Abbreviations, Acronyms, and Glossary

AACB	— Aeronautics and Astronautics Coordinating Board
AIAA	— American Institute of Aeronautics and Astronautics
AID	— Agency for International Development
APPLE	— Ariane Passenger Payload Experiment
A-sat	— antisatellite
ASTP	— Apollo-Soyuz Test Project
ATS	— Applications Technology Satellite
BLM	— Bureau of Land Management (DOI)
6SS	— broadcasting-satellite services
CCAD	— Crop Condition Assessment Division
CCD	— charge coupled device
CCIR	— International Radio Consultative Committee of the International Telecommunication Union
CC ITT	— International Telegraph and Telephone Consultative Committee of the International Telecommunication Union
CCT	— computer-compatible tape Magnetic tape containing digital data in appropriate format.
CEPT	— Conference Europeene de Postes et Telecommunications
CFE	— continuous flow electrophoresis
CIFASA	— French German Consortium
CLT	— Campagnie Luxembourgeosie de Telediffusion
CNES	— Centre National D'Etudes Spatiales, National Center for Space Research–French equivalent of NASA
COMSAT	— Communications Satellite Corporation
COPUOS	— Committee on the Peaceful Uses of Outer Space (United Nations)
CTA	— Centro Tecnico Aerospecial (Brazil)
CTS	— Communications Technology Satellite
DBS	— Direct Broadcast Satellite
dBw	— a measure of power, decibels referenced to 1 watt
DDR&E	— Director of Defense Research and Engineering
DNS	— The Department of Defense Navigation Satellite System
DOC	— Department of Commerce
DOD	— Department of Defense
DOE	— Department of Energy
DOI	— Department of Interior
DOMSAT	— Domestic Communications Satellites
DSCS	— Defense Satellite Communication System
EBU	— European Broadcasting Union
ECS	— European Communication Satellites (ESA)
EIRP	— effective isotropically radiated power (measured in watts)
ELDO	— European Space Vehicle Launcher Development Organization
ELV	— expendable launch vehicle
EROS	— Earth Resources Observation Systems
ERS	— European Remote-Sensing Satellite
ESA	— European Space Agency
ESRO	— European Space Research Organization
FAS	— Foreign Agricultural Service (of the DOA)
FCC	— Federal Communications Commission
FLTSATCOM	– Fleet Satellite Communication System (Navy)
FM	— frequency modulation
FSS	— fixed satellite service
GARP	— Global Atmospheric Research Program (of the World Meteorological Organization)
GEO	— geostationary orbit
GHz	— gigahertz **(91 billion cycles per second)**
GMS	— **Geostationary Meteorological Satellite (Japan)**
GNP	— **gross national product**
GPS	— **global positioning satellite (sometimes NAVSTAR/GPS-DOD)**
HDDT	— **high-density digital tape**
HDT-A	— **high-density digital tapes of either MSS or RBV data that have been radiometrically but not geometrically corrected.**
HF	— **high frequency**
HLLV	— **heavy-lift launch vehicle**
Hz	— **hertz; a unit of frequency equal to one cycle per second**
IAF	— **International Astronautical Federation**
ICBM	— **intercontinental ballistic missile**
Ics	— **Interdepartmental Committee on Space (Canada)**

IEEE — Institute of Electrical and Electronics Engineers
IFOV — instantaneous field of view
IFRB — International Frequency Registration Board
IGI · Industrial Guest Investigator
INMARSAT — International Maritime Satellite Organization
INTELSAT — International Telecommunication Satellite Organization, with 106 member-nations that own and operate the satellites in the Global Communication Satellite System
IRAC — Interdepartment Radio Advisory Committee
IRS — Indian Remote-Sensing Satellite Proposed by Indian Space Research Organization
ISAS — Institute for Space and Aeronautical Sciences Japanese (established in 1954 at the University of Tokyo)
ISPM — International Solar Polar Mission
ISRO — Indian Space Research Organization
ITU — International Telecommunication Union
JEA — Joint Endeavor Agreement
kHz — kilohertz (1 ,000 cycles per second)
KSC — Kennedy Space Center
LACIE — Large Area Crop Inventory Experiment
Landsat — Land remote-sensing satellites (formerly ERTS; Earth Resources Technology Satellites) of the series currently operated by NASA
Landsat D — The next generation of NASA's land remote-sensing satellites Follow-on spacecraft of this series will be sequentially designated Landsat D', Landsat D", etc.
LASS — The Land Applications Satellite System under consideration by ESA for a 1987/88 launch
LCP — Large Communications Platform
LEO — low-Earth orbit (up to approximately 500 km)
LOS — Land Observations Satellites being considered by Japan for 1987 launch
MHz — megahertz (1 O[b] cycles per second)
MLA — multi-linear array—solid state technology for remote-sensing
MOS — Maritime Observation Satellite (Japan)
MOU — Memorandum of Understanding
MPS — materials processing space
MPTS — microwave power transmission system
MSS — multispectral scanner
MW — megawatt (1 O[6] watts)
NACA — National Advisory Committee for Aeronautics
NAS — National Academy of Sciences
NASA — National Aeronautics and Space Administration
NASDA — National Space Development Agency (Japan)
NATO — North Atlantic Treaty Organization
NESS — National Environmental Satellite Service
NOAA — National Oceanic and Atmospheric Administration
NOSS — National Oceanic Satellite System
NSF — National Science Foundation
NTIA — National Telecommunications and Information Agency (DOC)
OMB — Office of Management and Budget
OTA — Office of Technology Assessment
OTRAG — Orbital Transport and Raketen Aktiengesellschaft (German private firm)
OTS — Orbital Test Satellite (European)
PRC — People's Republic of China
PRC (Space) — Policy Review Committee on Space established by Presidential directive in May 1978, to provide a forum for discussion cf proposed changes to national space policy and for rapid referral of issues to the President for decision
PTT — Postal Telephone & Telegraph Agencies
RARC — Regional Administrative Radio Conference
RBV — return beam vidicon
R&D — research and development
SIc — Space Industrialization Corporation

SITE — Satellite Instructional Television Experiment (India)
SLAR — side looking airborne radar
Solaris — proposed French free-flying, automated, industrial processing station
SPS — solar power satellite
SSTO — single stage to orbit space vehicle
STEP · Symphonic Telecommunications Experimental Project (India)
STS — space transportation system
TDRSS — Tracking. and Data Relay Satellite System
TEA — Technical Exchange Agreement
TM — thematic mapper
USDA — U.S. Department of Agricukure
USGS — U.S. Geological Survey (DOI)
VHF — very high frequency
WARC – World Administrative Radio Conference (conducted by ITU)
WARC-77 – A specialized World Administrative Radio Conference that met in Geneva in the winter of 1977 to plan for the broad-casting-satellite service in the band 11.7 to 12.5 GHz
WARC-79 – A General World Administrative Radio Conference that met in Geneva in the Fall of 1979 to revise the international radio regulations of ITU.
WBTR – wide-band tape recorder
WMO – World Meteorological Organization (U. N. Agency)

A priori planning of radiofrequencies-procedure by which frequencies and orbital locations are allotted to individual countries according to a plan negotiated by member nations and implemented by ITU.

Access fee–the charge paid by operators of ground stations for the right to receive the data transmitted from land remote-sensing satellites.

AgRISTARS–Agriculture and Resources Inventory Surveys Through Aerospace Remote Sensing. Large, cooperative, multiyear development program of the Departments of Agriculture, Interior, Commerce, NASA, and AID. Will develop, test, and evaluate ways to use remotely sensed data to produce early warnings of crop stress, crop assessments and forecasts, small-area land cover and water evaluation, and renewable and nonrenewable resource inventories.

Allocation (of frequency band) –entry in the table of frequency allocations of a given frequency band for the purpose of its use by one or more terrestrial or space radiocommunication services or the radio astronomy service under specified conditions. This term shall also be applied to the frequency band concerned.

Assigned frequency–the center of the frequency band assigned to a station.

Assigned frequency band–the frequency band within which the emission of a station is authorized; the width of the band equals the necessary bandwidth plus twice the absolute value of the frequency tolerance. Where space stations are concerned, the assigned frequency band includes twice the maximum Doppler shift that may occur in relation to any point of the Earth's surface.

Band–in radio, frequencies that are within two definite limits and are allocated for a definite purpose or service, e.g., the standard AM broadcast band.

Broadcasting-satellite service-a radio-communication service in which signals transmitted or retransmitted by space stations are intended for direct reception by the general public.

Broadcasting sewice-a radio-communication service in which the transmissions are intended for direct reception by the general public. This service may include sound transmission, television transmissions, or other types of transmission.

Containerless processing–a technique by which materials may be processed without a supporting container; this may be accomplished by using the microgravity environment of space or by employing such methods as ultrasonic levitation on Earth.

Data–in this document, "data" is used to specify the sensor voltage readings that are transmitted in digital **format and received at the ground station. These readings must be interpreted and** converted to other dimensions for most applications purposes.

Decibel–a unit for expressing the ratio of two amounts of electric or acoustics signal power equal to 10 times the common logarithm of this ratio, A ratio of 10 is 10 dB, a ratio of 100 is 20 dB, a ratio of 1,000 is 30 dB, **etc.**

Digital transmission—a technique that transmits the signal in the form of one of a discrete number of codes. The information content of the signal is concerned with discrete states of the signal, such as the presence or absence of a voltage, a contact in the open or closed position, or a hole or no hole in certain positions on a card.

Direct readout–the capability that allows ground stations to collect and interpret the data messages that are transmitted from satellites.

EROS Data Center—a facility that collects, processes, archives, and distributes data obtained from satellite, aircraft, and other systems, operated by the U.S. Geological Survey of the Department of interior, at Sioux Falls, S. Dak.

Earth exploration-satellite service-a radio-communication service between Earth stations and one or more space stations, which may include links between space stations, in which: 1) information relating to the characteristics of the Earth and its natural phenomena is obtained from active sensors or passive sensors on Earth satellites; 2) similar information is collected from airborne or Earth-based platforms; 3) such information may be distributed to Earth stations within the system concerned; and 4) platform interrogation may be included. This service may also include feeder links necessary for its operation.

Emission–radiation produced, or the production of radiation, by a radio transmitting station.

Fixed-satellite service-a radio-communication service between Earth stations at specified fixed points when one or more satellites are used; in some cases this service includes satellite-to-satellite links, which may also be effected in the intersatellite service; the fixed-satellite service may also include feeder links for other space radio-communication services.

Fixed service-a radio-communication service between specified fixed points.

Frequency—the number of complete oscillations per second of an electromagnetic wave, measured in hertz (Hz). One hertz equals one cycle **per second.**

Frequency allocation table (national)–a table in the FCC **Rules and Regulations allocating bands of fre-**

quencies, in the usable portion of the radio spectrum, to radio-communication services.

Frequency of obsewation-the normal period, usually measured in days, elapsing between two sequential times at which a point on the Earth falls within the field of view of one of the spacecraft of the system.

Geostationary satellite–a geosynchronous satellite whose circular and direct orbit lies in the plane of the Earth's Equator and which thus remains fixed relative to the Earth; by extension, a satellite whose position remains approximately fixed relative to the Earth.

Geostationary satellite orbit–the orbit in which a satellite must be placed to be a geostationary satellite.

Geosynchronous satellite–an Earth satellite whose period of revolution is equal to the period of rotation of the Earth about its axis.

GSFC–Goddard Space Flight Center (NASA)

Harmful interference-interference that endangers the functioning of a radionavigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radio-communication service operating in accordance with these regulations.

Illuminance–irradiance; rate of energy per solid angle measured at a given point.

Infrared (I R)–that part of the spectrum from the red end of visible light to the microwave region; that is, from about 0.7 m to 1 mm.

Instantaneous field of view (I FOV)-the field of view of a scanning instrument with the scan motor stopped.

Interdepartment Radio Advisory Committee (IRAC)—a body of 20 Federal agencies and departments that assists NTIA **in the development of the National Table of Frequency Allocations, the assignment of frequencies to stations operated by the Federal Government, and other spectrum management functions.**

Interference-the effect of unwanted energy due to one or a combination of emissions, radiations, or inductions upon reception in a radio-communication system, manifested by any performance degration, misinterpretation, or loss of information that could be extracted in the absence of such unwanted energy.

International Frequency Registration Board (IFRB)–a permanent organ of ITU with five officials elected by the plenipotentiary conference, examines notifications of frequency assignments from member-nations for conformity with the radio regulations.

International Telecommunication Union (ITU)–the U. N.-related organization with responsibilities in the field of international telecommunications including spectrum management. Present membership is 155 nations.

ITU Convention–the governing instrument of ITU that sets forth the structure and activities of the Union; only the plenipotentiary conference of ITU can amend or revise the Convention; it last met in Malaga-Torremoiinos in 1973, and will meet again in September 1982.

Large Area Crop Inventory Experiment (LACIE)–a demonstration program (1974-1977) that used Landsat and weather data to provide estimates of wheat production.

Kourou–Ariane's South American Launch Site.

Maritime radio-navigation satellite service–a radionavigation satellite service in which Earth stations are located onboard ships.

Micron–unit of length equal to one-millionth (1 O-b) of a meter.

Microwave—a comparatively short electromagnetic wave, especially one between 100 cm and 1 cm in wavelength or, equivalently, between 0.3 and 30 GHz in frequency.

Multispectral scanner (MSS)–an instrument which provides data in four bands of the visible and near-infrared portions of the spectrum. The MSS scans a swath 185 km wide and has an instantaneous field of view (I FOV) of 80 meters.

Orbit–the path, relative to a specified frame of reference, described by the center of mass of a satellite or other object in space subjected primarily to natural forces, mainly the force of gravity.

Outer Space Treaty–the abbreviated name for the multilateral Treaty of Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, which established in 17 articles general principles governing the activities in outer space of State parties to the Treaty in support of the use of outer space for peaceful purposes and for the benefit of all peoples. The United States is a party to the Outer Space Treaty, which entered into **force October 10, 1967.**

Permissible interference-interference at a higher level than that defined as permissible interference, and which has been agreed upon between two or more administrations without prejudice to other administrations.

Polarization–the electric (E) and magnetic (H) fields that comprise a propagating electromagnetic wave may be fixed in relation to Earth's horizon, or they may rotate. By convention, the vector of the E field is related to Earth's horizon: if the two are perpendicular, the wave is said to be vertically polarized;

if parallel, horizontally polarized. When the E and H fields are continuously rotating with respect to the horizon, the wave is said to be elliptically polarized.

Power density—the quantity of electromagnetic energy that flows through a given area per unit of time. Formally, power density is specified in watts per square meter (W/mz), but by tradition in biological effects studies it is usually expressed in milliwats per square centimeter (mW/cm^2).

Power flux density–a measure of the power radiated by a transmitter, used as a constraint on certain services to protect other services in a shared band.

Primary service-a class of allocation. Stations in a primary service may not cause harmful interference to stations in the same, or another primary service, and can claim protection from interference from stations in primary, permitted, and secondary services. Printed in solid capitals in the ITU table of allocations.

Propagation–the transmission of electromagnetic wave energy from one point to another.

Radar–a radio-determination system based on the comparison of reference signals with radio signals reflected, or retransmitted, from the position to be determined.

Regions of ITU–for the allocation of frequencies, the world has been divided into three regions by ITU. Exact boundaries of the regions are given in the radio regulations; a general description follows: region 1–Europe, Africa, the U. S. S. R., Turkey, the Territory of the Mongolian People's Republic, and areas **to the north of the** U. S. S. R.; region 2—North, Central, and South Americas, the Caribbean, and Greenland; and region 3–Asia, Oceania, Australia, and New Zealand.

Return beam vidicon (RBV)-cameras which essentially provide black and white TV images. Each RBV image from Landsat 3 covers an area 90 **km on a side (180** km total swath) and has an equivalent IFOV **of** 40 **m.**

S-Band–a frequency band over which MSS data are transmitted to foreign ground station operators on the reproduction or resale of Landsat standard data products.

Satellite–a body that revolves around another body of preponderant mass and that has a motion primarily and permanently determined by the force of attraction of that other body.

Satellite link–a radio link between a transmitting Earth station and a receiving Earth station through one satellite.

Satellite system–a space system using **one or more artificial** Earth satellites.

Side lobe–refers to power radiated from an antenna in a direction other than the desired direction of transmission.

Space system-any group of cooperating Earth stations and/or space stations employing space-radio communication for specific purposes.

Spectral bands–portions of the electromagnetic spectrum of energy radiated or reflected by the Earth to which spacecraft sensors are sensitive.

SPOT–Satellite Probatoire d'Observation de la Terre. This system is scheduled for launch by France in 1984 and is to contain two 3-channel multispectral/panchromatic multilineal visible spectrum array sensors. Its objectives are to develop satellite renewable and nonrenewable resource observation techniques and to develop a stereo and cartographic data archive.

Standard data products-data in prescribed form that are put through additional computer processes at the satellite ground processing facility. Two classes of standard data products are currently available—film imagery, which is convenient for those accustomed to working with maps and photographs, and computer-compatible tapes. The tape form is suitable for input to standard computers and lends itself to automated or specialized data handling and analysis.

Stereo coverage–refers to the availability of data from which the variation in the height of the surface being viewed can be determined.

Telecommunications-any transmission, emission, or reception of signals, wiring, images, and sounds or intelligences of any nature by wire, radio, optical, or other electromagnetic systems.

Thematic mapper (TM)–an instrument containing seven spectral bands, including three in the infrared region, with an IFOV **of** 30 m for all but the thermal infrared band which has an IFOV of 120 m.

Timeliness—the length of time between the observation itself and the delivery of suitable processed data to users or to the archive.

Tracking and Data Relay Satellite System (TDRSS)–a communications system to be used for the relay of data direct from Landsat to a single U.S. ground station at White Sands, N.M.

Transmission fee–a fee that could be paid by foreign ground station operators for data transmitted and received.

Value-added products-are products derived from standard data as a result of manipulation by computers

and/or interpreted in various ways to provide information about the surface of the Earth.

Wave guide–a device for transmitting and guiding radiofrequency waves.

X-band—a frequency band over which a combination signal of MSS and TM data from Landsat D will be transmitted directly to foreign ground stations.

Zone of exclusion–an area over the Indian subcontinent and south-central U.S.S.R. where direct satellite transmission to the TDRSS is physically impossible.