

Rutherford Appleton Laboratory

# Bulletin

Editor Tony Rush

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## SOHO and Cluster in Space

The first combined study of the Sun, the solar wind and the Earth's magnetosphere will begin in 1995, with the launches of the Solar and Heliospheric Observatory (SOHO), and four Cluster spacecraft.

Energy from the Sun's interior heats the solar atmosphere and produces the solar wind in ways that are not clearly understood.

The two missions will study the complex nature of the outer solar atmosphere where temperatures exceed a million degrees. They will also investigate the interaction between the solar wind and the Earth's magnetosphere which scientists believe stimulates heating

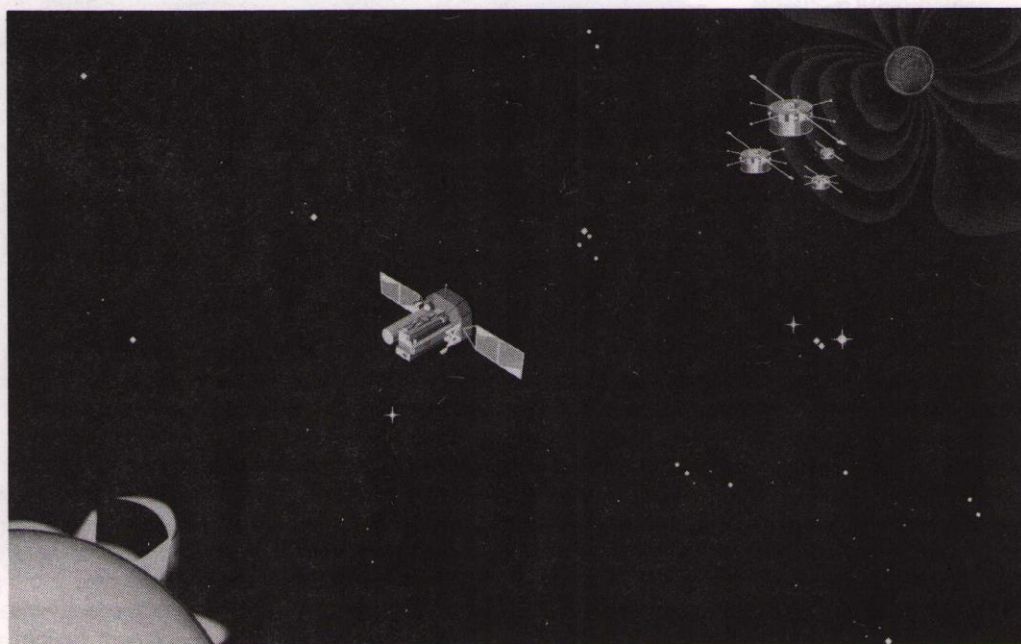
and acceleration processes similar to those of the Sun. The solar wind energy is temporarily stored in the Earth's magnetosphere before being finally deposited in the polar atmosphere to produce the Northern and Southern Lights.

The SOHO spacecraft will be stationed between the Earth and the Sun, continuously monitoring solar activity. At the same time a 'cluster' of four spacecraft in earth orbit will record the solar wind and the response of the magnetosphere to its constantly changing pressure and magnetic field. The point of using four spacecraft is to build up a full three dimensional picture of magnetospheric phenomena.

The UK is playing a significant role in both SOHO and Cluster, with teams participating in several experiments. Institutions involved are the Universities of Birmingham, Cambridge, London (Imperial College and the Mullard Space Science Laboratory of University College), Oxford, St Andrews, Sheffield, and Sussex, and Rutherford Appleton Laboratory.

Funding will be by the Science and Engineering Research Council (SERC).

*Duncan Bryant, Richard Harrison  
and Bruce Patchett*



SOHO and Cluster

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(Photo ESA)



## Buran's First Flight

The Soviet space shuttle Buran [Russian for snowman] made a perfect maiden flight on Tuesday 15 November. Three hours and 25 minutes after taking off from the Baikonur Space Centre in Central Asia, it touched down safely eight miles from the launch pad.

Professor Vadim Tsytovich is at present visiting RAL's Space Science Department to work with Bob Bingham and Duncan Bryant on the physics of turbulent plasmas. Here he gives a personal view of Buran's launch and landing.

"The success of the Soviet shuttle's first flight, with its perfect pilotless landing, makes a significant contribution to mankind's achievements in space, and we should all congratulate the people whose endeavours have made it possible.

"It is necessary in any space programme to find a proper balance between pilotless, or automatic, flights which can perform many functions, and manned flights. To achieve such a balance is a very important task.

"An automatic landing is advantageous with regard to the safety of future shuttle projects, when astronauts will be on board. It also shows us the way ahead for the development of our space programme where we plan to complement the roles of automatic systems and astronauts in space experiments.

"The example of ESA's Giotto experiment in 1986 shows how effective automatic systems can be. Earlier Soviet criticism of the US shuttle programme was mainly directed at the fact that many tasks could have been performed without astronauts present. Space programmes should be aimed at increasing our knowledge of the universe and not at raising prestige.

"Thus Buran's success is a success for us all in the search for a proper balance between automation and man's role in space experiments."



*Professor Vadim Tsytovich reads The Times' report on the Russian shuttle*

## Meeting of British Computer Society Displays Group

The Laboratory recently hosted a meeting of the British Computer Society's Displays Group on the topic of 'Interactive Documents: Today and Tomorrow'. The rise of electronic document handling is becoming increasingly apparent. As well as making some things easier, it also brings with it a number of problems and challenges. One problem is the integration of graphical information (diagrams, photographs and so on) into documents in a straightforward way. A challenge is to see whether new kinds of books can be produced - for example, books with animated pictures, and for books which reside on video disk and which can be customised to the reader.

The meeting was attended by about 80 people and had two papers from Angela Scheller (GMD FOKUS, Berlin) and Heather Brown (University of Kent) discussing issues in the standards area and the particular problems of interactive documents such as hypertext. Wendy Hall (University of Southampton) discussed the multi-media information retrieval systems using video disks that have been developed for helping to train physiology students. Crispin Goswell of Informatics described the work at

RAL on the use of POSTSCRIPT for quality phototypesetting. The Laboratory has a linotype phototypesetter which uses POSTSCRIPT as the protocol to drive it. Informatics have developed previewing software for documents destined for the phototypesetter. There was a review of current commercial systems by John Harris of Program Products, and the day finished with a futuristic paper of what might be by Jurgen Schonut (FHG-AGD, Darmstadt) entitled 'The Third Millenium's Window to the World'.

Associated with the meeting was an exhibition in Conference Rooms 12 and 13 where many of the leading computer companies gave a presentation of their products in this area. Central Computing and Informatics also demonstrated some of the work they are doing. Everybody seemed to enjoy the day. The people organising at RAL were relieved when it all went off without a hitch, although for a while the mail strike threatened to produce an empty lecture theatre as the announcement notice was stuck in the postal system for a couple of weeks.

*Bob Hopgood*



## Farewell

### Connie Irving

Connie joined The Cosener's House domestic staff in 1970 and has spent nearly 18 years providing the highly renowned Cosener's cuisine, particularly the legendary Full English Breakfast. Visitors to the Laboratory who have been fortunate enough to stay at the Cosener's House are always disappointed if there is not room on a subsequent visit, and according to Andy Rendell, the breakfast plays no small part in this.

Andy, making the farewell presentation to Connie on behalf of her friends and colleagues, recalled the time when her usual perfect standards led to her downfall. According to Andy, the highly polished dining room floor, another of Connie's responsibilities, caused her a rather rapid descent which she could have well done without. Presenting her with a suitcase and a bottle of champagne, Andy wished her a long and happy retirement.



*Connie and Andy in a tussle with the wrapping paper*

### Ted Gibbs

Ted was recruited by AERE Harwell in 1957 to work in the Services Group on the Nimrod project. With the formation of NIRNS in 1960 he decided to remain in the Engineering Division and in 1965 moved into the Track Analysis Machine Section (TAMS) where he remained until about five years ago. At this point Roy Tolcher, who was making the presentation, recalled a dramatic decision that Ted took. The TAMS workshop was about to be wound up and Ted, realising that redeployment was on the cards requested a return to Engineering and Building Works Division. "I was delighted to have him back and he has continued working in his same quiet, unflappable, straightforward and honest way", Roy continued.

Presenting Ted with an electronic pendulum wall clock and an electric drill complete with stand on behalf of colleagues and friends, Roy wished Ted and his wife Gladys a long and happy retirement.



*Ted and Gladys with the pendulum clock*



## US Government Honours RAL Scientists

Six space research scientists from RAL have been honoured by the US Government for their work on the outstandingly successful International Ultra Violet Explorer (IUE) project.

The Explorer is an astronomical observatory which was launched into geosynchronous orbit at about 22,300 miles above the Earth on 26 January 1978. Its design life was supposed to be between three and five years. But more than ten years on it is still producing valuable data on the stars, nebulae and galaxies and how they develop.

The RAL scientists were among an eight strong team representing Britain's Science and Engineering Research Council (SERC), which collaborated on the project.

The US Presidential Awards were set up by President Reagan in 1984 and are made every four years. The IUE project was one of ten winning designs selected from more than 500 entries. The purpose of the awards is to recognise design excellence in various fields of US federal design, from architecture and graphics to engineering and product design.



*Pictured are five of the RAL scientists involved on the IUE project, l to r Mike Sandford, Peter Vaughan, Eric Dunford, Harry Bevan and Jim Hall.  
(Photo Oxford & County Newspapers)*

## Missing

A number of temperature recorders have gone astray. Anyone able to offer information please contact A E Hipwell ext 5573.

## Children in Need

As promised in the last Bulletin your Editor, on the guarantee of £200 for the above appeal, had his beard removed. The generosity of the Laboratory staff plus that of the Daresbury Laboratory combined with donations from friends and relatives have produced a total of £500. My thanks to you all - photographic proof will appear in the next Bulletin.

## Carol Service

There was an error in the last Bulletin concerning the date of this year's Carol Service. It will take place on Wednesday 14 December at 1230 in R22 Lecture Theatre. After last year's record attendance we are expecting to fill the theatre, so be sure to arrive on time and in full voice.

## Film Badge Notice

It is period 13. Colour strip Red.

Please ensure you are wearing the correct dosimeter and return all old ones to Jenny Coates, R12.

## RecSoc

### Social Evening

On Friday 9 December the RecSoc will be entertaining Swindon Office RecSoc in R58.

Activities will include Bridge, Crib, Darts, Pool, Table Tennis and Snooker. All events will commence at 7 pm and a buffet supper will be supplied.

Everyone interested should contact either: Peter Craske ext 6273 or Steve Hancock ext 6346