

31st March 2004

Covers events between 1<sup>st</sup> December 2003 and 29<sup>th</sup> February 2004

#### **List of Contents**

List of Contents .....	1
New Staff Members.....	1
Visitors .....	2
Prizes and Awards .....	2
Appointments .....	2
Grants and Contracts Awarded.....	2
Mission Status and Developments.....	3
Publications - Refereed.....	4
A. Published .....	4
B. In Press.....	5
Publications - Non-refereed .....	7
A. Published .....	7
B. In Press.....	8
Invited Talks and Lectures (National and International).....	8
Conference and Workshop Presentations (National and International).....	9
Press Releases .....	9
Media Broadcasts and Features .....	9
Proposals Submitted.....	10
New Product.....	11
Patents.....	11
Other News Items/Activities .....	11
Next Issue .....	11

#### **New Staff Members**

We welcomed the following new staff:

Ben Taylor - Work-experience student working with Dhiren Kataria (Space Plasma Physics group) on electrostatic analyser modelling.

## **Visitors**

We welcomed the following visitor:

Prof Xiaohua Deng (Wuhan University, China) - visited the Space Plasma Physics group from 21 Jan. - 9 Feb. 2004.

## **Prizes and Awards**

Sylvia Zane has been awarded a PPARC Research Fellowship to continue her research at MSSL for a further 5 years from October 2004.

## **Appointments**

Andy Fenney, Tracey Poole and Elizabeth Auden have been appointed First Aiders.

## **Grants and Contracts Awarded**

- PPARC, as part of their e-Science initiative, have recently approved a MSSL-led Grid computing project to make data from the NASA Solar Dynamics observatory available to the UK Solar-Terrestrial Physics community and to provide assistance to the US PI groups in analysis algorithm preparation. The work will start in October 2004, is in collaboration with the Universities of Birmingham and Sheffield and with RAL and will attract a three-year grant of £500k. The MSSL Solar Physics group will be involved in addressing vector magnetogram data and in the computation of Active Region magnetic helicity. (Len Culhane and Elizabeth Auden)
- Modelling the radiation environment for an Earth-orbiting spacecraft – a 1 month contract, with Sula Systems, value £3500, PI Andrew Coates
- INTAS Award to participate in a project to study in situ exploration of space current sheets in the magnetosphere, together with teams from St Petersburg University, Moscow State University, IKI (Russian Space Research Institute), CESR (Toulouse), IWF (Graz), PI Andrew Fazakerley
- MSSL has been awarded £1m from SRIF-2 to upgrade its calibration facilities for plasma and optical instruments. A new improved version of the electron calibration beam will be housed in its own dedicated vacuum chamber, freeing up the existing thermal vacuum system to concentrate on environmental testing. Also included in the new plasma facility will be an improved absolute beam measurement capability and an ion beam. A second new chamber will house the new photon calibration facility, which will be a large-ish (~1m long, ~1m diameter) chamber optimised for calibration of photon detectors (e.g. CCDs, MCPs) over a large range of wavelengths from near-infra-red through visual to UV and X-ray, using various sources and calibrated reference detectors. It is hoped to include a cold stage for testing at temperatures down to ~35K. PI - Alan Smith; Dhiren Kataria - technical lead for the plasma facility; Dave Walton - technical lead for the optical system.

- Alcatel Space have contracted us to a small consultancy, of 8 months duration, to provide support for the Solar Orbiter Mission Assessment Study that they are expecting to undertake for ESA . Although the value to MSSL of this consultancy is only €6K we expect to derive further benefits, from our membership of the industrial team in the study, which will result in a strengthening of our position in the competition for UK funding for instrumentation on Solar Orbiter (launch 2013) being conducted by PPARC. (Louise Harra, Berend Winter & Phil Guttridge)

### **Mission Status and Developments**

Beagle 2 successfully separated from Mars Express on 19 Dec but was never heard from again – it should have landed on 25 Dec. The mission was declared lost on 6 Feb. and an inquiry initiated (preliminary results are due 8 Mar). NASA and ESA Mars orbiters are also imaging the final landing ellipse and are looking for evidence of Beagle 2 hardware on the surface.

Cassini-Huygens CAPS operations, with new flight software, started on 22/23 Dec. Some on-board problems with real-time interrupts are under investigation.

Cluster entered the new Dayside/250 km separation phase. The PEACE instrument is operating well. A Cluster Science Operations Working Group meeting was held at ESOC on 02 Dec 2003.

Double Star TC-1 was launched on 29 December 2003. PEACE has been commissioned successfully is now in the science operations phase and operating well. (equatorial satellite)

Double Star TC-2 has been successfully, electrically, integrated onto its spacecraft. It should be launched in June 2004. (polar satellite)

Exomars Pasteur PICS (Panoramic Imaging Camera System) proposal – meetings were held during the period.

Magnetospheric MultiScale Mission (MMS) The Phase A study is underway.

Mars Express successfully achieved Martian orbit on 25 Dec. 2003 and final polar orbit on 28 Jan. 2004. Initial Aspera results look very promising and include confirmation of a Mars atmosphere mass loss and excellent data on Martian plasma boundaries.

MOSES The MSSL components of the MOSES flight model have been delivered to Montana State University and initial integration tests have gone well. The MOSES payload will be launched on August 15th this year at White Sands Missile Range on a Terrier Black-Brant sounding rocket.

Rosetta Launched 2 March 2004.

Solar-B EIS Since the last newsletter the EIS instrument has been fully integrated and the Instrument Control Unit fully qualified. This month, as part of the pre-environmental optical tests, the FM EIS instrument saw first light from the hollow cathode UV source at RAL, showing strong lines in both Helium and Neon. The performance was good and gives us great confidence in the later calibration activities.

Venus Express The Flight model was delivered to IRF in February 04.

## **Publications - Refereed**

S & CP authors are shown in upper case

### **A. Published**

- BLUSTIN, A.J., PAGE, M.J. & BRANDUARDI-RAYMONT, G., [Intrinsic absorbers in BL Lac objects: the XMM-Newton view](#), *Astron. & Astrophys.*, **417**, 61-70, 2004. This paper reviews the evidence for deep ionised absorption features in the XMM-Newton X-ray spectra of four BL Lac objects; these features are potentially of great importance in understanding the circumnuclear environment of radio-loud AGN. We find no such evidence, and, looking back over the history of claimed observations of such features, we are able to rule out their existence at 93% confidence.
- De Groof, A., Berghmans, D., VAN DRIEL-GESZTELYI, L. & Poedts, S., [Intensity variations in EIT shutterless mode: Waves or flows?](#), *Astron. & Astrophys.*, **415**, 1141-1151, 2004.
- MADJARSKA, M.S., Doyle, J.G., V. & DRIEL-GESZTELYI, L., [Evidence of Magnetic Reconnection along Coronal Hole Boundaries](#), *Astrophys. J. Lett.*, **603**, L57-L59, 2004.
- McHardy, I.M., Papadakis, I.E., Papadakis, I.E., Uttley, P., PAGE, M.J. & MASON, K.O., Combined long and short time-scale X-ray variability of NGC4051 with RXTE and XMM-Newton, *Mon. Not. R. astr. Soc.*, **348**, 783-801, 2004.
- Mohammadzadeh, A., Evans, H., Nieminen, P., Daly, E., Vuilleumier, P., Buhler, P., Eggel, C., Hajdas, W., Schlumpf, N., Zehnder, A., Schneider, J. & FEAR, R., [The ESA standard radiation environment monitor program: first results from PROBA-1 and INTEGRAL](#), *IEEE Trans. Nucl. Sci.*, **50**, 2272-2277, 2004. The main characteristics of the European Space Agency (ESA) Standard Radiation Environment Monitor (SREM) are outlined. First SREM results from the Project for On-Board Autonomy-I (PROBA-I) and INTEGRAL spacecraft are presented. [10.1109/TNS.2003.821796](#)
- RAMSAY, G., CROPPER, M., MASON, K.O., Cordova, F.A. & Priedhorsky, W., XMM-Newton observations of three short-period polars: V347 Pav, GG Leo and EU UMa, *Mon. Not. R. astr. Soc.*, **347**, 95-100, 2004.
- Rudawy, P., Phillips, K.J.H., Gallagher, P.T., WILLIAMS, D.R., Rompolt, B. & Keenan, F.P., [Search for 1-10 Hz modulations in coronal emission with SECIS during the August 11, 1999 eclipse](#), *Astron. & Astrophys.*, **416**, 1179-1186, 2004.
- Slavin, J.A., OWEN, C.J., Dunlop, M.W., Boralv, E., Moldwin, M.B., Sibeck, D.G., Tanskanen, E., Goldstein, M.L., FAZAKERLEY, A., Balogh, A., Lucek, E., Richter, I., Reme, H. & Bosqued, J.M., Cluster four spacecraft measurements of small travelling compression regions in the near-tail, *Geophys. Res. Lett.*, **30(23)**, , 2004. Analysis of Cluster measurements has directly demonstrated

the existence of moving bulges in the north-south thickness of the plasma sheet, most probably due to the formation of flux ropes, and their role in producing travelling compression regions. [10.1029/2003GL018438](https://doi.org/10.1029/2003GL018438)

Smith, A.J., Horne, R.B. & MEREDITH, N.P., [Ground observations of chorus following geomagnetic storms](#), *J. Geophys. Res. - Space Physics*, **109**, A02205, 2004. In this paper we present data from a complete solar cycle (1992-2002) of nearly continuous VLF/ELF observations from the VELOX instrument at Halley station, Antarctica. We show that the chorus wave power rises above the pre-storm level in the storm recovery phase, supporting the wave theory of acceleration, but not ruling out other mechanisms. [10.1029/2003JA010204](https://doi.org/10.1029/2003JA010204)

Summers, D., Ma, C., MEREDITH, N.P., Horne, R.B., Thorne, R.M. & Anderson, R.R., [Modeling outer-zone relativistic electron response to whistler mode chorus activity during substorms](#), *JASTP*, **66**, 133-146, 2004. Understanding the behaviour of relativistic electrons in the Earth's outer radiation belt during storms and substorms is a current challenge in magnetospheric physics. In this paper we model the energetic electron fluxes in the middle of the outer belt and conclude that enhanced whistler mode chorus waves generated during prolonged substorm activity can generate the observed relativistic electron flux increases, whether in the presence or absence of a magnetic storm.

Uttley, P., Taylor, R.D., McHardy, I.M., PAGE, M.J., MASON, K.O., Lamer, G. & Fruscione, A., Complex X-ray spectral behaviour of NGC 4051 in the low flux state, *Mon. Not. R. astr. Soc.*, **347**, 1345-1356, 2004.

## **B. In Press**

Bloomfield, D.S., McAteer, R.T.J., Mathioudakis, M., WILLIAMS, D.R. & Keenan, F.P., Propagating Waves and MHD Mode Coupling in the Quiet-Sun Network, *Astrophys. J.*, 2004. This paper extends our current research into the transfer of energy from the convection zone of the Sun to the upper atmosphere, through MHD waves.

Brynildsen, N., Maltby, P., FOLEY, C. R., Fredvik, T. & Kjeldseth-Moe, O., [Oscillations in the Umbral Atmosphere](#), *Solar Phys.*, 2004. In this paper we demonstrate that a small part of the energy in the 3 min oscillations observed in sunspots do penetrate into the Corona and they are probably upwardly propagating acoustic waves.

Evans, P.A., Hellier, C., RAMSAY, G. & CROPPER, M., Twisted accretion curtains in the intermediate polar FO Aqr, *Mon. Not. R. astr. Soc.*, 2004. XMM-Newton observations are presented of the weakly magnetic binary FO Aqr concentrating on the X-ray and UV light-curves. We determine the geometry of its accretion curtains and find they differ with PQ Gem - a system which has similar characteristics - and discuss the implications.

Hakala, P. & RAMSAY, G., XMM-Newton observations of OY Car III: OM light curve modelling, X-ray timing and spectral studies, *Astron. & Astrophys.*, 2004. We re-examine XMM-Newton X-ray and UV light curves of the disc accreting binary system OY Car. We find evidence for the presence of a magnetic accretion

curtain and we model the light curves with a new technique which maps the extent of the accretion disc using a swarm of fire-flies.

- Hakala, P., RAMSAY, G., Wheatley, P., Harlaftis, E. & Papadimitriou, C., XMM-Newton observations of the dwarf nova YZ Cnc in quiescence, *Mon. Not. R. astr. Soc.*, 2004. We present observations of the dwarf nova YZ Cnc when it was observed in a quiescent state using XMM-Newton. There is evidence that the UV and X-ray fluxes are anti-correlated with a time-delay of about 100 sec, with the UV lagging behind the X-ray emission: this anti-correlation is very unusual
- Mereghetti, S., Tiengo, A., Stella, L., Israel, G.L., Rea, N., ZANE, S. & Oosterbroek, T., Pronounced long term flux variability of the anomalous X-ray pulsar 1E1048.1-5937, *Astrophys. J.*, 2004.
- Nakamura, R., Baumjohann, W., Nagai, T., Fujimoto, M., Mukai, T., Klecker, B., Treumann, R., Balogh, A., Reme, H., Sauvaud, J.A., Kistler, L., Mouikis, C., OWEN, C.J., FAZAKERLEY, A.N., DEWHURST, J.P. & BOGDANOVA, Y., Flow shear near the boundary of the plasma sheet observed by Cluster and Geotail, *J. Geophys. Res.*, 2004.
- RAMSAY, G., CROPPER, M., WU, K., MASON, K., Cordova, F. & Priedhorsky, W., XMM-Newton observations of polars in low accretion states, *Mon. Not. R. astr. Soc.*, 2004. We have made a series of snap-shot observations of 37 polars using XMM-Newton and found that 16 of these systems were in a low, or much reduced, accretion state. We tested if systems in a low state were biased towards certain orbital periods and compared the X-ray/UV flux ratios with systems in high accretion states
- Svenes, K.R., Narheim, B.T., COATES, A.J., LINDER, D.R. & Young, D.T., Cassini plasma spectrometer electron measurements close to the magnetopause of Jupiter, *J. Geophys. Res.*, 2004.
- ZANE, S., RAMSAY, G., Jimenez, M., den Herder, J.W. & Hailey, C.J., XMM-Newton observation of Her X-1: Iron line evolution during the 35d cycle, *Mon. Not. R. astr. Soc.*, 2003.
- ZANE, S., RAMSAY, G., Jimenez-Garate, M.A., den Herder, J.W. & Hailey, C.J., XMM-Newton EPIC and OM observations of Her X-1 over the 35-day beat period, *Mon. Not. R. astr. Soc.*, 2004. We present the results of EPIC and OM XMM-Newton observations of Her X-1 spread over its 35-day precession period. We report the detection of a line near 7 keV in 10 of the 15 observations - the first time that such a line has been detected: the line normalisation is such that its equivalent width is so low during the main on-state it is swamped by continuum emission.

## Publications - Non-refereed

### A. Published

- HANCOCK, B. & Kawakami, H., UVOT bright source safing system, in X-Ray and Gamma-ray instrumentation for Astronomy XIII, San Diego, USA, 3 August 2003, **5165**, 287-297, K.A. Flanagan, O.H.W. Siegmund (Eds.), SPIE, 2004. [10.1117/12.505674](https://doi.org/10.1117/12.505674)
- HUCKLE, H.E. & SMITH, P.J., UVOT autonomous operations, in X-ray and Gamma-ray instrumentation for Astronomy XIII, San Diego, USA, 3 August 2003, **5165**, 298-309, K.A. Flanagan, O.H.W. Siegmund (Eds.), SPIE, 2004. [10.1117/12.505657](https://doi.org/10.1117/12.505657)
- Lazutin, L.L., Danielides, M., Jussila, M., Kozelova, T., MEREDITH, N.P., Korth, A. & Kozelov, B., [Auroral substorm double-onset case study](#), in 30th Annual Meeting on Atmospheric Studies by Optical Methods, Longyearben, Norway, 13-17 August, 2003, , 43-48, F. Sigernes and D.A. Lorentzen (Eds.), University Courses on Svalbard, 2003. We analyse an auroral substorm double-onset case study using TV and magnetometer data. We find that a two-step substorm model with ballooning type of instability followed by current disruption best fits this particular case study.
- LEA, A. & SAUNDERS, M.A., [December forecast update for Australian region tropical storm activity in 2003/4](#), 3pp, 2003.
- LEA, A. & SAUNDERS, M.A., [Summary of 2003 NW Pacific typhoon season and verification of authors' seasonal forecasts](#), 5pp, 2004.
- MASON, K.O., BREEVELD, A.A., Hunsberger, S., JAMES, C., Roming, P. & Stock, J., Performance of the UV/optical telescope (UVOT) on SWIFT, in X-ray and Gamma-ray instrumentation for astronomy XIII, San Diego, USA, 3 August 2003, **5165**, 277-286, K.A. Flanagan, O.H.W. Siegmund (Eds.), SPIE, 2004. [10.1117/12.503713](https://doi.org/10.1117/12.503713)
- Roming, P.W.A., Hunsberger, S.D., MASON, K.O., Nousek, J.A., Broos, P.S., CARTER, M.J., HANCOCK, B.K., HUCKLE, H.E., KENNEDY, T.E., Killough, R., Koch, T.S., McLelland, M.K., Pryzby, M.S., SMITH, P.J., Soto, J.C., Boyd, P.T. & Still, M.D., The SWIFT Ultra-Violet/Optical Telescope, in X-ray and Gamma-ray instrumentation for Astronomy XIII, San Diego, USA, 3 August 2003, **5165**, 262-276, K.A. Flanagan, O.H.W. Siegmund (Eds.), SPIE, 2004. [10.1117/12.504554](https://doi.org/10.1117/12.504554)
- SAUNDERS, M.A., The value of supporting forecasts, *Business Insurance*, 1 December 2004.
- SAUNDERS, M.A. & LEA, A., [Extended range forecast for Atlantic hurricane activity in 2004](#), 3pp, 2003.
- SAUNDERS, M.A. & LEA, A., [January forecast update for Atlantic hurricane activity in 2004](#), 3pp, 2004.

SAUNDERS, M.A. & LEA, A.S., [February forecast update for Atlantic hurricane activity in 2004](#), 3pp, 2004.

### **B. In Press**

BOGDANOVA, Y.V., Klecker, B., Paschmann, G., Kistler, L.M., Mouikis, C., Moebius, E., Reme, H., Bosqued, J.M., Dandouras, I., Sauvaud, J.A., Cornilleau-Wehrlin, N., Laakso, H., Korth, A., Bavassano-Cattaneo, M.B., Phan, T., Carlson, C., Parks, G., McFadden, J.P., McCarthy, M. & Lundin, R., Investigation of the source region of ionospheric oxygen outflow in the cusp using multi-spacecraft observations by CIS onboard Cluster, *Adv. Space Res.*, 2003.

COATES, A.J., Book Review of "The space environment: implications for spacecraft design", by A.C. Tribble, *The Observatory*, 2004.

COATES, A.J., First Mars Express ASPERA results, *Frontiers*, 2004.

Jones, L.R., Maughan, B.J., Ebeling, H., Scharf, C., Perlman, E., Lumb, D., Gondoin, P., MASON, K.O., Cordova, F. & Priedhorsky, W.C., An XMM-Newton and Chandra view of massive clusters of galaxies to  $z=1$ , in Clusters of galaxies: probes of cosmological structure and galaxy evolution, from the Carnegie Observatories Centennial Symposia, 2004.

LEA, A.S. & SAUNDERS, M.A., August-September ENSO prediction skill 1957-2001: a comparison between four new state-of-the-art season models, in Proceedings of the American Meteorological Society 26th Conference on Hurricanes and Tropical Meteorology, 2004.

LEA, A.S. & SAUNDERS, M.A., Seasonal prediction of accumulated cyclone energy in the North Atlantic, in Proceedings of the American Meteorological Society 26th Conference on Hurricanes and Tropical Meteorology, 2004.

Nykyri, K., Cargill, P.J., Lucek, E., Holmby, T., Lavraud, B., Balogh, A., Dunlop, M.W., BOGDANOVA, Y., FAZAKERLEY, A., Dandouras, I. & Reme, H., Cluster observations of magnetic field fluctuations in the high-altitude cusp, *Ann. Geophysicae*, 2004.

SAUNDERS, M.A., Hurricane forecasting for risk reduction, *Catastrophe Risk Management*, 2004.

SAUNDERS, M.A. & LEA, A.S., Seasonal prediction of US landfalling hurricane wind energy from 1 August, in Proceedings of the American Meteorological Society 26th Conference on Hurricanes and Tropical Meteorology, 2004.

ZANE, S., Spectral signature of advective accretion flows, in Proceedings of the Tenth Marcel Grossmann Meeting on General Relativity, 2004.

### **Invited Talks and Lectures (National and International)**

Y. Bogdanova: 'Mid-altitude cleft/low latitude boundary layer and cusp regions: Cluster observations', London Space Plasma Seminar at Imperial College, December 3 2003.

*A.Coates:* Talk 'Solar system exploration in the future', at Event Horizon, UCL Physics Society, 2 February 2004.

*A.Coates:* Talk 'Exploring the solar system – from Britain', for British Council Norway, Oslo, 17 Feb 2004.

*A.Coates:* Talk 'Mars Express – success!' at Bristol Astronomical Society, 20 February 2004.

*Andrew Orr:* 'UM modelling of the Polar Regions' - a presentation at the UWERN mesoscale modelling workshop, Reading University, 13th Feb.

*Mark Saunders:* 'Seasonal prediction of US landfalling hurricane wind energy, the winter NAO and summer ENSO', Seminar to the Met Office, Exeter, 27 January 2004.

*Silvia Zane:* 'Thermal Emission from Isolated Neutron Stars: Spectral Features and Featureless Spectra' - an Invited Highlight talk during the III National Congress on Compact Objects Astrophysics (CNOA III), Osservatorio Astronomico di Roma, Monteporzio (Rome), 9-11 Dec. 2003.

### **Conference and Workshop Presentations (National and International)**

*Nigel Meredith:* Poster presentation, RAS G-MIST meeting 'Waves in solar and magnetospheric plasmas', Society of Antiquaries, Burlington House, London, 9 January 2004.

### **Press Releases**

- Another Active Atlantic Hurricane Season Forecasted for 2004 by TSR Consortium, 5<sup>th</sup> Dec. 2003 (Mark Saunders).
- Beagle 2 - Unwrapping pictures from Mars (MSSL) 11 December
- Beagle 2 - Unwrapping pictures from Mars for Christmas (UCL) 17 December
- Double Star - East meets West to study space storms (RAS) 22 December
- Rosetta - comet-chasing spacecraft to launch (MSSL) 24 February
- Mars Express - Europe goes to Mars (MSSL) 24 February
- Comet-chasing spacecraft to launch (UCL) 25 February

### **Media Broadcasts and Features**

Andrew Coates – a selection of over 80 international, national and local media pieces, including:

- Interview for the Guardian on Beagle 2 camera objectives, appeared 20 December 2003.
- Interview on BBC R4 World Tonight on space exploration, 24 December 2003

- Interviews on Beagle/MEX, 25 December 2003, on Sky News, BBC World, Sky, World Service/R4 (Small Dog on Mars), R5, BBC Southern Counties Radio, BBC1 Breakfast, BBC News 24, BBC World, BBC World Service (Newshour), MBC, Channel 4 News, Reuters, BBC online.
- Interview on Stardust, 2 January 2003, on Sky News.
- Interview for BBC 10 O'Clock News, 7 Jan 2004, on Beagle and Mars Express
- Interview on Sky News, 7 Jan 2004, on Beagle
- Interviews on Bush space exploration plans, 14 January 2004, on Sky News, Channel 4 News, ITN News Channel, BBC News 24 (live 1h programme on announcement), BBC World.
- Interview on CNN on Mars exploration, 27 January 2003.
- Interview for 'The Sky at Night', BBC1, 30 January 2004 (transmitted 2 Feb 04)
- Interview for Morning Reports, BBC R5 live, on Rosetta, 25 February 2004. (used 26 Feb 2004)

Mark Saunders:

- Lloyd's List, on 2004 forecast hurricane activity, 8 December 2003.
- Insurance Day (lead story on front page), on 2004 forecast hurricane activity, 9 December 2003.
- Lloyd's List, on 2004 forecast hurricane activity, 8 January 2004.
- Insurance Day (front page), on 2004 forecast hurricane activity, 9 January 2004.

### **Proposals Submitted**

*Solar Orbiter Electron Analyser System* - We submitted a proposal for an Electron Analyser System to be flown on ESA's Solar Orbiter, for PPARC's initial assessment. Assessed by a PPARC panel in January 2004, we are awaiting the outcome. Andrew Coates PI; Chris Owen and Andrew Fazakerley Co-I's.

*Global Drought Monitor for Humanitarian Relief* - The global drought monitor will improve drought awareness and assist warnings of potential food, water and health problems. The International Red Cross, Oxfam and Action Aid have all expressed sound interest in this innovative product. Reuters AlertNet, the web-based news and communications portal for the international disaster relief community, has asked to make information and images from the drought monitor available on its AlertNet website thereby giving even wider benefit. Submitted to the UCL Friends Programme 2003/4 by Mark Saunders.

*JWST NIRSpec* - MSSL has a participation in the JWST NIRSpec instrument via the Alcatel team (competitor Astrium Germany). The Phase B/C/D proposal (3000 pages) was submitted on 10 March to ESA. MSSL responsibilities are for instrument-level calibration, a calibration subsystem and the instrument simulator. The total value to the Lab would be 2.7 MEuro. A bid has also been put in for the instrument control electronics, with a value 1.9 MEuro: this is subject to a further level of competition should the Alcatel bid be successful. The expected decision will be made in June, with

a kickoff for the successful team in July. FM delivery to NASA is early 2009. (Mark Cropper coordinator)

### **New Product**

*Real-Time Storm Alert Feed to Reuters AlertNet.* The Climate Physics group through the TropicalStormRisk.com venture has launched a real-time feed of emergency alerts to Reuters AlertNet, the global humanitarian news portal. These alerts are for all active tropical storm systems threatening landfall anywhere in the world. Information is being provided - using clear graphics and text – on the storm's predicted landfall time, landfall position and landfall strength, together with warnings of potential property damage and flooding. The service went live on 26 February 2004 and current emergency warnings may be viewed at <http://www.alertnet.org>. (Service designed and operated by Frank Roberts and Mark Saunders).

### **Patents**

Two European and US patents have been applied for as part of the ESA StarTiger programme. The team of inventors named on the application includes Alec McCalden. The first concerns details of a 'sub-millimetre wavelength camera' and the second specifies a 'tunable phase shifter and attenuator'.

### **Other News Items/Activities**

- Following the Holmbury Brownies, the Dorking Brownies visited MSSL in January for their stargazing badge, hosted by Ceri Ashton and Tracey Poole. They learnt about stars and planets, and watched a presentation that took them through the Solar System.
- Talks to local schools and astronomical societies were given by: Ceri Ashton and Andrew Coates

### **Next Issue**

The next issue of the Department of Space and Climate Physics Newsletter (Volume 2, Issue 1) will be in mid June 2004. This will cover activities from 1st March 2004 to 31st May 2004.