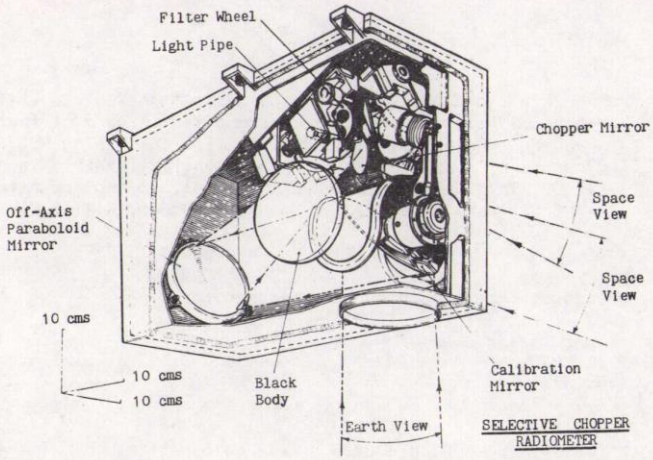
Rutherford Laboratory

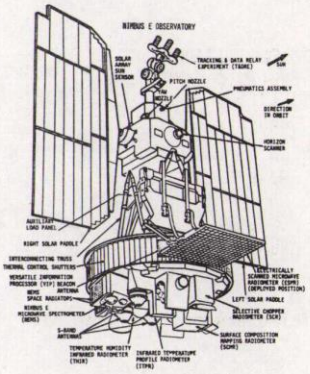
18 December 1972

bulletin 43

NIMBUS 'E' IS 'GO'



SELECTIVE CHOPPER RADIOMETER



We are grateful to Mr H Hadley, who has been in charge of the engineering side of the Selective Chopper Radiometer experiment on this project, for the following article on Nimbus 'E'.

The Nimbus 'E' satellite (called Nimbus 5 in orbit) was successfully launched from California at 07.56 on 11 12 72 on schedule. The selective Chopper Radiometer (SCR) experiment was switched on during the afternoon and is working correctly; data from the experiment is now being evaluated at the Department of Atmospheric Physics, University of Oxford.

The Nimbus spacecraft is an observatory to advance understanding of the earth's atmospheric environment and its structure. It is placed in a sun synchronous polar orbit to provide global coverage twice every twenty-four hours. It is butterfly shaped when unfurled, 10 ft high x 12 ft wide with a 5 ft diameter platform and weighs 1800 lbs. Its orbit height is 690 miles and it orbits every 107 minutes. It contains seven highly advanced meteorological payloads including two with microwave and three with infra-red remote scanning experiments and a surface mapping radiometer.

The SCR 16 channel experiment is the only experiment invited from outside the USA and follows the successful flight of 3 twin channel units in Nimbus 4 which are still giving data (launched 8 4 70). It provides temperature profiles of the atmosphere up to 45 Km altitude, measures water vapour content, ice particle density and size in cirrus cloud with reflected sunlight and cloud height.

The radiometer contains seven major mechanisms involving 26 ball races with a 2000 r p m motor driving a 40 Hz chopper mirror of 5" diameter through a gearbox. The main input mirror (5½" x 8" elliptical) is rotated periodically, to view space, and an internal temperature reference for calibration. A further mechanism pivots this morror to compensate for the satellite motion so that over a 4 second period the same area above earth is viewed. During this 4 second period, stepper motors drive each of 4 filter wheels to 4 positions producing the 16 filtered channels. These motors rotate 2 revolutions in 1/6 second, repeated every second driving the wheels through 8 to 1 reduction gears. The radiometer is 12" x 8" x 17", weighs 30 lbs and consumes 15 watts.

The experiment is a joint Oxford and Heriot-Watt Universities project with Mr J T Delury of the Rutherford Laboratory as project manager. The Laboratory designed the radiometer and provided the engineering model after successful completion of a stringent programme of environmental tests. The extensive range of test gear for use in this country, at Oxford University, the Contractors works, the USA at NASA and the spacecraft manufacturer's plant was also designed and constructed at the Rutherford Laboratory. The contractor for the flight models of the radiometer and its electronics bay module was Marconi Space and Defense Systems, Frimley and Reading University produced some of the interference filters used.

(The Nimbus satellite programme is primarily aimed at providing data for reliable long range computerized weather forecasting and one hopes that with the information available from Nimbus E and the large computer recently installed at the Met Office, Bracknell, we shall be

news continued on page 4

INTERNAL EVENTS

NIMROD LECTURE SERIES
Monday 18 December
11.30
Lecture Theatre

Recent Results on $\pi^+ p \rightarrow \Delta^{++} \pi^\circ$, $p\rho$ in the Resonance Region

Professor Anne Kernan/CERN

300 GeV SEMINAR
Monday 18 December
14.30
Conference Room, Building R1.

Planning for Neutrino Counter Experiments at 400 GeV

Dr N H Lipman

TRADE EXHIBITION
Tuesday 19 December
09.30-17.00
R25 Car Park

The Ryaland Pumps Ltd Mobile Demonstration Vehicle will contain a display of their range of vacuum pumps, also represented in part of their range of liquid pumps. Regular showings of a short slide film describing RPL activities is an unusual feature of this exhibition. The principal exhibit is a lobular pumpset type PRGL 1000. This unit is sealed with glycol, so that no external water supply is needed. Mr E Stainsby, the Product Manager, Vacuum, will be in attendance.

HEP DISCUSSION GROUP
Wednesday 20 December
11.00
Conference Room, Building R1

Random Thoughts on Hadron Phenomenology

A D Martin/CERN

CHRISTMAS FILM SHOW
Wednesday 20 December
12.40
Thursday 21 December
13.10
Thursday 21 December
12.30

The New Silk Road - a 26 minute colour film.

A colourful journey on the 'Silk Road' to the Orient. Amongst the places visited are Calcutta, the Ganges, on to Karachi, Egypt, the Dead Sea and finally Jerusalem.

A Christian Fellowship Film called the Son Worshippers, a 30 minute colour film which tells the story of frustrated empty lives that grasp at traditional Christian faith in a non-traditional way and find themselves changed into purposeful people. (The Jesus revolution).

NIMROD SCHEDULES

CYCLE 16 12 12 72 - 2 1 73

Team	Beam	MACHINE PHYSICS Experiment	HIGH ENERGY PHYSICS State
Cambridge University/ RHEL	K13C	Associated Production Cross Sections	Data
Imperial College/ Southampton Univ	π7	Studies of η ω and A2	Data
Bristol University/ Southampton University/ RHEL	K15	$\pi^\pm$ Differential Cross-Sections	Setting up

SOCIAL NEWS

SOCCER SEVEN-A-SIDE CHALLENGE TROPHY

Information was not to hand last week on thefinal positions in Table A or the draws for the final phase of the competition. It is therefore regretted that at the time of going to press this week, two of the quarter-finals will have been played. The other two quarter-final matches are as follows:-

R25 v AERE Admin on Wednesday 20 December

AERE 220 v AERE G.O. on Friday 5 January

All successful teams will go into the HAT again. The first match in the quarter finals is reported below and the second, between Transport and AERE 351 will be covered in next weeks Bulletin. These and future matches are being covered by our new football reporter to whom we extend a welcome.

Computer and Automation Division reached the Semi-finals of the Rutherford Challange Trophy with a superb second half display of attacking football, when they met and defeated R18 in the first of the quarter finals on Wednesday by five goals to two. The game in which R18 after an impressive start,(Jeff Bizzell finding the net with a real scorcher of a shot in the 4th minute to put them ahead),failed to consolidate and paid the penalty.

Within a minute of the start of the second half, Computer Automation's Ron Lawes timed his header just right to give Arthur Brayham no chance of stopping the ball as it found the top corner of the net and before R18's defence had recovered Lawes found the net again with a shot from close in after Brayham had stopped, but could not hold a powerful shot from the scorer. Almost from the centre-kick R18 went through to put the two sides back on equal terms - Two goals each. Jim Taylor dispite being policed by a defender found time and space to score a well taken goal. Midway through the half Peter Dawson found himself clear to restore Computer Automation's lead, with an unstoppable drive. This was quickly followed by goal No 4 a combined forward movement which put John Hague in possession and again the R18 keeper just didnt have an earthly of stopping the shot, and with less than five minutes of the game remaining Charlie Kahn who had been a tireless worker for his side gained just reward for his efforts to score a brilliant goal to put the issue beyond doubt.

Thus 360 gained ample revenge for the narrow 1 - 0 league victory, R18 scored against them earlier in the season.

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TAILPIECE

On second thoughts, this item should be headed Puzzle Corner. However the Editor pleads forgiveness from the author of the following, "lifted" from a loss report -

"let me know if you dont receive this by the 23/11/72 so I can arrange for another to be filled in if this one goes astray".

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Deadline for Insertions	GENERAL & SOCIAL NEWS	INTERNAL & EXTERNAL EVENTS
	Tuesday 1600	Wednesday 1200

NIMBUS 'E' IS 'GO'

able to pick our holiday with a sporting chance of good weather. However the old countryman's time honoured method of forecasting still provides fromidable opposition - Ed).

BULLETIN NOTICE

The next issue of the Bulletin will be published on Thursday, 21 December, covering the period 25 December - 8 January 1973. Items for inclusion in this issue must be with the Editor by Midday on Tuesday 19 December.

MISSING EQUIPMENT

The following item of equipment has been reported missing:-

"Lemania" Chronometer Type 711, Serial No 1024049

Anyone with information on the present whereabouts of this item is asked to contact Mr H M Bray, Room 12, Building R20, Ext 375.

OUTMUSTER ARRANGEMENTS - FRIDAY 22 DECEMBER

The bus departure time on Friday 22 December 1972 will be 15.10 hours for both industrial and non-industrial staff. Details of the service and the bay numbers from which they will run on that day appear on Notice Boards.

Separate buses for shift workers will NOT run at 14.25 hours. Shift workers should travel on the 15.10 hours departure.

FILM BADGE NOTICE

It is Period 13. Colour Strip - YELLOW for βγ films and neutron packs.

Next film change:- Monday 1 January, also TLD change for people with surnames commencing A B C D.

UNDELIVERABLE MAIL

A letter addressed to Mr Michael Scarr, from the Housing Office Brookhaven National Laboratory. This letter can be collected from the Editor.

Four reports, KEK-72-5/6/7/8 from the National Laboratory for High Energy Physics, Japan. These reports can be collected from the Editor.

OVERSEAS VISITS

Dr J J Thresher, to CERN, 17 - 19 December, to attend ECFA Executive Committee.

Dr C J S Damerell and Mr A R Gillman, to CERN, 17 - 22 December, to work on S120 Experiment.

Mr A G Wheldon, to Emile Haefely & Co, Basel, to witness works tests on new equipment.

The Director, to CERN, 19 - 21 December, to attend CERN Committee of Council and CERN Council.