

THE UNIVERSITY *of York*  
Computing Service

# keynotes

V o l u m e 2 4 N u m b e r 6 J u l 1 9 9 8

## Satellite images



***Also in this Issue:***

**New Applications**

**Windows 95, 98, or NT?**

**Millennium Strategy news**

**New Computing Service web pages!**

# keynotes

Volume 24, Number 6

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## From the Editor

This is an extra special issue of *Keynotes*—we have our first quality colour section! Peter Halls' article on satellite imagery is complemented by a pair of fascinating images of the Lake District—one a photograph of the region on 'normal' colour, the other in infrared.



There are a lot of other brief news items this issue as well. Wondering what our support policy is for the newly-available Windows 98? Doug Moncur explains the issues with this and Windows NT.



This is sadly my last issue as editor of *Keynotes*. In mid-July I shall be leaving the University to enter (cue dripping horror-movie lettering) the commercial sector. I have had an enjoyable year at the University of York, and shall leave with fond memories of the institution.

*Ray Drainville*

## Colophon

The type in *Keynotes* consists of Palatino (the University's official font) at various point sizes for text and Helvetica 95 Black at various point sizes for headlines, sidelines, and pullquotes.

The content for *Keynotes* is assembled digitally with the following tools: Adobe Pagemaker 6.5, Adobe Illustrator 7.01, Adobe Photoshop 4.01, Adobe Streamline 4.0; MetaCreations Vector Tools and Infini-D 4.01; Corel WordPerfect 7.0; Microsoft Word 6.01 and 7.0.

Artwork was created on an Apple Macintosh computer, and everything was thenceforth assembled on a Viglen PC running Windows 95. The material was printed by the University of York's Printing Unit.

This issue of *Keynotes* was assembled by Ray Drainville; if you have any questions or comments, feel free to contact him by e-mail at [information-officer@york.ac.uk](mailto:information-officer@york.ac.uk).

## Staff news

### Mike Jinks tells you the good and bad news

Three members of the Service have tendered their resignations since the previous issue of Keynotes was published.

Paul Bowen, one of our junior technicians, left in May to take up a post with the York Health Services NHS Trust where he will specialise more in networking. Susan Ashton, our other junior technician, leaves in June to take up a post with a printing company in Leeds. Both Paul and Susan have contributed much to the operation and development of the Service and are well-known around the campus. We are very grateful for all their work and wish them well in their future careers.



Ray Drainville, our Information Officer, leaves us in July to return to working in Sheffield in a design firm. Although he has been with us only a little over a year, Ray has made a considerable impact on the University's WWW development. We wish him well in his new post.

## Print charging system

### Dave Atkin informs the community of the new charging system

The new charging system which will allow all central printing to be charged back to departments is now ready. Each department will have one or more Group Accounts and will be billed monthly. Heads of Department will receive a form asking for details of who will manage their accounts, who should be members of each group, and the finance codes to be debited.

Departments wishing to do project-based accounting will be able to set up more accounts, and users working on several different projects can choose which account is debited on a per-job basis.

The new scheme will mainly affect staff and research graduates. It will be tested during July and August and is expected to go live on 1 September.

## Millennium strategy

### Mike Jinks counts the days

The University has developed a Millennium Compliance Strategy to help guide all those involved in ensuring that the University experiences a smooth transition across the Millennium date change. WWW pages relating to the Millennium Compliance issue are available via the Computing Service web pages in the 'official documents' section at <http://www.york.ac.uk/services/cserv/offdocs/y2k.htm>. These pages include the strategy document and information about commonly used hardware and software, as well as links to other useful sites.

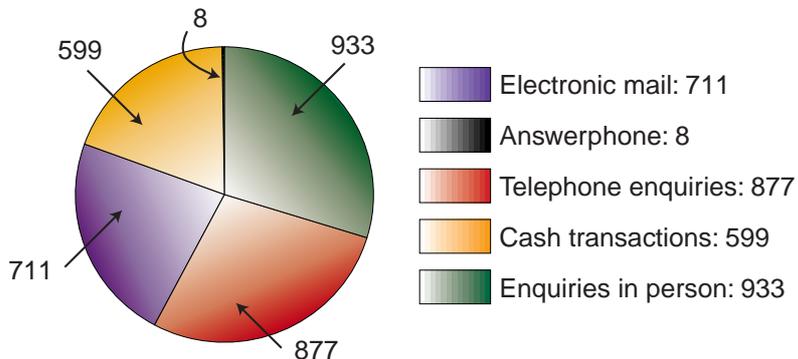
The Millennium Working Group has also mounted some seminars to explain the issues; the final one is scheduled for 2pm on Monday

6 July. Heads of Department have been invited to publicise the seminars and to ensure that each department is represented. If you would like to attend, please let Lorraine Moor know. For those who are unable to attend, a Powerpoint presentation of the overheads from the seminar is also available from the web pages.

Further information on Millennium Compliance will be publicised via the web pages and additional seminars will be mounted as required.



## Information Desk statistics



Latest figures available (05/1998)

## Withdrawal of Windows 3.1 from Computing Service classrooms

### Doug Moncur provides some details

The Windows 3.1 service will be withdrawn from all Computing Service classrooms on Friday 25 September 1998.

The Windows 3.1 service will continue to be available to office machines and to any classrooms managed by bodies other than the Computing Service. The classrooms affected will be:

- Goodricke G/169
- Langwith L/117
- Derwent D/114
- Wentworth W/218
- Kings Manor K/120

Alcuin A/140 will be unaffected. It is planned to replace the Compaqs in L/050 and the JB Morell Library with more modern machines over the summer.

## InfoDesk goes electronic!

**Dave Atkin** tells you about the great new system

Some of the services for which you would previously have had to visit the Information Desk in person are now becoming available on-line via YorkWeb on <http://www.york.ac.uk/services/csers/edesk>.

This new facility is called the "Electronic Infodesk" and it will be developed further in the future. You can currently do the following:

- Change your password
- View your computer account information
- Check your charge account
- Change e-mail reception options and set a forwarding address when you leave
- Submit a query to the Information Desk

Later this year it will include:

- Registering to use optional facilities
- Registering for Athens (for access to national resources)

In all these cases you will need to specify your username and password.

# Microsoft

## Microsoft Office project

**John Illingworth** explains the shift in focus

In the next few years the standard centrally provided PC office suite, comprising a word processing package, a spreadsheet and a presentation graphics package will be changed from Corel Office to Microsoft Office. This is not because of the perceived strengths or weaknesses of the components of each Office suite, but a recognition that colleagues in other universities and future employers of our students are more likely to appreciate facility with and documents produced by the Microsoft product.

The Computing Committee recommended to the Information committee (24th Oct 97, 97/28) that

## Long, hot summer

**Ray Drainville** tells you how to avoid the heat in the classrooms

If you have ever gone into a classroom during the summer months, you are sure to have noticed the tremendous heat some of them generate. Thankfully, some work is anticipated on some of the classrooms during the summer, so in the future the situation will perhaps be better. In the meantime, here's a couple of tips for you to avoid the heat:

- L/117, 21 PCs, natural light, fully air-conditioned, excellent working conditions
- A/140, 20 PCs, south-facing picture window, user controlled fans, can get bright and hot.
- D/114, 24 PCs, no windows, little ventilation, gets extremely unpleasant, to be avoided.

## New web pages!

**Ray Drainville** asks you to take note

The Computing Service web pages have been recently overhauled. The pages have been redesigned in order to take advantages of recent developments in HTML that have the potential to help clarify content structure. Accordingly, the pages are best viewed with Netscape 4.0, available on the Windows 95 service.

If you find that a URL is missing, start from the Service's home page (<http://www.york.ac.uk/services/csers/>). If find any errors in the page, be sure to contact the Information Desk (ext 3838).

## Summer technicians

**Mike Jinks** warns of potential delays

As mentioned on page 1, we have received the resignations of both of our junior technicians. Although we are interviewing for Paul Bowen's replacement on 23 June, it is likely that there will be a period during the summer vacation when we will have no junior technicians, and there will probably be a more extended period when we have only one technician. In addition, it will take some time for the replacements to learn the details of the way in which our systems are configured and hence they will not have the detailed knowledge of their predecessors for some while.

The absence of technicians will affect both equipment installation work (PCs, network connections and printers), and fault-finding and rectification. As in previous years, we hope to employ some students during the vacation to undertake some of the standard installations eg Windows 95 upgrades, but the absence of two members of staff will inevitably have a major effect on our ability to respond to problems, and some scheduled tasks will need to be postponed. We will endeavour to keep disruption to a minimum, but please appreciate that the reason why we may be unable to respond to your problem is because we have no-one to dispatch to do so. We hope to be back to normal for the start of the next academic year.

## New charging system

### Dave Atkin explains the new system for printing

The new charging system which will allow all central printing to be charged back to departments is now ready. Each department will have one or more Group Accounts and will be billed monthly. Heads of Department will receive a form asking for details of who will manage their accounts, who should be members of each group, and the finance codes to be debited.

Departments wishing to do project-based accounting will be able to set up more accounts, and users working on several different projects can choose which account is debited on a per-job basis.

The new scheme will mainly affect staff and research graduates. It will be tested during July and August and is expected to go live on 1 September.

## New printers

### Dave Atkin talks about new developments

It is our intention this summer to replace several printers and to introduce at least one additional one. Our printing service currently comprises two printers in the Computing Service, five in the colleges and one in Kings Manor. This academic year, we have printed nearly 1,500,000 sheets and we believe we offer a reasonably reliable and consistent service during our normal supported hours.

The majority of complaints we receive are to do with problems outside normal hours when the printers may fail or run out of paper. As we are unable to provide support during evenings and at weekends our strategy is to provide several modern printers with large paper hoppers to offer some measure of reliability and redundancy. The current batch of printers are coming to the end of their life and we have seen an increase

## Computing Service review implementation

### Mike Jinks tells you the latest

Many of you will be aware from the University Magazine that the University is revisiting the 'Review of the Computing Service' in the light of changed circumstances within the University, comments from departments arising from the implementation process, increased knowledge of the practical consequences of some of the original recommendations, and the outcomes of similar processes at comparator Universities. The working group intends to make proposals to Planning Committee in July and we then hope to have a firm base on which to plan for the future.

It is likely that the distinction between core and non-core services will continue but that there will be a somewhat greater range of core services. Services are likely to be specified by simple service definitions to clarify expectations of both the Service and users. Since there will continue to be some non-core services, departments will be charged

for some services which they currently receive free at the point of delivery. The level of charging is under discussion and is likely to reflect both institutional priorities and the ability to pay rather than simply covering costs ie some non-core services are likely to be subsidised. The intention is to define levels of service which are appropriate to the University and to provide the Service with the resources to deliver them reliably.

We will provide further information via a special edition of *Keynotes* when the decisions have been made.

## Viglen news

### Ken Finch explains Viglen's supply statement

We have been informed by our Viglen supplier that they are no longer able to guarantee supply of replacement motherboards for any PC range that was purchased before the Pentium processor was introduced in 1996. The official statement from Viglen is as follows:

'Viglen will endeavour to provide identical parts for replacements, however, there are occasions where an identical motherboard is not readily available or it may take a long time before one can be provided. In these circumstances Viglen will provide an equivalent or higher specification motherboard to replace the original one. The latter will result in replacement of the actual base unit as well as the motherboard and CPU, the remaining parts i.e., the hard drive/RAM etc. can be transferred from the original unit to the new unit.'

The Computing Service have already experienced these problems, for example the 4DX266 motherboard, which is in many PCs on campus is no longer available.

I must stress that Viglen only have an obligation to help, if the PC is covered by a current on-site maintenance agreement.

in the number of complaints, particularly from Kings Manor where there is currently only one printer.

We have already started discussions with Hewlett Packard and Lexmark and are soon to install a Lexmark 2455 on trial. As part of the evaluation we are looking at larger paper hoppers and duplex printing. By the time this article is published we will have made a decision and the first printer may well be in service.

We do apologise if the service has not been as reliable as you have come to expect in recent months but we do urge you to lower your expectations about availability outside normal hours. Midnight on Sunday is not a good time to try printing an important essay for a 9am deadline! Our support hours are from 8.45am to 5pm, weekdays.

## Windows 95 applications

**John Byrne and John Robinson tell you what's available**

The applications software on the Windows 95 network continues to be upgraded; with packages installed to cover most general purpose needs, the emphasis has changed to extending the range of software to support teaching in departments. The service has now been running long enough for some items of software to need replacing by more recent versions.



In recent upgrades there has been new software under **Start | Programs | Teaching** for Archaeology, Chemistry, Physics, Economics and Biology.

### On-line help and documentation

The applications available from the **Start | Programs** menu are grouped into functional categories (eg, **Graphics & Presentations**). For some groups we have added a sub-menu called **Help & Documentation** to provide access to on-line documentation and support tools. Much of this documentation is, of course, held as Web pages, which can also be found by following the **Help and Advice** button on Computing Service pages.

For instance, under Text Processing you can find out about the packages available under Windows 95, and also hints about using WordPerfect 8, grouped under the headings

- When things go wrong
- Getting the format right
- Creating special types of document
- Customising your WordPerfect setup

### Miscellaneous points

#### Programming

We have installed Borland's 'visual' programming tools Delphi (based on Pascal) and C++ Builder (which uses C++ as a base language), and we hope soon to add J Builder (based on Java). These products all have a similar paradigm for designing and building Windows 95 applications, and are particularly useful for making database applications. They fea-

ture re-use of 'components' - either those shipped with the compilers, or obtained commercially or freely from the Web. See the **Help & Documentation** section for more information.

These compilers are very fast, but their speed, and the flexibility of the visual programming method, relies on using a PC with adequate processor speed, RAM memory and disk space. Our typical classroom PCs (486s with 16Mb RAM) can only compile simple programs, an office Pentium with 32MB can handle small to medium sized projects, and J Builder specifies a minimum of 48Mb RAM.

### Removals

Software suppliers are continually improving their products (although a cynic might claim there is usually more marketing hype than genuine improvements). We aim to use the latest versions of software packages, as suppliers usually do not provide updates and fixes for earlier versions, and inter-operation with other packages requires the latest file format converters, for instance.

Thus, after a period of running dual versions, we are about to remove the Corel WordPerfect Suite 7. The Corel suite covers WordPerfect 7, Quattro 7 (the spreadsheet package) and Presentations 7 (for drawings and slide-shows). The more recent WordPerfect Suite 8 has been available since October 1997. The main difference between the systems is the layout of menus, and the storage of templates for documents.

There are on-line hints (<http://www.york.ac.uk/services/cserv/help/wp/pages.sup/wp8/fromwp7.htm>) about moving your work from the Suite 7 components to Suite 8 in the online documentation for Suite 8.

[Note that WordPerfect for Windows 6.1 on the old Windows 3.1 network running on office PCs will not be affected by this change; the Windows 3.1 network itself will be withdrawn from classrooms (but not offices) over the summer].

Along with WordPerfect 7, Delphi 2 will be removed from the servers. Delphi 3 has been available for some time.

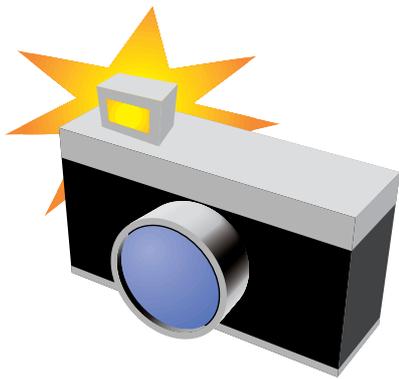
### Netscape

Netscape Communicator has an occasional but unpleasant habit of destroying one of its configuration files. This can happen for example if you close down Netscape when you are low on filespace on your M drive. Consequently, the next time you run Netscape it becomes seriously mis-configured—it loses your custom settings, uses the wrong mail service, and most importantly uses your 'M' drive to cache recently accessed web documents. This condition is not always easy to spot, especially if you only use Netscape for web browsing. As a result the Windows 95 system now checks for these conditions every time you run Netscape. The benefits are that you are notified the moment the problem arises, and Netscape re-installs itself with a working configuration file. The cost is a small increase in load time as the system performs its checks. You should contact the Information Desk (ext. 3838) if you get repeated warnings from the new checking procedure.

### Start-up and Shutdown

Windows 95 is much more complex than Windows 3.1, particularly in the way it maintains the 'desktop' and associated features for different users on a network. One aspect of this is the **Start** menu, which is maintained for each user, and which takes a noticeable time to re-create when a user logs in. We have been making efforts to reduce the time taken for this, and to inform the user of the progress, as using the system before the menu is completely built can lead to unpredictable results.

There is a similar problem with the Logout procedure—this appears to do nothing, but in fact the PC is busy saving information about the state of the desktop as the user has configured it, so that it can be re-created when they log in again. Here there is a catch—we cannot display a message about this activity, as the message display is the first thing the system's Logout procedure closes! However, hopefully by the time you read this a new logout procedure will be implemented that will give the user some information that the logout is in process.



## Software snapshot

**John Illingworth explains the software index**

Each January and July the Computing Service produces a snapshot of all the software currently available on the PC and Unix systems. This may be seen on Yorkweb in the Computing service section under "Software", "Packages installed on centrally managed computers", or for those who are good at typing, <http://www.york.ac.uk/services/csersw/main.htm>. The latest version will appear on Yorkweb sometime in July.

The software index is grouped by function to make it easier to find what is available in particular categories. The entries describe what versions of the software are available and the licensing arrangements. The software maintenance and user support items describe the level of support afforded by the Computing Service. Software maintenance means we look after the software, installing bug fixes and new versions where appropriate, while user support means that we are able to answer queries about use of the product.

Each software product has a brief description of what it does, and in some cases a link to more detailed information.

This web page is the primary source of information about central software provision.

## MIS News

**Kay Robinson tells you about the latest in administrative computing**

### ADVAX—replacement of hardware with new ALPHA computers

By the time that this issue of *Keynotes* is published the new Alpha computers will have been brought into service. As reported in the last issue of *Keynotes*, the new hardware has been purchased specifically to improve performance of the administrative computing software (MAC in particular) and to increase resilience and storage capacity. By carrying out the transfer of data from ADVAX to the new ALPHA systems over a weekend we hope that disruption to the normal work of ADVAX users has been minimised.

Detailed information about the implementation of the new hardware has been posted on YorkWeb at: <http://www.york.ac.uk/services/csersw/admin/alpweb1.htm>

Instructions on how to connect and log on to the new hardware can be found on the web page together with further information on what the change means to ADVAX users. However, it is worth pointing out that there are no changes to the user operation of the system because the software has not been changed. Users do not require re-training and will not lose access to any facilities to which they currently have access.

We will be monitoring closely the performance of the new computers to ensure that they meet our expectations. There should be a noticeable improvement in the amount of time it takes to move from

one screen to another and the response time for screen enquiries. If you encounter any difficulties after the new hardware has been implemented please raise a log with the Information Desk.

### In brief... MAC upgrade

The MAC system was upgraded to version D17 on 8th June. The new release mostly contains bug fixes but there are several new fields in the Student module which were necessary to meet the requirements for the Student HESA return for 98/99.

### Label printing

Users may have noticed that labels are now printing on Laser labels rather than continuous stationery.

### DWH Training

Further introductory courses for student, finance and estates data will be scheduled during the autumn term. In the meantime, copies of the course notes can be obtained from Michael Evans (finance), Caroline Hall (students), Janet Hodgson (estates).

### DWH Performance

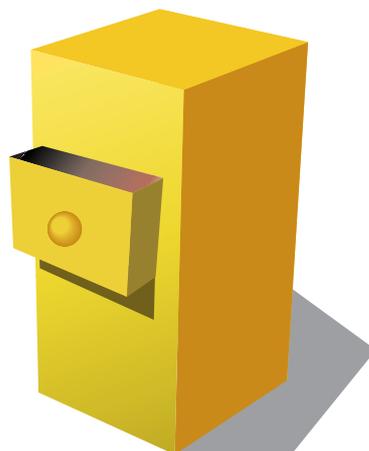
An upgrade to the DWH hardware is likely to take place during the summer. This will improve performance when running queries and reports in Paradox.

### MIS Advisory

MIS Advisory sessions will continue until the end of July: Wednesday 2:30 - 4:00 and Friday 9:30 - 12:30. After July the sessions will not be held in H/B40 because the room is being used by Registrar's department for Student Registration. For advice or support - please raise a log with the Information Desk and we will be happy to assist.

### DWH Passwords

If you have forgotten your data warehouse password or you would like a new one—please contact the Information Desk (ext. 3839, e-mail [infodesk](mailto:infodesk)).



## New servers

*Dave Atkin* tells you about the new systems

The ageing central interactive UNIX systems will be replaced this summer, subject to appropriate funding being available. It is now possible to give some indication of what can be expected from October 1998.

The central Silicon Graphics servers, Tower and Ebor, are to be migrated to Sun servers. Ebor will be replaced by an E3500 server with 6 336Mhz CPUs (4MB cache) and 1GB main memory. Tower will be replaced with an Ultra10 server with 500MB main memory. A new service will also be available for people to read and send e-mail. New compilers will be available on the servers, including a welcome introduction of Fortran 90.

The Derwent UNIX workstation classroom will hopefully be replaced with 20 Silicon Graphics O2

workstations. These machines are likely to be the R5k 200Mhz box with 64Mb main memory. The upgrade of this classroom will allow research users to run the latest versions of many applications and will be a welcome replacement of the Indigo workstations which have served the University for 7 years.

Further details will be given in the next issue of *Keynotes* as the systems are installed and commissioned. There is likely to be some modification to the access restrictions on these machines but undergraduate access to UNIX will still be available. These systems will enhance the UNIX computing power available to users and it is hoped will contribute to the University maintaining its reputation for research and teaching.

## E-mail notices from the library

*Jane Henley* tells you about the library notification system

The Library has introduced a trial service using email for recall and overdue notices. The first notices were sent this way on 16 April, so the service has now been successfully in operation for two months. We have had some very positive feedback. The use of email allows Library notices to be sent and received more quickly and is intended to make the recall service more efficient and to encourage the speedier return of overdue books.

All undergraduate students, except those in the Department of Health Studies, automatically receive Library notices by email. They may opt out of email if they prefer to receive notices by post. Initially students in Health Studies, and all postgraduate students, researchers and staff continue to be sent Library notices by post, as many are away from campus and do not use email on a regular basis. However, we hope that as many people as possible will opt into using email notices as it is much more efficient and speedy this way. So far around 270 graduates and staff have opted in. We look forward to the numbers increasing.

Anyone who wishes to receive Library notices by email should email [libr10@york.ac.uk](mailto:libr10@york.ac.uk), giving Name, Library barcode, full email address and status (student or staff), or should ask at the Library Issue Desk.

We do recommend that users continue to check the option Your Library Record on the Library Catalogue to make sure that no notices have been missed. Your Library Record lists books on loan to you, books recalled from you, books to be collected from the Library, outstanding fines and any special messages.

If there are problems with email addresses or bounced messages we will send out notification by post and highlight the problem. Final overdue and recall notices are also sent by post.

We hope that the production of email notices will continue to run smoothly and that most students and staff will opt in so that it becomes a permanent service.

*Editor's note: Jane Henley is the head of the Issue Desk at the JB Morrell Library.*



## Information Committee decisions

*Ray Drainville* notifies you of important information

The Information Committee has requested that the following two decisions be publicised. They are from meetings held on 16 February and 6 March 1998.

### 98.13 Student access to computers

The Committee considered a letter relating to student access to word-processing facilities, together with responses from relevant parties. The Committee decided:

a.) that tutors should be "strongly encouraged" to make free machines available at the start of teaching sessions, but should have the right not to permit students to enter the room once a class had commenced;

b.) that the situation should be reviewed in a year's time.

### 98.14 Windows 3.1

The Committee noted that there was some evidence that Windows 3.1 would not be Millennium-compliant, and that, due to shortage of licences, the Service was now informing departments that it would no longer install Windows 3.1 except in an emergency. Members emphasised that the Service must continue to support 3.1 connections until the Committee decided otherwise, and take steps to correct internal publicity which had suggested that support was to be withdrawn.

# Embarrassment of riches

Doug Moncur steers you through a wealth of Windows options



## 95, 98, NT or what?

Sometimes upgrading seems like one big trauma - should you upgrade to Windows 95, Windows 98, or NT? What about Linux? Thin clients? And Apple are making a comeback. What should you do? And is what you should do this week the same as last week?

It's a nightmare. However we do have a policy and we do have a plan for operating system upgrades.

In the short term, go to Windows 95. Almost all the software that ran with Windows 3.1 works with Windows 95, and in some cases it runs better than it did with 3.1.

Windows 98 is not much more than Windows 95 with a different front end and some updates and additions. The Computing Service has no plans to deploy Windows 98, and will not be supporting it.

NT is a different matter. NT is being positioned as the commercial desktop operating system of choice by Microsoft. As newer software comes along it will in-

creasingly run on NT and only NT. Security and management is also better in NT than in Windows 95.

For this reason the Computing Service intends to offer an NT desktop service from summer 1999, with development starting later this summer.

There is a downside to moving to NT —it requires a more powerful machine than previously.

For that reason all new PC's

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Windows 98 offers little more than a different front end, some updates and additions.

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specified by the Computing Service will be capable of running NT, although 32Mb machines will require a memory upgrade.

The University does however have rather a lot of old PC's which won't make the grade. One option would be to run them as combined internet access device and thin client, essentially

by putting a web browser, some email software and some thin client software on the machine. Exactly what will come out of thin client technology and how much use we will make of it is unclear but we plan to investigate it fully this summer.

## Linux

A fine operating system. But unfortunately one for which we don't have sufficient staff effort available to investigate and develop a service on. Given that we will continue to provide a time-sharing command-line UNIX environment and a limited number of UNIX workstations, while continuing to also provide a 95/NT environment built around standard software packages I feel we've covered most of the possible requirements for most people. Of course, staff remain free to install their own Linux machines providing they realise that there is no support available if problems arise.

## Macintosh

I must admit I have a soft spot for Apple and their machines despite everything. However we don't have any effort available to provide Macintosh support so I'm afraid they'll have to remain unsupported.

## So where does that leave us?

Well this year, it is still 95 as the preferred operating system. Next year we may well be into the early stages of a move to NT. There are no moves this year to support Linux, or to restart Macintosh support. There may also be a thin client based service, but I would suspect that there wouldn't be anything available until first quarter 1999 at the earliest.

*kn*

Windows 95?

## Satellite imagery

**Peter Halls explores some very impressive images**

We are pleased to announce that the University has become a member of the CHEST Satellite Imagery group, as of April 1st. This has been made possible through financial support from the Departments of Archaeology, Biology, and Environment.

The current CHEST agreement makes available to us full coverage of the British Isles for LANDSAT Thematic Mapper (TM) and SPOT Panchromatic imagery. Whilst the LANDSAT imagery offers complete cover, that from SPOT is slightly less than complete.

The data included represents the 'best available' imagery; due to the nature of cloud cover over the British Isles, and the nature of the satellite orbits, the data represent a variety of dates. For the LANDSAT imagery especially, this often results in a short time-series of data for those areas overlapped by satellite paths; one such area are the North Yorkshire Moors (2 images) and parts of the Vale of York (3 images, 1990–2). The LANDSAT images date between May 1988 and June 1992—all being between April and early September. The SPOT imagery covers a wider range of dates, from 1986 to 1996, and range across all months of the year. Some SPOT scenes illustrate snow cover to varying degrees.

Both LANDSAT and SPOT satellites collect visible light reflected back from earth. Both are susceptible to atmospheric attenuation and, particularly, to cloud cover.

The LANDSAT satellite collects reflectance intensity over 7 spectral ranges—visible blue, green and red light, and also 4 ranges of infra-red. Although the blue range is frequently attenuated by the atmosphere, the other ranges are normally equally usable. The

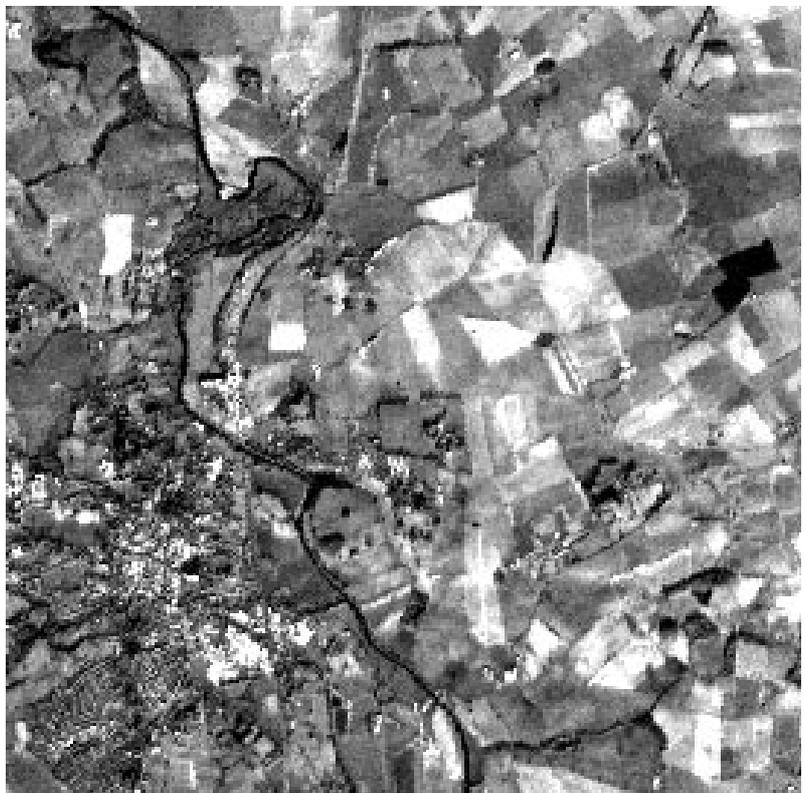
provision of the infra-red collectors makes LANDSAT TM imagery suitable for detecting differing vegetation species and condition, at least for reasonably homogeneous stands of a few tens of metres in each extent, and also water and bare rock cover, soil moisture characteristics, and, to some extent, sediment content in river estuaries. The *quality* of the image for any of these purposes is dependent upon time and season, cloud cover and other atmospheric conditions, etc. The ground resolution of LANDSAT imagery is approximately 30m square: this means that smaller features are only recorded where their spectral reflectance is in significant contrast to their surrounds. In practice, LANDSAT imagery will usually record roads, railways, and other narrow linear features because of their contrast over length. Field

boundaries, buildings, etc., may normally be infra-red...but LANDSAT imagery is not a suitable data source for attempting to *map* these as boundaries. The effective *scale* of the LANDSAT imagery is between 1 : 60000 and 1 : 75000.

The SPOT Panchromatic imagery, however, has a ground resolution of around 10m, but only records reflected visible light in a single wide band; it is analogous to black and white (Panchromatic) photograph. The effective *scale*, of around 1 : 25000 to 1 : 30000, makes SPOT Panchromatic imagery a good source for medium scale topographic mapping.

The results of combining LANDSAT and SPOT imagery have been, and continue to be, of great value in generating 'map-

(continued)



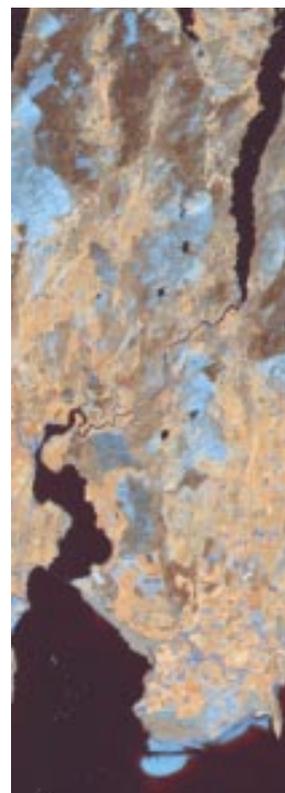
Ripon seen from the air.

(continued from previous page)

ping' of land cover, and also land use, for underpinning other spatial analysis. The license for the data requires that the source be acknowledged when reproduced and with derived data, but that the ownership of the derived data belongs to the person deriving that information. [This assumes that Ordnance Survey mapping has not been used to register / rectify the images ... where OS information is used the situation is significantly different.]

For York, we are providing the imagery in Arc/Info 'grid' format registered spatially, using the satellite positional ephemeris, to the Great Britain National Grid. Potential users should be aware that most scenes will require some measure of image processing to make them fit for any specific research purpose. The images are made available on the datasets area, under the landsat or spot directories. Images are named according to the path and row numbers of collection. Since such images occupy a great deal of disk space, we intend only installing those images that are actively required to support research activity at York: at present images for York and the North of England and South West London are available, others to be installed soon include parts of South West England and South East Scotland. Provided that the necessary disk space is available at York, it should normally take less than a working week to add any, additional image requested for research purposes. Any such requests should be made via the Information Desk.

We propose to arrange an interactive seminar shortly to demonstrate the imagery currently available and to enable potential users to explore the possibilities and limitations of such a data source.



*The Lake District: in normal colour (left) and in infrared (right).*

## The illustrations

The colour illustration above compares two aspects of the LANDSAT imagery: on the left is an image using data from the visible light bands of blue, green and red to control the blue, green and red pigmentation respectively—it is directly analogous to a colour photograph. The image on the right is drawn from the infra-red bands, with blue colouring the near infra-red, and green and red progressively through the mid infra-red. Since water absorbs all infra-red light, none is therefore reflected, areas of water are portrayed as black in the right hand image. This demonstrates an apparent anomaly: there appears to be water in the right hand image, but not in the left! This is because Estwaite Water, the lake in the area in question, is shallow with a high algal content—it shows 'green', like vegetation, in visible light but the infra-red is undecieved! To the bottom of the image are the estuaries of Morecambe Bay; in the visible light image, left, there is evidence of sediment in suspension in the water, which cannot be discerned from the infra-red data.

The Panchromatic image is of Ripon, the river Ure, and the area to the North East—the image is 6km square. In this case the raw data have been filtered, to remove the effects of shadows from patchy clouds, and edges have been enhanced to produce what is effectively a greyscale map derived from SPOT imagery.

*Editor's note: Peter Halls also created a very detailed map of the Lake District for the cover of this issue of Keynotes. Unfortunately, due to technical problems, this image could not be produced.*

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The Information Desk is open from 9am to 5.15pm Monday to Friday (*closed for training Wednesdays 2pm-3pm*), for problem solving, advice and information, fault reporting, network connections, file conversion, sales, course bookings, registration and documentation. Printed output can be collected from the lobby entrance which is open from 8am to midnight.

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