serc

Science and Engineering Research Council

Polaris House North Star Avenue Swindon SN2 1ET

Telex 449466 Telephone 0793 26222 ext 2258

G Smith
(Ampte)

Professor J T Houghton
Rutherford Appleton Laboratory
Chilton
Didcot
Oxon

Your reference

In reply please quote
SP/284/23

Date
25 November 1982

Dear John

I spent a very interesting day yesterday with Graham Smith. By a most fortunate coincidence it turned out to be his first full day as the new Astronomer Royal.

In the course of our discussions it emerged that at Jodrell they foresee a very important need in the future for an array processor of the type currently used by the IRAS project. To my knowledge, Eric has no need of the AP 120B after IRAS so I suggested to Graham that he might get in touch with you about this. I therefore thought I would alert you to the possibility of his contacting you.

With best wishes.

Yours sincerely

Barry

BARRY MARTIN
Head, Astronomy Space & Radio Division

Dr Gabriel
~~Dr Dunford~~ } comments pl

There is a requirement for the AP 120B on the AMPTE Project. Several experimenters have expressed interest in using it for their processing – in particular Dr Gough from Sussex wishes to use it to carry out Fourier Transforms on his Particle-Modulation Analyser data. It would therefore be very inconvenient to agree to Barry's request for that reason alone. More generally it is a facility which we are likely to need and would be reluctant to part with because we can be attached to any mini-computer.

GKK 30/11

serc SCIENCE AND ENGINEERING RESEARCH COUNCIL
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Swindon SN2 1ET
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PRESS NOTICE

IRAS

LAUNCH OF THE INFRARED ASTRONOMICAL SATELLITE 17 January 1983

The Infrared Astronomical Satellite (IRAS) will be launched from the Western Test Range at Vandenberg Air Force Base in California. The launch by an American Delta rocket is scheduled for 0220 hours GMT on Wednesday 26th January 1983. IRAS will be placed in a 900 kilometre-high (560 miles) near-polar orbit and will circle the Earth 14 times a day. The satellite will carry a telescope cooled with liquid helium to perform the first survey of the cosmos at far-infrared wavelengths. This part of the spectrum is not visible from the ground.

IRAS is a major international project involving the Netherlands, the United States and the United Kingdom. The spacecraft was built in the Netherlands and the Americans have provided the infrared telescope and the launch vehicle. The control of the satellite and data reception are the responsibilities of the Operations Control Centre at SERC's Rutherford Appleton Laboratory at Chilton in Oxfordshire.

The satellite will perform a survey of the sky at infrared wavelengths (from 8 to 120 microns) and make further special observations of selected astronomical sources. The survey will last about seven months, which is the expected lifetime of the cryogenically-cooled telescope, and will produce an entirely new catalogue of infrared sources. This information will greatly extend our knowledge of relatively cool sources in the Universe, which can only be explored in this region of the spectrum. The mission is expected to lead to many new and exciting discoveries.

Data collected on-board the satellite will be returned to Earth twice per day to the UK Operations Control Centre. The data will be received by a 12-metre diameter steerable antenna, which will also be used to transmit the next 12-hour sequence of observations to the satellite. The Control Centre computers will check the performance of the satellite and pre-process the scientific data. The data will also be sent by high-speed link to the Jet Propulsion Laboratory in Pasadena, California, for production of the source catalogue. The first contact between the Operations Control Centre and the satellite will take place within a hour of the launch.

The venture provides an excellent example of the international co-operation in

scientific research. The astronomical aspects of the mission are under the supervision of an international science team on which the UK is represented by scientists from University College London, Queen Mary College and the University of Leeds. We look forward to a successful outcome and exciting results which will lead to fundamental advances in our understanding of the Universe.

For further information contact Dr E Dunford at Rutherford Appleton Laboratory, Chilton, Didcot, Oxfordshire OX11 0QX (tel: Abingdon (0235) 21900 ext 5450).

2/83

Notes to Editors

Many astronomical sources emit radiation over a wide spectrum, each wavelength revealing particular information about the nature of the source. Over the detection range of the Infrared Astronomical Satellite, we expect to observe thermal sources with temperatures between 40 and 400 degrees Kelvin. These infrared sources may be intrinsically cool - possibly because they are at the beginning (or at the end) of their life cycles. Often they are hotter sources surrounded by dust clouds which absorb and degrade the shorter wavelengths. For example, we are unable to see the centre of our own Galaxy at optical wavelengths due to the presence of absorbing dust clouds in the Milky Way. However, infrared waves pass through the barrier, revealing a fascinating variety of sources. Astronomers have observed many galaxies which have enormous signals at infrared wavelengths. The study of these astronomical effects is expected to solve many of the present mysteries about the Universe and how it was formed.

UK scientists are world leaders in infrared astronomy. Since 1978, SERC has operated the world's largest infrared telescope (UKIRT) on Mauna Kea, Hawaii. Valuable data are also being recorded using telescopes mounted from balloons. IRAS will extend these measurements into the far-infrared by locating the telescope clear of the Earth's atmosphere and using extremely sensitive solid-state detectors cooled to liquid helium temperatures.

The United Kingdom and the Netherlands have joint responsibility for conducting the IRAS ground operations. The UK is providing the hardware for the tracking station, the operations control centre and staff for the post-launch operations. In addition the UK is providing a preliminary analysis facility to handle mission-critical aspects of the scientific data analysis.

This project is a further example of the successful scientific collaboration between the Netherlands and the UK. The countries are already partners in astronomical research which will use the telescopes being built on La Palma in the Canary Islands, and are sharing facilities for research using synchrotron radiation at SERC's Daresbury Laboratory in Cheshire.

IRAS

AGENDA

IRAS BRIEFING -- 2:00 P.M., TUESDAY, JANUARY 25, 1983

TOPIC	SPEAKER	TIME
IRAS Film	--	8 minutes
Spacecraft	Pieter van Otterloo Coordinator, Space Activities, Hollandse Signaalapparaten B.V.	8 minutes
Telescope	John Slonski Assistant Telescope System Manager, Jet Propulsion Laboratory	8 minutes
Launch Vehicle	Bill Russell Deputy Project Manager for Delta, Goddard Space Flight Center	8 minutes
Ground Operations	Dr. B. R. Martin Head of Astronomy Space & Radio Division Science & Engineering Research Council	8 minutes
Science	Dr. Harm Habing Huygens Laboratory, Leiden Co-Chairman, JISWG	8 minutes

IRAS

EARLY ORBIT EVENTS

PST	EVENT		DATA AVAILABLE
6:17	LIFTOFF		5 analog measurements
6:21:04	Fairing jettison		5 analog measurements
6:21:14	Start pyro valve command sequence		
6:25:18	LOS Goldstone (GDS)		5 analog measurements
6:25:55	LOS Buckhorn (BUC)		5 analog measurements
6:26:19	LOS Oak Mountain		No data!
7:11:15	AOS Indian Ocean (IOS)		5 analog measurements
7:23:48	LOS IOS		No data!
7:29:30	AOS Chilton		No data!
7:30:46	AOS Madrid		5 analog measurements
	Satellite check begin		5 analog measurements
	RAM enable		5 analog measurements
7:37:20	TSY Power on	May be after LOS of Madrid!	7 analogs LSF data
	V5 open		7 analogs LSF data
	Load SOP 1		7 analogs LSF data
7:37:40	LOS Madrid		No data!
7:43:13	LOS Chilton		
7:46:59	AOS Alaska		7 analogs LSF data
7:57:07	LOS Alaska	No data	
7:58:17	AOS Hawaii		7 analogs LSF data

EARLY ORBIT EVENTS (Continued)

PST	EVENT	DATA AVAILABLE
8:12:48	LOS Hawaii	No data
9:07:09	AOS Madrid	7 analogs LSF data
9:09:09	AOS Chilton	7 analogs LSF data
9:20:28	LOS Madrid	No data!
9:25:31	LOS Chilton	
9:28:31	AOS Alaska	7 analogs LSF data
9:40	AOS Hawaii	7 analogs LSF data
9:41:05	LOS Alaska	
9:53:28	LOS Hawaii	No data
10:02:15	AOS Orroral	7 analogs LSF data
10:11:30	LOS Orroral	No data
10:49:59	AOS Madrid	7 analogs LSF data
10:53:59	AOS Chilton	7 analogs LSF data
11:03:00	LOS Madrid	No data
11:06:42	LOS Chilton	No data
11:10:24	AOS Alaska	7 analogs LSF data
11:21:29	LOS Alaska	No data
11:41:41	AOS Orroral	7 analogs LSF data
11:53:11	LOS Orroral	No data
12:52:21	AOS Alaska	7 analogs LSF data
12:59:57	LOS Alaska	No data

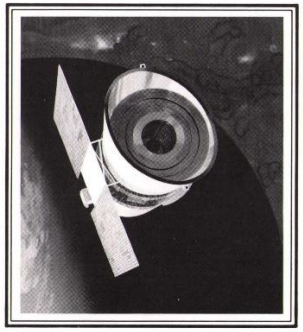
J.A.H.
11-13-82

KEY EVENTS

IRAS LAUNCH AND EARLY ORBIT PHASE

Time From Liftoff	Event	Comment
L-03:00:00	Satellite ON	Launch Mode
L-01:00:00	Oak Mountain AOS	Check data flow
L-00:00:00	Liftoff	Oak Mtn. tracking
L+00:01:18	GDS AOS	
L+00:01:58	GDS Uplink Acq.	
L+00:03:47	MECO	
L+00:03:55	Stage I-II Sep.	
L+00:04:00	Stage II Ignition	
L+00:04:04	Fairing Jettison	
L+00:04:14	GDS Transmit Pyro Valve Firing Sequence	
L+00:08:03	GDS LOS	
L+00:08:54	SECO 1	
L+00:09:05	OAK Mountain LOS	
00:54:50	IOS AOS	
00:58:20	Stage II Restart	
00:58:27	SECO 2	
01:02:20	Satellite Separation	
01:05:20	IOS LOS	

01:12:26	Chilton AOS	13.6 min, 22 deg max el Orbit 1
01:13:26	SPA Deployment	
01:13:51	MAD AOS	6.6 min, 8 deg max el
01:14:56	IRE Power ON	All TSY Analogs Avail
01:15:26	IRG Power ON	
01:19:26	RAM Enable	All LST Avail
01:20:24	MAD LOS	
01:26:05	Chilton LOS	
01:29:33	ULA AOS	11.1 min, 43 deg max el
01:36:34	GDS AOS	9.3 min, 9 deg max el
01:40:36	ULA LOS	
01:41:11	HAW AOS	14.5 min, 34 deg max el
01:45:53	GDS LOS	
01:55:43	HAW LOS	
02:50:05	MAD AOS	14.9 min, 54 deg max el Orbit 2
02:52:21	Chilton AOS	15.7 min, 85 deg max el
02:56:00	Load SOP 1	
03:04:56	MAD LOS	
03:08:25	Chilton LOS	
.	.	
.	.	
.	.	
.	.	
15:16:42	Chilton AOS	15.2 min, 34 deg max el Orbit 9 Dump SOP 1 Load SOP 2
15:31:53	Chilton LOS	



NASA

INFRARED ASTRONOMICAL SATELLITE MISSION

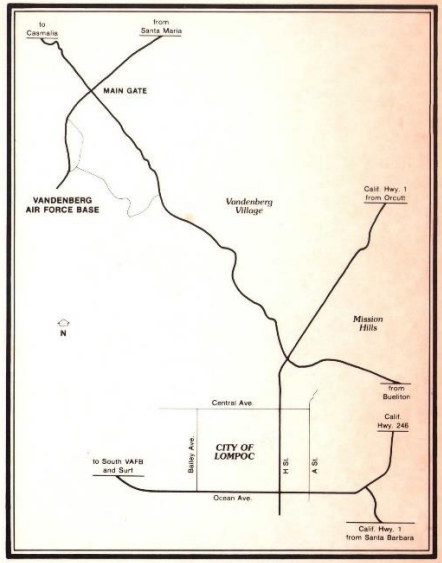
IRAS is an international project with the participation of the National Aeronautics and Space Administration, the Netherlands Agency for Aerospace Programs, and the Science and Engineering Research Council of the United Kingdom.

IRAS will conduct a survey of the sky in the infrared portion of the spectrum lasting approximately nine months. A catalog and a map of extended infrared sources will be compiled from the survey. The information gained from this highly exploratory mission is expected to identify infrared sources never before seen from Earth, and to add significantly to our understanding of the formation of stars and the energy budget of the Universe.

The Administrator
of the
National Aeronautics and Space Administration
also on behalf of
The Netherlands Agency for Aerospace Programs
and the
United Kingdom
Science and Engineering Research Council
invites you to witness the launching
of the
Infrared Astronomical Satellite
at
Vandenberg Air Force Base
Lompoc, California
on Tuesday evening, the twenty-fifth of January
Nineteen hundred and eighty-three
at six-seventeen o'clock

Rsvp card enclosed

This invitation is for the addressee only, and must be presented at the Guest Services Center. It is not transferable.



Seeing stars never seen before

If all went well, in the early hours of this morning after the morning newspapers went to press, a new spacecraft roared into space carrying one of the most exciting scientific experiments of the decade. It also represents a remarkable achievement in international cooperation between British, American and Dutch scientists, but has so far received scant press coverage.

Coming at a time when countless newspaper columns and hours of broadcasting time have been devoted to generating hysteria about a piece of junk, once a bit of the now infamous Cosmos 1402 spy satellite, which space experts knew would burn up in the atmosphere, it makes a sorry comment on the steady decline of popular interest in space since the days when astronauts cavorted on the moon.

The moon shots lent a flavour of showbiz glamour to space exploration, but it is hard to attach any tinsel to this latest exploit, even though it will enable astronomers to look where no man has been able to see before. With luck, they will be able to peer at distant galaxies as old as creation itself and so obtain vital evidence for piecing together the origins of the universe.

The invention which lies behind this ambition has been developed over five years at a cost of £70m and is called the Infrared Astronomical Satellite (Iras). Many of the group gathered anxiously last night at the Rutherford Appleton Laboratory near Oxford, the nerve centre of the enterprise, for news of its launch and to receive its first pictures. Though the spacecraft carrying Iras had to be launched to its orbit 550 miles above the earth from the Western Test Range in California, the Rutherford Appleton control centre is equipped to scrutinize its progress as if monitoring a patient in intensive care.

Its detector is said to be so sensitive that it can locate the equivalent of a red bicycle reflector 20,000 miles away in space.

Iras will, in effect, give astronomers a new window to the universe to see the birth of new stars and the final disintegration of old ones, and to look for chemical elements which could be the precursors to primitive forms of life.

It had to be launched with immense accuracy. In fact the period of time, or launch window, in which a perfect operation could be completed, was only 10 minutes; if not achieved in that time the event would be postponed for 24 hours.

Dr Peter Clegg, of Queen Mary College, London, explained the challenge behind the development of Iras while making final preparations at the control centre, checking and rechecking that the sensitive receivers were properly aligned.

Iras, he says, will fill the gap in astronomy between what optical telescopes see at the visible end of the spectrum and what radio telescopes observe at the opposite end. The infra-red radiation – and particularly the emissions Iras is designed to detect – falls between the two and does not reach the ground.

Dr Clegg says the atmosphere is simply a dirty window. Infra-red radiation from objects in space is absorbed by water vapour and gases such as carbon dioxide at different levels of the atmosphere. There are also molecules in the atmosphere which generate their own infra-red radiation and blot out incoming signals.

Yet the infra-red radiation carries the signature, even to an optical telescope in space, of the formation of young stars from clouds of interstellar gas and the fingerprint of specific elements, which will often be found at cool areas of the universe not emitting bright visible light or strong radio signals.

Hence the map of the sky seen from Iras, to be compiled over the next 12 months, will present a different picture from that usually seen on a clear night.

Sometimes, though, a source of infra-red radiation may be coming from a hotter object which is surrounded by a dust cloud. An infra-red telescope should be able to see beyond the dust cloud to what lies beyond, when an optical telescope cannot.

Dr Clegg says we will now be able to see the centre of our own galaxy, which is hidden to optical instruments because of dust clouds in the Milky Way. The Iras team expect to penetrate that barrier, revealing a fascinating variety of objects. Twice daily the telescope will regurgitate all the information gathered over the previous 12 hours of observation.

But the scientists must find out all they can within seven months. By then, the elaborate cooling system, which uses liquid helium to keep the most delicate components of the telescope at an astonishing temperature of minus 271 degrees centigrade, will be exhausted.

The scientists hesitate discussing their hopes for new discoveries as fundamental as those in the early days of radio astronomy, which uncovered black holes and pulsars. But they already have their eye on providing answers, for example, to one of the great cosmic mysteries about what unimaginable source of energy drives quasars. They look like a point of light in the sky, but emit more energy than a hundred gigantic galaxies.

That discovery would be an achievement of immense scientific importance. But from the moment that Iras produces the first part of the infra-red map of the sky, its creators will have made a contribution to our understanding of the universe that will last for generations, long after Cosmos 1402 has been forgotten.

Pearce Wright
Science Editor

Will Survey Unmapped Part of Celestial Landscape

Space Telescope Successfully Launched Into Polar Orbit

By GEORGE ALEXANDER, *Times Science Writer*

VANDENBERG AIR FORCE BASE—Like a 16th-Century explorer setting out on a voyage of discovery to the New World, a sophisticated astronomical observatory was sent into orbit Tuesday night to survey a celestial landscape that is known to exist but has yet to be completely mapped.

The observatory is the Infrared Astronomical Satellite, or IRAS, a joint American-Dutch-British venture, and its goal is to chart the realm of the infrared—basically low-temperature radiation.

At approximately 6:17 p.m., the National Aeronautics and Space Administration launched the satellite aboard a Delta rocket. The sky was hidden by a thick deck of slate gray clouds and darkness had fallen over this sprawling military base when the first stage of the rocket ignited in dazzling flash of intense white light.

The rocket rose quickly, piercing the clouds and backlighting them in eerie kaleidoscopic patterns. In less than two minutes, it was gone from the sight of a crowd of approximately 1,000 special visitors—many from Europe—invited to witness the event.

The IRAS spacecraft was lofted into a 560-mile-high orbit ringing the Earth's poles and preliminary indications from NASA were that it was in good working order. The orbit was chosen to preclude either the sun or the moon from shining their light down into the supercooled telescope at the core of the 12-foot-long, 2,400-pound observatory.

IRAS will try to detect the weak infrared rays coming from comparitively cool stars, galaxies, clouds of dust and gas, and perhaps even objects presently unknown to astronomy, and the satellite must be cooled so as not to interfere with its own operation.

A doughnut-shaped tank filled with 125 gallons of liquid helium surrounds the 22-inch-diameter telescope and maintains a temperature of -445 degrees Fahrenheit.

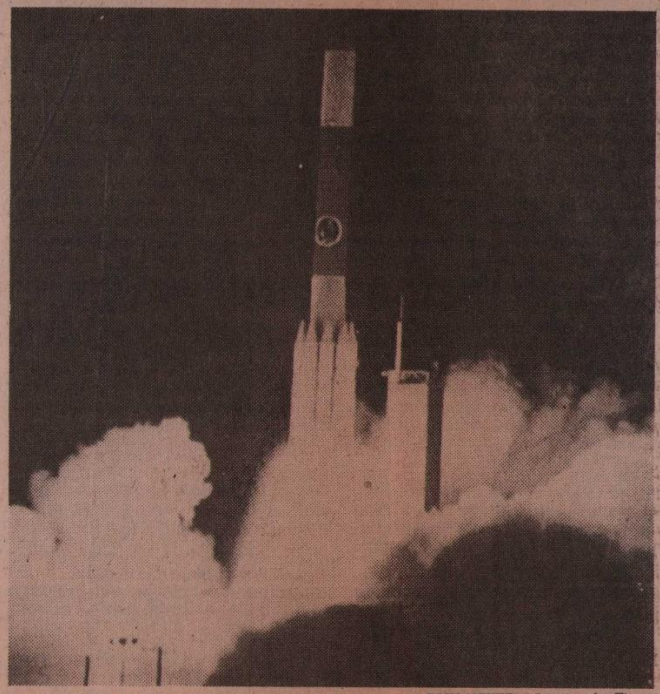
The satellite will be kept buttoned up for the next two weeks as engineers and scientists at the Jet Propulsion Laboratory near Pasadena and the IRAS control center in England check it out. If everything is appears to be working as planned, a protective cover will be removed from the face of the telescope and it will begin to make the measurements it was sent into space to do.

"Everything in nature radiates," said Prof. Harm Habing of the University of Leiden in the Netherlands, the European co-chairman of this international science project. "If it is cool, it radiates in the infrared. If it is hot, it radiates in the invisible (part of the radiation spectrum). And if it is very hot, it radiates in X-rays."

But because of the obscuring effects of the Earth's steamy, gassy atmosphere, only a small fraction of the infrared radiation put out by stars, galaxies, and huge clouds of interstellar gas and dust ever reaches ground-based telescopes.

For roughly 60% of its estimated 7-to-12-month lifetime, the satellite will take a census of the population of infrared objects in the sky. For the other 40% of the time, the satellite will be programmed to look closer at any unusual objects that turn up in the survey, peer deeper at some interesting parts of the sky, and obtain higher-resolution images of certain objects.

Habing said the IRAS spacecraft would even be instructed to look for Halley's Comet, now streaking toward a 1986 swing through the inner part of the solar system, but he did not know exactly when that effort would be made.



RICK MEYER / Los Angeles Times

Seeking to gaze across the galaxy, infrared observatory lifts off.

L A Times Jan 26

IRAS

SCIENCE AND ENGINEERING RESEARCH COUNC
Polaris House
North Star Avenue,
Swindon
SN2 1ET
Wiltshire

From the Secretary:
B. W. Oakley CBE

Dr E Dunford
Rutherford Appleton Laboratory
Chilton
Didcot
Oxon
OX11 0QX

26 January 1983

Dear Eric

IRAS

Watching the launch control room in action early on Wednesday morning I became very conscious of what a team effort your apparently so smooth acquisition of control over the IRAS satellite had been. A large number of people have worked long and hard to achieve this. We are all very grateful to them, not least for having persevered through the long and frustrating delays. I am sure the success you have achieved will help the image of Council as a whole in ABRC and elsewhere.

Might I also comment on the way the team has created an apparently harmonious international team where the cracks don't show? It reflects well on everybody concerned.

Best wishes for the next crucial stages.

Yours sincerely

cc. Dr Manning
Professor Houghton
Dr Atkinson
Dr Martin

Brian Oakley

B W OAKLEY.

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IRAS

330

Dr G Manning
Director
Rutherford Appleton Lab.,
Chilton
Didcot
Oxfordshire, OX11 0QX

PDL/PW

27 January 1982

Dear Geoff,

May I add my congratulations to yourself and Professor Houghton on the successful launch of the IRAS satellite, and may I wish the programme every success. Peter Lever tells me the Control Centre at the laboratory was packed and tense in the early hours of Wednesday as the various count downs to launch and command switch on were implemented, and that the event turned out to be a resounding success.

You are no doubt aware of the excellent reliability records we have achieved with the IRAS 2960 machine to date, and please feel assured that this machine has a high visibility within the Company because of its strategic importance to the success of this major space programme.

Yours sincerely,

Charles Hughes.

C E HUGHES
MANAGER
DEFENCE AND RESEARCH BRANCH

c.c. Professor J Houghton.

Incorrect year?

Reference SP/300/20

IRAS

CHAIRMAN

cc Dr Atkinson
Mr Oakley
Professor Houghton

IRAS LAUNCH

Professor Houghton and I arrived in Lompoc, California about 8.30 pm on Tuesday 24 January. Lompoc is about 5 miles from the Vandenberg Airforce Base, where the final preparations were in progress for the IRAS launch.

The next morning was fairly quiet, but at 2.00 pm there was a press briefing at the Lions Inn, Lompoc, attended by 80 media people from press, radio and television. There were about six short talks on IRAS including one which I gave on the UK involvement.

At 3.30 pm we were all taken by coach to the Airforce Base. There must have been about 150 people including about 50 from Holland. We were taken initially to a large auditorium and there were several speeches and presentations. There was an excellent presentation about the Delta launch vehicle and also a very clear description about the IRAS scientific objectives, which was given by Garry Neugebaur, the American project scientist (and the Director of the Mount Paloma Observatory).

We left the auditorium about 5.00 pm and were taken to the Observation Site, which was about 2 miles from the rocket. The next hour's count down went very quickly and IRAS was launched at precisely 6.17 pm. It was very spectacular and the whole landscape was lit up with a magnesium type of light. The rocket shot upwards very quickly, pierced the light cloud cover and then rapidly disappeared.

It took us an hour to get back to the hotel; John Houghton telephoned Chilton shortly afterwards and heard that the tracking station had acquired IRAS at the first available opportunity. The rest of the evening was spent celebrating.

One of the points that was stressed during the speeches in the auditorium and later at the dinner was that the IRAS project had been a model for international collaboration and Eric Dunford had told me that the international team at Chilton is also working together very well.

The next milestone will be the ejection of the aperture cover. This should have taken place this morning, but has been slightly delayed. Shortly after that the scientific mission will begin.

Barry Martin

BARRY MARTIN
31 January 1983

Reference SP/300/20

IRAS

CHAIRMAN

cc Dr Atkinson
Mr Oakley
Professor Houghton

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Barry Mash

BARRY MARTIN
31 January 1983

serc SCIENCE AND ENGINEERING RESEARCH COUNCIL
Polaris House
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Swindon SN2 1ET
Telephone 0793 26222
Telex 449466

PRESS NOTICE

IRAS for

FIRST GLIMPSE BY THE INFRARED ASTRONOMICAL SATELLITE 4 February 1983

The telescope on-board the Infrared Astronomical Satellite (IRAS), successfully launched on 26th January 1983, has returned data from its first look at the Universe. In its first day of operation while viewing the sky, the telescope performed a series of full circle scans, which included two passes over our galaxy, the Milky Way. The observations show that the Galaxy, as expected, is heavily populated by stars and other objects that strongly emit infrared radiation.

The first scan by IRAS included a 25-degree sweep from south to north at a 45-degree angle across the plane of the Galaxy in the constellation Crux, the Southern Cross. The scan was conducted within an hour after the telescope's protective cover was ejected into space on 31st January at 1937 hours GMT. The initial scans are a minute portion of the systematic survey IRAS will conduct of the entire sky at infrared wavelengths with unprecedented sensitivity.

IRAS is a major international mission involving the Netherlands, the United States and the United Kingdom. The spacecraft was built in the Netherlands and the Americans provided the telescope and the launch vehicle. The satellite was launched by NASA from the Vandenberg Air Force Base in California. It is controlled and its data received through the IRAS Operations Control Centre located at SERC's Rutherford Appleton Laboratory at Chilton in Oxfordshire. Scientists and engineers from the three countries are conducting the mission and performing a preliminary analysis of the data at the Chilton site. A final catalogue of infrared sources and a map of the infrared sky will be assembled from the data at the Jet Propulsion Laboratory in Pasadena, California.

Initial data were collected in all of the four wavelength bands, from 8 to 120 microns. The emission in the longest wavelength band is dominated by 100 micron wavelength radiation from cold dust associated with the material out of which all stars in the Galaxy are formed. The observation indicates the presence of individual clouds of dust and molecular gas hundreds of light years across.

The emission in the shortest wavelength band is mainly due to the energy from billions of stars. An intense broad signal is seen from the centre of the

Milky Way due to the dense concentration of stars. Several bright or nearby stars are also indicated in the early results.

Engineering tests of the satellite will continue for about a week before the formal all-sky survey begins.

For further information contact Dr E Dunford at Rutherford Appleton Laboratory, Chilton, Didcot, Oxfordshire OX11 0QX (tel: Abingdon (0235) 21900 ext 5450).

5/83

IRAS

Science and Engineering Research Council
Rutherford Appleton Laboratory

Director Appleton: **Professor J T Houghton, FRS**

Chilton, Didcot,
Oxfordshire OX11 0QX
Telegrams: Ruthlab Abingdon
Telex: 83159
Tel: Abingdon (0235) 21900
Extension: 533

10 February 1983

The IRAS launch took place just two weeks ago and it is very gratifying to all concerned that it is proving such a successful mission. The data so far obtained seem very good, entirely up to expectation, and already contain a wealth of new information about the Universe. Two hundred plus days of further information will keep the world's astronomers busy for many years, puzzling, no doubt, over many unexpected discoveries.

IRAS has only been successful because of the enormous team effort within the large international community involved, within the UK, and more locally within Appleton, and subsequently Rutherford and Appleton. Many have commented on the efficiency and enthusiastic team spirits of the RAL team.

But space projects such as IRAS not only bring an enormous sense of achievement, they are also extremely hard work. I would like to thank you for your loyalty to the project, for bearing so cheerfully and effectively the work load demanded by the project over a long period, and for being prepared to make the personal sacrifices which ensuring the successful achievement of the mission has entailed.

Please also would you pass on to members of your family our gratitude for their support and patience, not only over the last two or three weeks, but through the whole period of preparation.

UNIVERSITY OF MANCHESTER
NUFFIELD RADIO ASTRONOMY LABORATORIES

TELEPHONE :
LOWER WITHINGTON (0477) 71321
TELEGRAMS :
RADASTRA, MACCLESFIELD
TELEX 36149
Director
Professor F. Graham Smith, FRS.
Astronomer Royal

JODRELL BANK
MACCLESFIELD
CHESHIRE
SK11 9DL

7th March 1983

FGS/eb

Professot J.T. Houghton,
Rutherford Appleton Laboratory,
Chilton,
Didcot,
Oxon.

Dear John,

Array Processor AP 120B

We are going ahead with a grant application for a VAX 750 system at Jodrell for our MERLIN interferometer. In the application we make it clear that within a year or two we will have to expand the system by adding an array processor. For various reasons, not least of which is the availability of suitable software, that processor ought to be the AP 120B.

Barry Martin wrote to you on 25 November about this. I am now following up his letter with a direct enquiry about the AP 120B now in use at RAL for IRAS. Do you see any possibility that this will no longer be needed after IRAS? And if so, what is the expected time-scale?

I would be very grateful for any indications you can give, as I may have to appeal to University funds if you can offer no hope. I am determined to get MERLIN into full production by one means or another.

Yours sincerely,

Graham

Science and Engineering Research Council
Rutherford Appleton Laboratory

Director Appleton: **Professor J T Houghton, FRS**

Chilton, Didcot,
Oxfordshire OX11 0QX
Telegrams: Ruthlab Abingdon
Telex: 83159
Tel: Abingdon (0235) 21900
Extension: 533

15 March 1983

Professor Graham Smith FRS
Nuffield Radio Astronomy Laboratories
University of Manchester
Jodrell Bank
Macclesfield
Cheshire
SK11 9DL

ARRAY PROCESSOR

I have enquired about the AP120B and demand for it after IRAS. I find it has already been included in the plans for AMPTE data processing which immediately follow IRAS (AMPTE is due for launch in August 1984). In particular a number of the AMPTE experimenters want to use it for their data analysis. I am afraid therefore that it does not seem that it will be available. Sorry not to be more helpful.

Best regards

A23523

IRAS

Copies to
Dr Manning
Dr Harris
Dr Gabriel
Dr Atkinson
Dr Martin

DEPARTMENT OF EDUCATION AND SCIENCE

ELIZABETH HOUSE, YORK ROAD, LONDON SE1 7PH

TELEPHONE 01-928 9222

FROM THE SECRETARY OF STATE

31 January 1984

Dear Dr Dunford.

I hear from Professor Kingman that the IRAS mission has now come to an end. Although it is sad to see such a mission reach the end of its life, you must be very satisfied with the impressive scientific results. I would like to congratulate you on the quite superb efforts that you and your colleagues have made for the project.

I am particularly pleased that this country, through the ingenuity of its scientists and technologists, has been able to make such an outstanding contribution to international astronomy.

Yours sincerely,

Keith Joseph.

Dr E Dunford
Rutherford Appleton Laboratory
Chilton
Didcot
OXON OX11 0QX

National Space Club

1629 K STREET, N.W., WASHINGTON, D.C. 20006 (202) 296-4690

February 13, 1984

Dr. G. Manning, Director
Rutherford Appleton Laboratory
Chilton, Didcot
Oxfordshire, OX11-0QX
United Kingdom

Dear Dr. Manning:

On behalf of the Officers and Governors of the National Space Club, it is my pleasure to inform you that the IRAS Industry Team has been chosen as the winner of this year's Nelson P. Jackson Aerospace Award. This annual industry award is a memorial to the late Nelson P. Jackson, one of the founders and a past President of the National Space Club. It is presented to the company or team chosen by the National Space Club from the aerospace industry as responsible during the preceding year for the most outstanding contribution to the missile, space, or aircraft fields.

The IRAS Industry Team was chosen for this year's award because of the engineering and manufacturing excellence that resulted in the phenomenal success and unexpected discoveries made by the Infrared Astronomical Satellite.

As with the other principal awards of the National Space Club, the Nelson P. Jackson Aerospace Award is presented annually at the Goddard Memorial Dinner. We hope that it will be possible for you or your designee to attend the dinner and receive the award on behalf of the British part of the IRAS Industry Team. This year's Goddard Dinner will be held on Friday, March 16, 1984, at the Washington Hilton Hotel in Washington, D.C. Later you will receive a letter from the Space Club concerning arrangements for the dinner.

Again, congratulations and I look forward to seeing you at the Goddard Dinner on March 16.

Sincerely,

Harry S. Dawson, Jr.
Chairman
Nelson P. Jackson Aerospace
Award Committee

Iras.

Science and Engineering Research Council
Rutherford Appleton Laboratory

Director: **Dr G Manning**

Chilton, Didcot,
Oxfordshire OX11 0QX
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Mr H S Dawson Jr
Chairman
Nelson P Jackson Aerospace
Award Committee
National Space Club
1629 K Street NW
Washington DC
United States of America

24 February 1984

Dear Mr Dawson

I was delighted to receive your letter and the news that the "IRAS Industry Team" has been chosen as the winner of this year's Nelson P Jackson Aerospace Award. You of course must know that RAL is a government funded research Laboratory and that we are not part of industry.

I will be very happy to attend the Goddard Memorial Dinner and to receive the award on behalf of the IRAS team. My travel arrangements are not yet finalised but it is unlikely that I will arrive in Washington until the afternoon of the 16 March.

Could you please send me some background material on the National Space Club, the Nelson P Jackson Space Award and on the Goddard Memorial Dinner? I am afraid that I start a long way back in terms of briefing on the subject.

Thank you once again and I look forward to meeting you at the dinner on March 16.

Yours sincerely

Geoff Manning

G MANNING

cc Dr J E Harries
Dr A H Gabriel
Dr E Dunford
Dr B R Martin
Dr H H Atkinson
Dr J A Catterall

Presentation of

NASA HONOUR AWARDS

IRAS

Infra-Red Astronomical Satellite

in the Lecture Theatre R22

Rutherford Appleton Laboratory

Thursday 13th December 1984

NASA HONOUR AWARDS PROGRAMME

11:45 **Introduction** by Dr G Manning, Director of Rutherford Appleton Laboratory

11:55 **IRAS Science** - a talk by Professor F G Smith, FRS, Astronomer Royal

12:05 **NASA Honour Awards** - Mr J Beggs, Administrator, National Aeronautics and Space Administration together with Dr G Manning will give an explanation of the Awards.

Citations will be read and awards presented to the three medal winners:

Dr P E Clegg
Dr E Dunford
Mr A J Rogers

Citations will be read and awards presented for two group achievements to:

Professor R E Jennings, on behalf of the IRAS Joint Infra-red Working Group

Dr R Holdaway and Mr H Bevan, on behalf of the Rutherford Appleton Laboratory IRAS Operations Team

12:30 **Lecture** by Mr J Beggs

12:50 **Questions** - Dr G Manning will chair a panel comprised of:

Mr J Beggs, Dr P E Clegg, Dr E Dunford, Mr A J Rogers, Professor F G Smith, Dr J E Harries and Dr B R Martin.