Archive-name: space/data

Last-modified: $Date: 93/04/01 14:39:07 $

A wide variety of images, data, catalogs, information releases, and other material dealing with space and astronomy may be found on the net.

A few sites offer direct dialup access or remote login access, while the remainder support some form of file transfer. Many sites are listed as providing 'anonymous FTP'. This refers to the File Transfer Protocol on the Internet. Sites not connected to the Internet cannot use FTP directly, but there are a few automated FTP servers which operates via email. Send mail containing only the word HELP to ftpmail@decwrl.dec.com or bitftp@pucc.princeton.edu, and the servers will send you instructions on how to make requests.

The sources with the broadest selection of material are the NASA Ames SPACE archive and the National Space Science Data Center.

Don't even ask for images to be posted to the net. The data volume is huge and nobody wants to spend the time on it.

The possible combinations of image formats and machines is forebodingly large, and I won't attempt to cover common formats (GIF, etc.) here. To read PDS and VICAR (and many other) formats on Unix systems running X, use XV 2.11, available by anonymous FTP from export.lcs.mit.edu (18.24.0.12) in contrib/xv-2.11.tar.Z and the other standard X11 FTP sites.

The FAQ for the Usenet group alt.binaries.pictures discusses image formats and how to get image viewing software. A copy of this document is available by anonymous FTP from the Usenet FAQ archives at pit-manager.mit.edu (18.72.1.58), in directory

pub/usenet/alt.binaries.pictures.

Extensive archives are maintained at NASA Ames and are available via anonymous FTP or an email server. These archives include many images and a wide variety of documents including this FAQ list, NASA press releases, shuttle launch advisories, and mission status reports. Please note that these are NOT maintained on an official basis.

FTP users should connect to ames.arc.nasa.gov (128.102.18.3) and look in pub/SPACE. pub/SPACE/Index contains a listing of files available in the archive (the index is about 200K by itself).

To access the archives by email, send a letter to archive-server@ames.arc.nasa.gov (or ames!archive-server). In the subject of your letter (or in the body), use commands like:

send SPACE Index

send SPACE SHUTTLE/ss01.23.91.

The capitalization of the subdirectory names is important. All are in caps. Only text files are handled by the email server at present; use one of the FTP email servers described in the introduction to this section for images or programs.

The Magellan Venus and Voyager Jupiter, Saturn, and Uranus CD-ROM image disks have been put online in the CDROM and CDROM2 directories. The disks will be rotated on a weekly basis. Thousands of images are available in these collections.

The GIF directory contains images in GIF format. The VICAR directory contains Magellan images in VICAR format (these are also available in the GIF directory). A PC program capable of displaying these files is found in the IMDISP directory (see the item "VIEWING IMAGES" below).

The NASA media guide describes the various NASA centers and how to contact their public affairs officers; this may be useful when pursuing specific information. It's in MISC/media.guide.

Any problems with the archive server should be reported to Peter Yee (yee@ames.arc.nasa.gov).

The ADS is a distributed data retrieval system which is easy to use and provides uniform access to ground-based and space-based astronomy data from NASA data centers across the country. It currently has over 140 data catalogs of radio, infrared, optical, UV, and X-ray data which can be queried by position or any other parameter in the catalog. The ADS also provides tools to manipulate and plot tabular results. In addition, ADS has a Beta version of an Abstracts Service which allows users to query over 125,000 abstracts of astronomy papers since 1975 by authors, keywords, title words, or abstract text words.

ADS use requires direct Internet access. For more info and to sign up to become a user, email ads@cuads.coloradu.edu. The User's Guide and "QuickStart" Guide are available by anonymous FTP to sao-ftp.harvard.edu in directory pub/ads/ADS_User_Guide (PostScript files).

Contact Carolyn Stern Grant (stern@cfa.harvard.edu).

pubinfo.jpl.nasa.gov (128.149.6.2) is an anonymous FTP site operated by the JPL Public Information Office, containing news releases, status reports, fact sheets, images, and other data on JPL missions. It may also be reached by modem at (818)-354-1333 (no parity, 8 data bits, 1 stop bit).

Contact newsdesk@jplpost.jpl.nasa.gov or phone (818)-354-7170.

techreports.larc.nasa.gov is an anonymous FTP site offering technical

reports. To get started, cd to directory pub/techreports/larc/92 and retrieve files README and abstracts.92. Most files are compressed PostScript. The reports are also in a WAIS database with the following description:

(:source
:version 3
:ip-name "techreports.larc.nasa.gov"
:tcp-port 210
:database-name "nasa-larc-abs"
:cost 0.00
:cost-unit :free
:maintainer "M.L.Nelson@LaRC.NASA.GOV"
:description "NASA Langley Research Center Technical Reports
Contact tr-admin@techreports.larc.nasa.gov.

SpaceLink is an online service located at Marshall Space Flight Center in Huntsville, Alabama. The system is specifically designed for teachers. The data base is arranged to provide easy access to current and historical information on NASA aeronautics, space research, and technology transfer information. Also included are suggested classroom activities that incorporate information on NASA projects to teach a number of scientific principles. Unlike bulletin board systems, NASA Spacelink does not provide for interaction between callers. However it does allow teachers and other callers to leave questions and comments for NASA which may be answered by regular mail. Messages are answered electronically, even to acknowledge requests which will be fulfilled by mail. Messages are generally handled the next working day except during

missions when turnaround times increase. The mail system is closed-loop between the user and NASA.

SpaceLink also offers downloadable shareware and public domain programs useful for science educators as well as space graphics and GIF images from NASA's planetary probes and the Hubble Telescope.

You can dial in at (205)-895-0028 (300/1200/2400/9600(V.32) baud, 8 bits, no parity, 1 stop bit), or telnet to spacelink.msfc.nasa.gov (128.158.13.250, also known as xsl.msfc.nasa.gov) if you're on the Internet. Anonymous FTP capability (password guest) is now available. Most of this information is also available from the Ames server in directory SPACELINK.

The National Space Science Data Center is the official clearinghouse for NASA data. The data catalog (*not* the data itself) is available online. Internet users can telnet to nssdca.gsfc.nasa.gov (128.183.36.23) and log in as 'NODIS' (no password). You can also get the catalog by sending email to 'request@nssdc.gsfc.nasa.gov'.

You can also dial in at (301)-286-9000 (300, 1200, or 2400 baud, 8 bits, no parity, one stop). At the "Enter Number:" prompt, enter MD and carriage return. When the system responds "Call Complete," enter a few more carriage returns to get the "Username:" and log in as 'NODIS' (no password).

The system is menu-driven; topics available as of 3/93 are:

1 -Master Directory - NASA & Global Change

2 -Personnel Information Management System

3 -Nimbus-7 GRID TOMS Data

4 -Interplanetary Medium Data (OMNI)

5 -Request data and/or information from NSSDC

6 -Geophysical Models

7 -CANOPUS Newsletter

8 -International Ultraviolet Explorer Data Request

9 -CZCS Browse and Order Utility

10 -Astronomical Data Center (ADC)

11 -STEP Bulletin Board Service

12 -Standards and Technology Information System

13 -Planetary Science & Magellan Project Information

14 -Other Online Data Services at NSSDC

15 -CD-ROMS Available at NSSDC

For users with Internet access, datasets are made available via anonymous FTP once you select the desired datasets from the online catalog. For other users, data may be ordered on CD-ROM and in other formats. Among the many types of data available are Voyager, Magellan, and other planetary images, Earth observation data, and star catalogs. Viewers for Macintosh and IBM systems are also available. As an example of the cost, an 8 CD set of Voyager images is $75. Data may ordered online, by email, or by physical mail. The postal address is:

National Space Science Data Center

Request Coordination Office

Goddard Space Flight Center

Code 633

Greenbelt, MD 20771

Telephone: (301) 286-6695

Email address: request@nssdca.gsfc.nasa.gov

stsci.edu (130.167.1.2) has a large amount of information about the Hubble Space Telescope available by anonymous FTP, such as status reports and newsletters, in addition to material oriented towards HST observers and proposers. Get the top level README file to begin with. Contact Pete Reppert (reppert@stsci.edu) or Chris O'Dea (odea@stsci.edu).

The Space Telescope European Coordination Facility, at ESO/Garching provides on-line access to a huge astronomical database, featuring

- Observation log files of several satellites/telescopes
- Spectra and images (IUE, HST).
- Most of the astronomical catalogues (SAO, HR, NGC, PPM, IRAS, Veron, GSC and many others, more than 50) in a very convenient way (give center+radius+kind of objects, and you get the corresponding files!).

Log on as ``starcat'' (no password) on node stesis.hq.eso.org (134.171.8.100) or on STESIS (DECnet). The files created can be retreived by FTP. Contact: Benoit Pirenne, bpirenne@eso.org (phone +49 89 320 06 433) at ST-ECF

The full SAO stellar database is *NOT* available online, probably due to the 40 MB size. It may be ordered on magnetic tape from the NSSDC. A subset containing position and magnitude only is available by FTP (see "Astronomy Programs" below).

nic.funet.fi (128.214.6.100) has a large collection of astronomical programs for many types of computers, databases of stars and deep sky objects, and general astronomy information in directory /pub/astro. This site is mainly for European users, but overseas connections are

possible.

The Ames archives contain a database of 8,436 galaxies including name, RA, declination, magnitude, and radial velocity in MISC/galaxy.dat. Supplied by Wayne Hayes (wayne@csri.utoronto.ca).

iris1.ucis.dal.ca (129.173.18.107) has a number of GIFs from Voyager, Hubble, and other sources available by anonymous FTP in pub/gif (most of this data is also in SPACE/GIF on the Ames server). Please restrict access to 5pm - 8am Atlantic time.

pomona.claremont.edu has the Yale Bright Star catalog for anonymous FTP in directory [.YALE_BSC]. Contact James Dishaw (jdishaw@hmcvax.claremont.edu).

The Hubble Guide Star catalog is available on CD-ROM for the Mac and PC for $49.95 US (catalog # ST101).

Astronomical Society of the Pacific
390 Ashton Ave.
San Francisco, CA 94112
Phone: (415) 337-2624 9 AM - 3 PM Pacific Time

For German (and possibly other European) readers, Jost Jahn has a service to distribute astronomical data to interested amateurs at cost. About 30-40 catalogs are available for DM 6..8/disk. Several floppy disk formats are available. Because of the expense of receiving email on his system, he asks that you contact him by physical mail:

Jost Jahn
Neustaedter Strasse 11
W-3123 Bodenteich
Phone: FRG-5824-3197

Various astronomy-related programs and databases posted to the net in the past are archived for anonymous FTP at multiple sites, including ftp.uu.net (137.39.1.9). Also see the ASTRO-FTP list posted to sci.astro monthly, which is more complete than this list.

Astonomical/Space-related sources of interest in comp.sources.unix:

Volume 8: phoonmoon phase and date routines

Volume 12,13: starchartstarchart program & Yale Star data

Volume 15: moontoolshows moon phase picture on Suns

Volume 16: saoreduced SAO catalog

Astonomical/Space-related sources of interest in comp.sources.misc:

Volume 8: moonanother moon phase program

Volume 11: starchartstarchart program, version 3.2

Volume 11: n3emo-orbit orbit: track earth satellites

Volume 12: starchart2starchart program, update to version 3.2.1

Volume 13: jupmoonsplotter for Jupiter's major moons [in perl]

Volume 13: lunisolarlunisolar (not sure what this does)

Volume 14: ephem-4.21astronomical ephemeris, v4.21

Volume 14: n3emo-orbit patch to orbit 3.7

Volume 18: planetplanet generation simulator

Elwood Downey (e_downey@tasha.cca.cr.rockwell.com), the author of "ephem", has offered to mail copies to people who can't find it on one of the archives.

XSAT, an X Window System based satellite tracking program, is available by anonymous FTP from export.lcs.mit.edu (18.24.0.12) in contrib/xsat1.0.tar.Z. Contact Dave Curry (davy@ecn.purdue.edu) for more information.

Xsky, a computerized sky atlas for the X Window System, is available for anonymous FTP on arizona.edu in the directory [.SOFTWARE.UNIX.XSKY] as xsky.tarz. Contact Terry R. Friedrichsen (terry@venus.sunquest.com) for more information.

The "Variable Stars Analysis Software Archive" is available via anonymous FTP from kauri.vuw.ac.nz (130.195.11.3) in directory pub/astrophys. This is intended for specialists in this field, and they would appreciate people from outside New Zealand confining their FTP access to the astrophys directory, as they pay a significant amount for Internet access. Contents are relatively sparse at present due to the youth of the archive - contributions are encouraged. Contact the archive administrator, Timothy Banks (bankst@kauri.vuw.ac.nz) for more information.

The "IDL Astronomy Users Library" is available by anonymous FTP from idlastro.gsfc.nasa.gov (128.183.57.82). This is a central repository for general purpose astronomy procedures written in IDL, a commercial image processing, plotting, and programming language. Contact Wayne Landsman (landsman@stars.gsfc.nasa.gov) for more information.

The most recent orbital elements from the NASA Prediction Bulletins are carried on the Celestial BBS, (513)-427-0674. Documentation and tracking software are also available on this system. The Celestial BBS may be accessed 24 hours/day at 300, 1200, or 2400 baud using 8 data bits, 1 stop bit, no parity.

Orbital element sets are available via anonymous FTP from the following sites:

archive.afit.af.mil (129.92.1.66) NASA,TVRO,Shuttle

directory: /pub/space

ftp.funet.fi (128.214.6.100) NASA,TVRO,Molczan,CelBBS,

directory: /pub/astro/pc/satel Shuttle (*)

kilroy.jpl.nasa.gov (128.149.1.165) NASA,Molczan

directory: /pub/space/

Copies of back issues of Space Digest are archived on

LISTSERV@UGA.BITNET. Send mail containing the message "INDEX SPACE" to

get an index of files; send it the message "GET filename filetype" to

get a particular file.

You can get black-and-white 1:1M prints, negatives, or positives for

$10, $18, $12 respectively for any Landsat data more than 2 years old

from EDC, (Eros (Earth Resources Orbiting Satellite) Data Center). Call

them at (605)-594-6511. You get 80 meter resolution from the MSS

scanner, 135x180 kilometers on a picture 135x180 mm in size. I think you

have to select one band from (green, red, near IR, second near IR), but

I'm not sure. Digitial data is also available at higher prices.

Transparencies of all NASA photos available to the public can be

borrowed from the NASA photo archive; you can have copies or prints

made.

NASA Audio-Visual Facility

918 North Rengstorff Ave

Mountain View, CA 94043

The USGS address for maps of the planets is:

U.S. Geological Survey,

Distribution Branch,

Box 25286, Federal Center, Bldg. 41

Denver, CO 80225

Maps cost $2.40 to $3.10 per sheet (a few come in sets of 2 or 3 sheets).

The best global maps of Mars based on Viking images are 1:15,000,000 scale in 3 sheets. These maps are:

I-1535 (2 sheets only) - relief, albedo, names

I-1618 (3 sheets) - relief, names

I-2030 (3 sheets) - relief, topographic contours

I-1802-A,B,C (3 sheets) - geology

There are many other maps as well: 30 sheets at 1:5,000,000 scale in relief, albedo, geology, photomosaic forms (not all 30 sheets available in all formats); 140 sheets at 1:2,000,000 scale as photomosaics of the whole planet, about 100 sheets of interesting sites at 1:500,000 scale in photomosaic format, and lots of special sheets.

Then there are maps of Mercury, Venus, the Moon, the four Galilean Satellites, six moons of Saturn and five of Uranus. [Phil Stooke (stooke@vaxr.sscl.uwo.ca), the author of this item, has offered to respond to email requests for information on any topic relating to lunar and planetary maps.]

The Central Bureau for Astronomical Telegrams and the Minor Planet Center announce the sixth edition of the Catalogue of Cometary Orbits in IAU Circular 4935. The catalogue contains 1292 entries which represent all known comets through November 1989 and is 96 pages long. Non-subscribers to the Circulars may purchase the catalogue for $15.00 while the cost to subscribers is $7.50. The basic catalogue in ASCII along with a program to extract specific orbits and calculate ephemerides is available on MS-DOS 5.25-inch 2S2D diskette at a cost of

$75.00 (the program requires an 8087 math coprocessor). The catalogue alone is also available by e-mail for $37.50 or on magnetic tape for

Except for the printed version of the catalogue, the various magnetic media or e-mail forms of the catalogue do not specifically meantion non-subscribers. It is possible that these forms of the catalogue may not be available to non-subscribers or that their prices may be more expensive than those given. Mail requests for specific information and orders to:

Central Bureau for Astronomical Telegrams

Smithsonian Astrophysical Observatory

Cambridge, MA 02138, USA

NEXT: FAQ #4/15 - Performing calculations and interpreting data formats