Acronyms, Abbreviations, and Glossary

AA  Associate Administrator
AAA  Active Acquisition Aid
AAP  Apollo Applications Program
ACS  attitude control system
ACN  Ascension
ACU  antenna control unit
AES  Apollo Extension System
AFSC  Air Force Systems Command
AFSCN  Air Force Satellite Control Network
AGO  Santiago
AIS  Apollo Instrumentation Ship
ALT  Approach and Landing Test
CDR  Critical Design Review
CDSCC  Canberra Deep Space Communication Complex
CSIR  Council for Scientific and Industrial Research
CSIRO  Commonwealth Scientific and Industrial Research Organization
CSM  Command and Service Module
CSOC  Consolidated Space Operations Contract
DAF  Data Acquisition Facility
dB  decibels
DDMS  Department of Defense Manager for Manned Spaceflight
DF  direction finding
DJS  Dzhusaly, Razakhgtan
DLR  Germany’s Deutsches Zentrum für Luft und Raumfahrt
DOD  Department of Defense
DOI  Department of the Interior
DOS  Department of Supply
DRSS  Data Relay Satellite System
DSN  Deep Space Network
DSS  Deep Space Station
EGO  Eccentric Geophysical Observatory
EGR  Eglin Gulf Test Range
ELVIS  Enhanced Launch Vehicle Imaging System
ERS  Earth Resource Satellite
ERTS  Earth Resource Technology Satellite
ESA  European Space Agency
ESD  Air Force Electronic Systems Division
ESMC  Air Force Eastern Space and Missile Center
EUMETSAT  European Organization for the Exploitation of Meteorological Satellites
ETR  Eastern Test Range
EVA  extravehicular activity
EUT  Eupatona, Ukraine
FAA  Federal Aviation Administration
FCC  Federal Communications Commission
FDR  Final Design Review
FM  frequency modulation
FY  fiscal year
Gbps  gigabits per second
GDSCC  Goldstone Deep Space Communication Complex
GHz  gigahertz
GLTN  Goddard Laser Tracking Network
GMT  Greenwich Meridian Time
GN  Ground Network
GOES  Geostationary Observational Environmental Satellite
GRARR  Goddard Range And Range Rate
GRGT  Guam Remote Ground Terminal
GRO  Gamma Ray Observatory
GRTS  GRO Remote Terminal System
GSFC  Goddard Space Flight Center
GWM  Guam
HAW  Hawaii
HDTV  high definition television
HEAO  High Energy Astronomy Observer
HST  Hubble Space Telescope
HTV  H-II Transfer Vehicle
IAGS  Inter-American Geodetic Survey
IBM  International Business Machines
IBEW  International Brotherhood of Electrical Workers
ICBM  intercontinental ballistic missile
IDEA  International Space Station Downlink Enhancement Architecture
IGY  International Geophysical Year
IMP  Interplanetary Monitoring Platform
INEN  Integrated Near-Earth Network
INTA  Spanish National Institute of Aerospace Technology
INTELSAT  International Telecommunications Satellite Consortium
IOAG  Interagency Operations Advisory Group
IPF  Image Processing Facility
ISIS  International Satellite for Ionospheric Studies
ISO  Infrared Space Observatory
ISS  International Space Station
IUE  International Ultraviolet Explorer
IUS  Inertial Upper Stage
JAXA  Japan Aerospace Exploration Agency
JDMTA  Jonathan Dickinson Missile Tracking Annex
JPL  Jet Propulsion Laboratory
JSC  Johnson Space Center
JWST  James Webb Space Telescope
KHz  kilohertz
KLP  Kolpashevo, Russia
Kbps  kilobits per second
KPGO  Kokee Park Geophysical Observatory
KSAT  Kongsberg Satellite Services
KSC  Kennedy Space Center
LAGEOS  Laser Geodynamics Satellite
laser  light amplification by stimulated emission of radiation
LM  Lunar Module
LRC  Langley Research Center
LRO  Lunar Reconnaissance Orbiter
LRV  Lunar Roving Vehicle
M&DO  Mission and Data Operations
MA  Mercury-Atlas
MA  Multiple Access
MAD  Madrid
maser  microwave amplification by stimulated emission of radiation
Mbps  megabits per second
MCC  Mission Control Center
MDSCC  Madrid Deep Space Communication Complex
MESA  Modular Equipment Stowage Assembly
MFS  Manned Flight Support
MGS  McMurdo Ground Station
MHz  megahertz
MILA  Merritt Island Launch Annex
MIT  Massachusetts Institute of Technology
MOBLAS  Mobile Laser Ranging System
MOCR  Mission Operations Control Room
MOTS  Minitrack Optical Tracking System
MRCS  Mobile Range Control System
MSC  Manned Spacecraft Center
MSFN  Manned Space Flight Network
NACA  National Advisory Committee for Aeronautics
NAR  Non-Advocate Review
NAS  National Academy of Science
NASA  National Aeronautics and Space Administration
NASCOM  NASA Communications Network
NASDA  National Space Development Agency of Japan
NC  Network Controller
ND  Networks Directorate
NEN  Near-Earth Network
NFL  Newfoundland
NISN  NASA Integrated Services Network
NOAA  National Oceanic and Atmospheric Administration
NOCC  Network Operations Control Center
NORAD  North American Aerospace Defense Command
NRD  Air Force National Range Division
NRL  Naval Research Laboratory
NSC  Norwegian Space Center
NSF  National Science Foundation
NTSC  National Television System Committee
NTTF  Network Test and Training Facility
OAO  Orbiting Astronomical Observatory
OCC  Operations Control Center
OGO  Orbiting Geophysical Observatory
OMS  Orbital Maneuvering System
ORR  Orroral
OSC  Office of Space Communications
OSO  Office of Space Operations
OSO  Orbiting Solar Observatory
OSTDA  Office of Space Tracking and Data Acquisition
OTDA  Office of Tracking and Data Acquisition
PAL  Phase Alternating Line  
PAM  Pulse Amplitude Modulation  
PCM  Pulse Code Modulation  
PCR  Payload Changeout Room  
PCS  Pacific Command Ship  
PCU  Power Control Unit  
PDL  Ponce de Leon Station  
PDR  Preliminary Design Review  
PER  Pre-Environmental Review  
PLSS  Portable Life Support System  
PMR  Pacific Missile Range  
PMRF  Pacific Missile Range Facility  
POCC  Project Operations Control Center  
POGO  Polar Orbiting Geophysical Observatory  
PPK  Petropavlovsk-Kamchatskaya, Russia  
PSAC  President’s Science Advisory Committee  
QUI  Quito  
RCA  Radio Corporation of America  
RCS  Reaction Control System  
RF  radio frequency  
RFP  Request For Proposal  
ROS  Rosman  
RTG  Radioisotope Thermoelectric Generator  
RTHU  roll to heads-up  
RTLS  Return to Launch Site abort  
SA  Single Access  
SAO  Smithsonian Astrophysical Observatory  
SATAN  Satellite Automatic Tracking Antenna  
SCAMA  Switching, Conferencing And Monitoring Arrangement  
SCAMP  Satellite Command Antenna on Medium Pedestal  
SDK  Ussuriysk, Russia  
SDO  Solar Dynamics Observatory  
SEB  Source Evaluation Board  
SECAM  Sequential Color with Memory  
SECO  sustainer engine cutoff  
SGL  Space to Ground Link  
SGLT  Space to Ground Link Terminal  
SGS  SvalSat Ground Station  
SIRTF  Space Infrared Telescope Facility  
SITE  Satellite Instructional Television Experiment  
SN  Space Network  
SNIP  Space Networks Interoperability Panel  
SOMO  Space Operations Management Office
SRB  Solid Rocket Booster
STADAN  Satellite Tracking And Data Acquisition Network
STADIR  Station Director
STDN  Spaceflight Tracking and Data Network
STG  Space Task Group
STG T  Second TDRSS Ground Terminal
STS  Space Transportation System
STTCS  S-band Tracking, Telemetry & Command System
T&DS  Tracking and Data Systems
TAGIU  Tracking And Ground Instrumentation Unit
TAGS  Text And Graphics System
TAL  Transatlantic Abort Landing
TAN  Tananarive
TAT-1  trans-Atlantic telephone cable
TBL  Tbilisi, Georgia
TCS  Thermal Control System
TDRS  Tracking and Data Relay Satellite
TDRSS  Tracking and Data Relay Satellite System
TDSD  Tracking and Data Systems Directorate
TELOPS  Telemetry Online Processing System
TEI  Trans-Earth Injection
TIROS  Television Infrared Observation Satellite
TLI  Trans-Lunar Injection
TLRS  Transportable Laser Ranging System
TM  telemetry
TTS  Test and Training Satellite
TSSG  Tracking System Study Group
TT&C  Tracking, Telemetry and Command
TWT  traveling wave tube
UHF  ultrahigh frequency
ULD  Ulan-Ude, Russia
US  United States
USAF  United States Air Force
USB  Unified S-Band
USN  Universal Space Network
USNS  United States Navy Ship
USSR  Union of the Soviet Socialist Republic
VERLORT  Very Long Range Tracking
VHF  very high frequency
VLBI  Very Long Baseline Interferometry
WART  White Sands Complex Alternative Resource Terminal
WECO  Western Electric Company
WGTC  Working Group on Tracking and Computation
WRE  Weapons Research Establishment
WSGT  White Sands Ground Terminal
WSMR  White Sands Missile Range

**Glossary**

**acquisition**: The process of first finding, either visually or electronically, a satellite or spacecraft of interest so it can then be tracked.

**antenna feed**: The electronic device at the focal point of an antenna through which electromagnetic wave transmissions are received, amplified, and/or transmitted.

**apogee**: The high point in a trajectory.

**array**: The electronic combining of antennas pointed at the same object so as to increase the received signal strength.

**autotrack**: Automatic tracking of a spacecraft by an antenna (or vise versa) where the position is continuously and automatically computed.

**bandwidth**: The range of frequencies occupied by a radio frequency carrier wave. The more information there is on the carrier (for example, high-definition television), the more bandwidth is required to fully transmit that data. UHF air-to-ground voice, for instance, is a low bandwidth item.

**bit errors**: The fraction of received digital bits that are errors in a transmission. The lower the bit error, the better the quality of the transmission. Bit errors, or more precisely, bit error rate, is usually expressed in exponential notation such as $1 \times 10^{-6}$ (one bit error in a million).

**bit rate**: The rate that digital bits of data are transmitted in a digital stream. The higher the bit rate, the faster the transmission. Bit rates can vary from kilobits per seconds (thousands of bits per second) to gigabits per second (billions of bits per second).

**boresight**: The focal axis of a directional antenna.

**Capcom**: By rule, the designated voice contact between Mission Control and the astronauts. By tradition, the Capcom is always another astronaut. Others may also, on occasion, speak with the astronauts but are never referred to as “Capcom.”
carrier frequency: The selected frequency used to transport radio signals.

collimation tower: A tower, usually located a few kilometers from the main ground station antenna, equipped with a radio frequency emitter used as an aim-point to checkout and calibrate the automatic tracking capability of the antenna.

data rate: The rate of downlink or uplink between a spacecraft and its ground station. Usually measured in bits per second.

demodulate: The removal of the modulation on a carrier frequency using a series of electronic filters so as to isolate the data from its carrier.

digital: A transmitted radio frequency signal or scheme comprised only of ON and OFF pulses (0’s and 1’s).

eccentricity: The amount of oblateness in a spacecraft’s orbit. A perfectly circular orbit has zero eccentricity while a high apogee orbit that swings around, for example, to the back side of the Moon is of high eccentricity.

electromagnetic waves: Electromagnetic (EM) waves or radiation is a self propagating wave in space with electric and magnetic components. Such waves carry energy and momentum. All energetic media such as heat, light and radio transmissions are part of the electromagnetic spectrum.

elevation: The angle above the horizon. An antenna pointed perfectly at the horizon has zero elevation. Ninety-degrees is directly overhead.

equatorial orbit: An orbit which has no inclination or tilt with respect to the Equator. Thus a spacecraft in true equatorial orbit will always revolve over the Equator.

field of view: The amount of sky that can be viewed at any one time. For an optical device, it is what can be seen at any moment with a given aperture. For an electronic device like an antenna, it is also the region where a radio frequency link can be reasonably detected.

Figure of Merit: Commonly referred to as G/T, or “G-over-T”, a ground station’s Figure of Merit is a fundamental quantitative measure of its overall capability to enhance the received signal with respect to noise. The higher the G/T, the more sensitive the ground station is.
g: A measure of the equivalent gravitational acceleration experienced by an object or a person. A person standing at mean sea level experiences 1 g. Apollo astronauts returning from the Moon experienced around 8 g during reentry.

gain: An increase in electromagnetic signal strength due to any of several sources, resulting in the output signal being measurably stronger than the input signal. Types of gain include amplifier gain due to active electronic components such as High Power Amplifiers or Low Noise Amplifiers, and antenna gain due to antenna features such as large dish aperture and parabolic shape.

giode: The mathematical, gravitational model of Earth characterizing its local variations in shape, size, and mass concentrations, used by computers to calculate the orbit and trajectory of a spacecraft.

geosynchronous orbit: A zero-inclination, circular orbit at an altitude of 35,900 kilometers (22,300 miles) above the Equator. In such an orbit, a spacecraft’s rate of revolution round Earth is the same as the rotation rate for a point on the Equator. The craft would thus appear to be hanging stationary over a given location. The term is often used synonymously with ‘geostationary orbit.’

Go/No-Go: A decision point during a mission when Mission Control has to determine whether to proceed or abort.

Ground Network: A network of NASA ground stations organized under the Science Mission Directorate of Headquarters. These consist of stations in Alaska, Antarctica, Florida, Norway, and Virginia. The Ground Network (GN) also includes support from the Network Integration Center located at the Goddard Space Flight Center and the GN scheduling and VHF systems at White Sands, New Mexico.

ground station: A location on the ground comprising of electrical, mechanical, and/or optical subsystems used for communicating with and retrieving data from space assets.

ground track: The path that a spacecraft traces on the ground.

GSTDN: The original ground elements of the remaining Spaceflight Tracking and Data Network (STDN) as the Tracking and Data Relay Satellite System (TDRSS) was being brought operational in the 1980s.

high inclination orbit: An orbit whose plane is highly inclined with respect to the Equator. Such orbits have ground tracks that enable them to pass over or observe a greater amount of Earth’s surface than low inclination orbits.
**high power amplifier:** An electronic device usually located at the base or the back of an antenna which greatly amplifies its transmitting signal strength for establishing command uplink with a spacecraft.

**housekeeping telemetry:** Data from a spacecraft used only for assessing the performance, health, and status of the spacecraft itself. Typical data include voltages, temperatures, propellant tank pressures, etc.

**Lagrange Points:** The Lagrangian points are five positions in the Earth-Moon-Sun interplanetary system where a small object affected only by gravity can theoretically appear stationary relative to two larger objects (such as a satellite with respect to Earth and the Moon). Such an object would appear to be in a “fixed” position (or on a relatively small “Figure 8” orbit) in space rather than in a traditional orbit in which its position changes continuously.

**launch azimuth:** The direction that a rocket is launched in, usually measured in degrees relative to due North. For example, a rocket launched due East from Cape Canaveral has a launch azimuth of 90°.

**“Lights-out” operations:** A trend in ground station operations in which a station operates autonomously in an unattended fashion or with minimal staffing. Lights-out can take many forms such as nine to five workday operations with automated service at all other times. It can also be a centralized, fully staffed operations center continuously monitoring a suite of multiple, unattended remote ground stations.

**line of sight:** The straight line between a transmitting antenna and a receiving antenna. The two can only communicate when a line of sight has been established.

**multipath:** The propagation phenomenon that results when radio signals reach the receiving antenna by two or more paths. Causes of multipath include ionospheric reflection and refraction, and reflection from mountains, buildings, ocean, and the ground. The effects of multipath include constructive and destructive interference, errors, and phase shifting of the signal. A common multipath phenomenon is ghosting of television images, for example.

**“Picket Line”:** The seven original primary Minitrack stations located approximately along the 75th West meridian, spanning North and South America. The picket line had a better than 90 percent chance of capturing every pass of a satellite in low inclination, low-Earth orbit.
**polar orbit:** An orbit whose plane is inclined 90° to the Equator. Thus, as its name implies, a satellite in polar orbit travels over, or near, both the North and the South pole. A great advantage of a satellite in such an orbit is its ability to observe the entire surface of the globe over time.

**max-q:** The occurrence of maximum aerodynamic pressure (q) during a rocket’s ascent or a spacecraft’s descent through the atmosphere. Knowing when max-q occurs is important as it factors into the structural stress experienced by the vehicle.

**parabolic:** Surface shape of an object, like an antenna reflector or the objective mirror in a telescope, based on the mathematical curve \( Y=X^2 \) which focuses incoming rays to a single point.

**radio frequency:** The number of oscillation cycles per unit time that an electromagnetic wave propagates through space at. Frequency is measured in hertz (Hz).

**radio interferometry:** The use of separate antennas to receive a radio signal at slightly different times so as to determine phase differences in the radio waves. These differences can then be used to calculate position solutions for an object. Radio interferometry had the advantage of yielding highly accurate tracking angles and could be used under virtually any atmospheric condition.

**Schmidt camera:** A telescopic, astronomical camera designed to provide wide fields of view, typically used as a survey instrument in which a large amount of sky must be covered.

**solar wind:** A stream of charged particles (plasma) which are ejected from the upper atmosphere of a star. It consists mostly of high-energy electrons and protons that are able to escape the star’s gravity. Many phenomena can be explained by the solar wind, including: geomagnetic storms that knock out power grids on Earth; auroras, and why the tail of a comet always points away from the Sun.

**sounding rocket:** A small, usually unguided rocket launched into the upper atmosphere for conducting experiments and scientific research.

**Space Network:** NASA’s constellation of geosynchronous Tracking and Data Relay Satellites and their associated ground segment. The ground segment consists of the White Sands Complex, the Bilateral Ranging Transponder System, the Merritt Island Launch Area TDRSS Relay, and the Data Services Management Center. The Space Network (SN) is run by the Goddard Space Flight Center under management of the Space Operations Mission Directorate at Headquarters.
**state vectors:** The set of position and velocity measurements of a traveling object as a function of time, particularly those of a spacecraft in orbit or a rocket on a ballistic trajectory.

**telemetry:** Electronic data measurements downlinked or transmitted from a spacecraft to the ground.

**teletype:** A now largely obsolete electro-mechanical typewriter which was used to communicate typed messages from point to point through a simple electrical communications channel, often just a pair of wires. Later versions used a screen instead of a printer.

**tracking:** Collection of spacecraft position and velocity measurements so that its orbit or trajectory can be determined.

**wavelength:** The distance traveled by an electromagnetic wave during one cycle of oscillation. Radio frequency wavelengths ranges from millimeters to meters.

**Wing Station:** A support or backup ground station located near the designated primary station on a given mission. Deep Space Network sites were often used to support nearby Manned Space Flight Network sites in this manner.

**yagi antenna:** An antenna consisting of an array of linear elements, such as a common rooftop television antenna. The antenna achieves a distinct response bandwidth determined by the length, diameter, and spacing of all the individual elements. Its overall gain is proportional to its length, rather than simply the number of elements. Yagis can range in size from small (like TV antennas) to very large (dozens of feet long with multiple elements).
Maps

Each location has been plotted by the author on blank Robinson Projections.
The Satellite Tracking And Data Acquisition Network (early 1960s–mid 1970s)
The Manned Spaceflight Network (mid 1960s) (Gemini)
The Manned Spaceflight Network (late 1960s–early 1970s)
(Apollo Support Stations: DOD & Others)
The Spaceflight Tracking and Data Network (mid 1980s–early 1990s)
Radio Frequency Chart
APPENDIX 4

Honeysuckle Station Log for Apollo 11

The actual mission log as recorded at the Honeysuckle Creek Tracking Station (HSK) is reproduced here courtesy of John Saxon. When he donated these scans to the Honeysuckle tribute Web site (www.honeysucklecreek.net) in 2003, John wrote:

It may seem strange, but Apollo support sites were not required to keep a formal log. Usually, particular times were reported to Houston as they happened or when the action was completed. Some times were reported in post-pass teletype messages.

At Honeysuckle we did try to maintain an overall log of mission events as we observed them, and the operating position on the right hand side of the main station Operations console got lumbered with the job. This position was also required to monitor anything up to six or seven voice loops simultaneously and respond as required. Also, there were two 25 key CAMs (Computer Address Matrix) used to control some aspects of the Command and Telemetry Computers (send commands to the spacecraft if data communications were lost between the site and Houston, etc.), operated by this position. So keeping a written log as well was sometimes difficult.
Most sections of the station (USB, TLM, Computer, Comms, etc.) also made note of significant times and events, and so this helped the main log keeper because they could be reported later in ‘easy time.’ Times were sometimes guessed when there was a chance to jot them down, so normally they were noted to the nearest minute unless they were deemed to be very significant!

The log pages presented here were maintained for the entire Apollo 11 mission 24 hours per day by my opposite number, Ken Lee (otherwise known as “the silver fox”) and myself as we worked alternating 12-hour shifts. It should be noted that they were “borrowed” by me at the end of the Apollo program. All the rest of the mission files, which contained many other documents on each mission, were consigned to the local landfill site (Tharwa Tip) when we were not looking.
<table>
<thead>
<tr>
<th>GMT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0354</td>
<td>DSIF LOG SHEET HTG SITE</td>
</tr>
<tr>
<td>03:54</td>
<td>DATE 15/6/69 0800 (GMT) LOG KEEPER SAXON</td>
</tr>
<tr>
<td>03:55</td>
<td>MISSION NEQ 725 TERMINAL COUNT 2 LAUNCH</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GMT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>23:00</td>
<td>System Reset Complete &amp; Reset O/B</td>
</tr>
<tr>
<td>23:10</td>
<td>Sets O/B</td>
</tr>
<tr>
<td>23:20</td>
<td>S1 Complete</td>
</tr>
<tr>
<td>01:15</td>
<td>SSP 2624 low at any during the shift</td>
</tr>
<tr>
<td>02:37</td>
<td>TEMP N1M TAPE handler complete, running diag on cmd.</td>
</tr>
<tr>
<td>03:00</td>
<td>&quot; &quot; &quot; New Green</td>
</tr>
<tr>
<td>03:20</td>
<td>S1 terr. - o/s some using cam B F to run O/B</td>
</tr>
<tr>
<td>03:35</td>
<td>Patching handle in team during 1B slowing rings up.</td>
</tr>
<tr>
<td>03:40</td>
<td>Stamp FE 600 RED S1</td>
</tr>
<tr>
<td>03:50</td>
<td>FS Complete &amp; FE 600S</td>
</tr>
<tr>
<td>04:01</td>
<td>Configured for read/seq</td>
</tr>
<tr>
<td>04:02</td>
<td>IOC on of TAB 1F &amp; CAN O/B</td>
</tr>
<tr>
<td>04:06</td>
<td>FS on TE on spell/seq</td>
</tr>
<tr>
<td>04:09</td>
<td>... 1F /BB</td>
</tr>
<tr>
<td>04:10</td>
<td>&quot; &quot; Mis O/B</td>
</tr>
<tr>
<td>04:14</td>
<td>Can NBP 1F new go on 8/5</td>
</tr>
<tr>
<td>04:22</td>
<td>Go on prime 1FBB</td>
</tr>
<tr>
<td>04:25</td>
<td>Can on new 8/5</td>
</tr>
<tr>
<td>04:28</td>
<td>Started OBD 1F and FM/EM go on every 8</td>
</tr>
<tr>
<td>04:32</td>
<td>FM/EM 1F go</td>
</tr>
<tr>
<td>04:40</td>
<td>Go on cards 1F &amp; A3</td>
</tr>
<tr>
<td>04:50</td>
<td>Prelaunch loading</td>
</tr>
<tr>
<td>04:55</td>
<td>&quot; &quot; complete INV sent</td>
</tr>
<tr>
<td>05:00</td>
<td>Team setting for NBP Code 1F &amp; Decoy 1F</td>
</tr>
<tr>
<td>06:08</td>
<td>Cud NBP 1F Code 1F</td>
</tr>
<tr>
<td>06:29</td>
<td>Go on Code less decy</td>
</tr>
<tr>
<td>07:04</td>
<td>95% L Fin.</td>
</tr>
<tr>
<td>07:46</td>
<td>Room where we have followed by using -</td>
</tr>
<tr>
<td>07:50</td>
<td>Holding at T 3:30 (scheduled)</td>
</tr>
<tr>
<td>07:56</td>
<td>Commencing confidence check</td>
</tr>
</tbody>
</table>
```
<table>
<thead>
<tr>
<th>GMT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>00:36</td>
<td>Status &amp; NC confirmed by T/C</td>
</tr>
<tr>
<td>01:30</td>
<td>Testing thru confidence check - found fault. Must replace 1/4 of all chokes.</td>
</tr>
<tr>
<td>01:38</td>
<td>Status check.</td>
</tr>
<tr>
<td>01:48</td>
<td>P.T. cleared equation fault - further investigation. P.T. to go manual and beam will be 10 KV, then vary power by bypass drive.</td>
</tr>
<tr>
<td>02:07</td>
<td>P.T. to beam well set up green.</td>
</tr>
<tr>
<td>02:15</td>
<td>Grid control OK or CSM 1M 01-18 12.50 48.</td>
</tr>
<tr>
<td>02:30</td>
<td>Status confidence check.</td>
</tr>
<tr>
<td>02:38</td>
<td>Final check to NC for launch.</td>
</tr>
<tr>
<td>03:22</td>
<td>1/0</td>
</tr>
<tr>
<td>03:37</td>
<td>101. V/103.6 V.</td>
</tr>
<tr>
<td>03:57</td>
<td>1/0</td>
</tr>
<tr>
<td>04:00</td>
<td>V/C check - 100/100 V/C</td>
</tr>
<tr>
<td>04:05</td>
<td>P.T. did not have 100 V</td>
</tr>
<tr>
<td>04:10</td>
<td>Grid control OK or CSM 1M 01-18 12.50 48.</td>
</tr>
<tr>
<td>04:15</td>
<td>Status confidence check.</td>
</tr>
<tr>
<td>04:39</td>
<td>Final check to NC for launch.</td>
</tr>
<tr>
<td>04:51</td>
<td>1/0</td>
</tr>
<tr>
<td>05:10</td>
<td>V/C check - 100/100 V/C</td>
</tr>
<tr>
<td>05:25</td>
<td>P.T. did not have 100 V</td>
</tr>
<tr>
<td>05:39</td>
<td>Status confidence check.</td>
</tr>
<tr>
<td>06:00</td>
<td>Final check to NC for launch.</td>
</tr>
<tr>
<td>06:35</td>
<td>Grid control OK or CSM 1M 01-18 12.50 48.</td>
</tr>
<tr>
<td>07:00</td>
<td>Status confidence check.</td>
</tr>
<tr>
<td>08:00</td>
<td>Final check to NC for launch.</td>
</tr>
<tr>
<td>09:00</td>
<td>Grid control OK or CSM 1M 01-18 12.50 48.</td>
</tr>
<tr>
<td>10:00</td>
<td>Status confidence check.</td>
</tr>
<tr>
<td>11:00</td>
<td>Final check to NC for launch.</td>
</tr>
<tr>
<td>12:00</td>
<td>Grid control OK or CSM 1M 01-18 12.50 48.</td>
</tr>
<tr>
<td>13:00</td>
<td>Status confidence check.</td>
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<tr>
<td>14:00</td>
<td>Final check to NC for launch.</td>
</tr>
<tr>
<td>15:00</td>
<td>Grid control OK or CSM 1M 01-18 12.50 48.</td>
</tr>
<tr>
<td>16:00</td>
<td>Status confidence check.</td>
</tr>
<tr>
<td>17:00</td>
<td>Final check to NC for launch.</td>
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Notes:
- Rev. 1
- V/C check = 100/100 V/C
- P.T. did not have 100 V
- Grid control OK or CSM 1M 01-18 12.50 48.
- Status confidence check
- Final check to NC for launch
- Grid control OK or CSM 1M 01-18 12.50 48.
- Status confidence check
- Final check to NC for launch
- Grid control OK or CSM 1M 01-18 12.50 48.
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<tr>
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<th>EVENT</th>
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<tbody>
<tr>
<td>14:15</td>
<td>QL 4/6 communicator</td>
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<td>14:22</td>
<td>pop 6/6 to on</td>
</tr>
<tr>
<td>14:24</td>
<td>Can't may have bad audio logic problem</td>
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<tr>
<td>14:57</td>
<td>Run away can cost with computer changing mode in each most home</td>
</tr>
<tr>
<td>17:25</td>
<td>Can't logic zero good enough wrapping around it</td>
</tr>
<tr>
<td>17:55</td>
<td>Main problem? Nov 7 ALC with strong morning same as filter of board</td>
</tr>
<tr>
<td>18:23</td>
<td>Two on Red 5,001 red -117</td>
</tr>
<tr>
<td>18:31</td>
<td>WAS complete configured for 1/0</td>
</tr>
<tr>
<td>18:32</td>
<td>8/21 Red being wrong on 1/0</td>
</tr>
<tr>
<td>18:33</td>
<td>Shunt FE600 click</td>
</tr>
<tr>
<td>18:34</td>
<td>FE6000 swap</td>
</tr>
<tr>
<td>18:36</td>
<td>Shunt CMD x-c w/fm 4/6</td>
</tr>
<tr>
<td>19:15</td>
<td>On all 1/6 - normal line power same same drop side</td>
</tr>
<tr>
<td>20:24</td>
<td>Way in 0/5 red other one to 6/ops Est Abt 05:43:00</td>
</tr>
<tr>
<td>20:35</td>
<td>MES cannot support again being released from + 1000 ± 50</td>
</tr>
<tr>
<td>20:53</td>
<td>11/500 * 4/6</td>
</tr>
<tr>
<td>20:56</td>
<td>Board on skip 5/6 - The same only 2/way 3/0/6 site with</td>
</tr>
<tr>
<td>20:57</td>
<td>1051 4/6 Tuc for dual of tv</td>
</tr>
<tr>
<td>21:21</td>
<td>44A x-align lock 20 -20</td>
</tr>
<tr>
<td>22:05</td>
<td>11/5 on FM 1/6</td>
</tr>
<tr>
<td>22:08</td>
<td>Tuc Tuc on 11/3N</td>
</tr>
<tr>
<td>22:17</td>
<td>Same poor quality TV</td>
</tr>
<tr>
<td>22:19</td>
<td>E/4 A 4/6 failure to line</td>
</tr>
<tr>
<td>23:21</td>
<td>FM 4/5 x TV</td>
</tr>
<tr>
<td>00:27</td>
<td>5/6 Tuc like off on normal 4/5 5/6 lock to light</td>
</tr>
<tr>
<td>00:40</td>
<td>Was 4/6 lock</td>
</tr>
<tr>
<td>00:49</td>
<td>1/0 end own per 1/0</td>
</tr>
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<td>GMT</td>
<td>EVENT</td>
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<td>------</td>
<td>-------</td>
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<tr>
<td>0552</td>
<td>New SCN red.文化 &amp; member sat upon at 1400 EDT</td>
</tr>
<tr>
<td>0554</td>
<td>RTSC bid &amp; crew eaten</td>
</tr>
<tr>
<td>0123</td>
<td>New SCN on 4454 read</td>
</tr>
<tr>
<td>0125</td>
<td>End of the mission, the Trim increased</td>
</tr>
<tr>
<td>0155</td>
<td>Hf to 695 to give the remote start signal.</td>
</tr>
<tr>
<td>0155</td>
<td>Read Range All ships said</td>
</tr>
<tr>
<td>0191</td>
<td>3 more B on card. 180° report due trim dropped. 3rd read 1035</td>
</tr>
<tr>
<td>0205</td>
<td>Add the 28 -002 &amp; a second relay. MEC = 0.002.</td>
</tr>
<tr>
<td>0226</td>
<td>MF mode 1 for ATN to 0 from RPL. 1430 &amp; 1435</td>
</tr>
<tr>
<td>0259</td>
<td>Ask the low signal recognized and come and on</td>
</tr>
<tr>
<td>0309</td>
<td>RTC request</td>
</tr>
<tr>
<td>0357</td>
<td>0900 2 Range Correction found</td>
</tr>
<tr>
<td>0358</td>
<td>Data had 400 Hz 30 on FM/PH. No immediately TC and then out</td>
</tr>
<tr>
<td>0400</td>
<td>2250 SPS S600 30 to GET for mco.2</td>
</tr>
<tr>
<td>0409</td>
<td>Way back for 5 still 1 on 5 and then on ready 5</td>
</tr>
<tr>
<td>0500</td>
<td>Approx PKs observed</td>
</tr>
<tr>
<td>0506</td>
<td>115 &amp; 62 110050 PKs total 04</td>
</tr>
<tr>
<td>0620</td>
<td>501 NO 554 302 302</td>
</tr>
<tr>
<td>0728</td>
<td>301 302 301 300</td>
</tr>
<tr>
<td>0830</td>
<td>Check your course will commend.</td>
</tr>
<tr>
<td>0831</td>
<td>New SCN from RPL</td>
</tr>
<tr>
<td>0840</td>
<td>Hf data being up at cp. Timing is correct.</td>
</tr>
<tr>
<td>0920</td>
<td>K &amp; L no. New SCA at Biscayne</td>
</tr>
<tr>
<td>0945</td>
<td>GSU 2 050 0 K</td>
</tr>
<tr>
<td>0955</td>
<td>Hf data report. 70 is home group time 10 (Fed 3)</td>
</tr>
<tr>
<td>0955</td>
<td>Tic asks for check on homing - RPS - environment</td>
</tr>
<tr>
<td>1020</td>
<td>220 100 000</td>
</tr>
<tr>
<td>1040</td>
<td>0019 002 500 000</td>
</tr>
<tr>
<td>1040</td>
<td>0020 002 500 000</td>
</tr>
<tr>
<td>1047</td>
<td>WS 28 500 000 000 - no sign.</td>
</tr>
</tbody>
</table>
# Appendix 4 \ Honeysuckle Station Log for Apollo 11

## DSIF LOG SHEET

<table>
<thead>
<tr>
<th>DATE</th>
<th>LOG KEEPER</th>
</tr>
</thead>
<tbody>
<tr>
<td>NCG-725 (GMT)</td>
<td>LEE</td>
</tr>
</tbody>
</table>

| MISSION | |
|---------| |
| NCG-725 Tue #1 | 5PM 01 |

<table>
<thead>
<tr>
<th>GMT</th>
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</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>HRN Hull 9 EOF</td>
</tr>
<tr>
<td>0100</td>
<td>CCM Hull 7, Sensors warm number 59.50</td>
</tr>
<tr>
<td>0200</td>
<td>CCM Hull 7, Sensors warm number 59.50</td>
</tr>
<tr>
<td>0300</td>
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<tr>
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**Note:** The log continues with various entries related to station operations and activities.
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<td>M 1528:58 cm 80-72K 0.35000 GMT ROS 0036 00.2 GSR</td>
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</table>

**OSIF LOG SHEET:**

**SITE:**

**DATE:** 18 July 69 (GMT)

**LOG KEEPER:** Oaxon

**HA:** NCG-725 TIC 08 X 10 DAY 02

---

"Read You Loud and Clear!"
### Honeysuckle Station Log for Apollo 11

**DSIF LOG SHEET**

**DATE:** 18 Jul (GHT)  
**LOG KEEPER:** Lee

**MISSION:** NG-725  
**Day:** 02  
**TC#:** 2

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<th>GMT</th>
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<tr>
<td>0001</td>
<td>Wash Les 11.17</td>
</tr>
<tr>
<td>0115</td>
<td>SCM Seed</td>
</tr>
<tr>
<td>0141</td>
<td>PA 3 Queen PAU ETC 1 week</td>
</tr>
<tr>
<td>0205</td>
<td>EOF had written on line</td>
</tr>
<tr>
<td>0221</td>
<td>H/S Oman -&gt; HAD -&gt; No problem</td>
</tr>
<tr>
<td>0235</td>
<td>H/S Bitumen + EOF</td>
</tr>
<tr>
<td>0247</td>
<td>NRN 1/2</td>
</tr>
<tr>
<td>0310</td>
<td>H/S bitumen no change SYAD Pearl 8.1</td>
</tr>
<tr>
<td>0358'</td>
<td>Wring 138</td>
</tr>
<tr>
<td>0430</td>
<td>ESR 160760/3829</td>
</tr>
</tbody>
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1313

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1700

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1815

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1930

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2257

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2259

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2305

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2306

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2313

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2315

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2319

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2320

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2321

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2326

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<tbody>
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<td>$P$ prime up to load 'OB'</td>
</tr>
<tr>
<td>0015</td>
<td>Resumed scan, putting up</td>
</tr>
<tr>
<td>0020</td>
<td>Back up of 3930 meters, lost again (data later disclosed)</td>
</tr>
<tr>
<td>0032</td>
<td>&quot;1/4 $P$&quot; $T_{25}$ read.</td>
</tr>
<tr>
<td>0035</td>
<td>tic'd on</td>
</tr>
<tr>
<td>0145</td>
<td>S&amp;R RF contact lost, S&amp;R still well down</td>
</tr>
<tr>
<td>0146</td>
<td>S&amp;I solid lock, still in manual position</td>
</tr>
<tr>
<td>0148</td>
<td>A-West ESE in preliminary S&amp;R</td>
</tr>
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<td>Though still putting test going to prime.</td>
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Appendix 4 \ Honeysuckle Station Log for Apollo 11

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<td>1120</td>
<td>LOS 156</td>
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<td>SIC reduces GMT RST</td>
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JPL 8007 DEC 60
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**Honeysuckle Station Log for Apollo 11**

**Assistant:**

The document appears to be a log sheet for the Honeysuckle Station recorded during Apollo 11, noting various events and observations. The events listed include entries such as "CSK ADS," "OBS OX-50 for HGA auto regeneration - ring low but ADS," and "" " " " " separate entries indicating different log entries for each time stamp.
DATE 26 Jul 67 (GMT)  
LOG KEEPER Saxon  
MISSION NCG-735 1/8's 7 8 9 10  

**EVENT**  

0549 Knife edge of moon looks good.  
0557 Takeoff is nice.  
0600 ADS all shot sent.  
0607 FM on -97.  
060805 Start dump 92.1  
060856 Peak dump 92.1  
061012 FM off.  
0610 Dad had 3/4 in.  
062239 SB2 102  
0640 SB2 102  
0645 2102.75  
0647 Final loss of NC will be coming up out of dump to reaccelerate.  
0702 SB2 102  
071406 ADS all shot sent.  
071438 NC klunked.  
071530 ADS sent 92.1  
0719 92.1  
0728 92.1  
0733 92.1  
0745 Final start.  
0800 Dump start.  
090330 31  
090337 Dump end.  
090536 102  
091036 102  
091030 92.1  
091049 NC klunked.  
091050 NC reaccelerated.  
091150 NC was suppressed.  

**OSIF LOG SHEET NSK SITE**
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<tr>
<td>0006</td>
<td>L/H adventure</td>
</tr>
<tr>
<td>0014</td>
<td>R/S R/T</td>
</tr>
<tr>
<td>0027</td>
<td>Data on line for P/I</td>
</tr>
<tr>
<td>0033</td>
<td>R/S R/T released.</td>
</tr>
<tr>
<td>0043</td>
<td>Data had wrong GET start time on P/I</td>
</tr>
<tr>
<td>0124</td>
<td>Q4 73.8</td>
</tr>
<tr>
<td>0125</td>
<td>Q4 70.0</td>
</tr>
<tr>
<td>0136</td>
<td>P/I completed.</td>
</tr>
<tr>
<td>0147</td>
<td>Start Q1 R/T</td>
</tr>
<tr>
<td>0153</td>
<td>Interfils take 1st in 2nd seat</td>
</tr>
<tr>
<td>1055</td>
<td>605.2</td>
</tr>
<tr>
<td>1056</td>
<td>855.2 on SRT in progress. Loading of OPA program</td>
</tr>
<tr>
<td>1336</td>
<td>4th last period due to lack of fuel.</td>
</tr>
<tr>
<td>1400</td>
<td>2445</td>
</tr>
</tbody>
</table>

**TOUCHDOWN!!**
**DATE** 20/Feb/71 (GTM)  **LOG KEEPER** Saxon

**MISSION** NCC 785  **LUNAR SURFACE CSM REVS**

17 Feb 22  **Day 5**

---

<table>
<thead>
<tr>
<th>GMT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>23:07</td>
<td>Time fix set 91/108 11, Noon moon rise 107:45, 1 passed 2 back</td>
</tr>
<tr>
<td>23:09</td>
<td>Still processing EMAT 3/6</td>
</tr>
<tr>
<td>23:19</td>
<td>EM 107:30, 107:30 1/6, 109 After on</td>
</tr>
<tr>
<td>23:19</td>
<td>Start 1200 Cache</td>
</tr>
<tr>
<td>23:30</td>
<td>Start cmn 1/6x Binned</td>
</tr>
<tr>
<td>23:36</td>
<td>Binned 1 go</td>
</tr>
<tr>
<td>23:33</td>
<td>CMD OK</td>
</tr>
<tr>
<td>23:34</td>
<td>Alt 1 go short 1/6th Prin H/6 x H/6 20% Caffeine fonts 5 2 11</td>
</tr>
<tr>
<td>23:41</td>
<td>Start win 4k 1 1/2</td>
</tr>
<tr>
<td>00:03</td>
<td>GM 10 2cm start-EVA prep</td>
</tr>
<tr>
<td>00:16</td>
<td>CM 10 4k 3</td>
</tr>
<tr>
<td>00:26</td>
<td>Running APP soon after 1/6h main poster</td>
</tr>
<tr>
<td>00:41</td>
<td>Cleaned on calcium using bone but 130 ARAG 2 x 3 problem</td>
</tr>
<tr>
<td>00:49</td>
<td>Being changed on further problems</td>
</tr>
<tr>
<td>01:44</td>
<td>More testing 01/15</td>
</tr>
<tr>
<td>02:05</td>
<td>107:44 H/6 to main CSM</td>
</tr>
<tr>
<td>02:05</td>
<td>Monitoring 01/15 2</td>
</tr>
<tr>
<td>02:16</td>
<td>Alt 12a CSM</td>
</tr>
<tr>
<td>02:16</td>
<td>Alt 49 x 10 2cm back</td>
</tr>
<tr>
<td>02:16</td>
<td>CMD's</td>
</tr>
<tr>
<td>02:18</td>
<td>Prime CSM EM 1st signal PM</td>
</tr>
<tr>
<td>02:18</td>
<td>Tier on H/6 01/18</td>
</tr>
<tr>
<td>02:30</td>
<td>Long EM relay to CSM after APS from H/6</td>
</tr>
<tr>
<td>02:30</td>
<td>EVA prep in progress</td>
</tr>
<tr>
<td>03:30</td>
<td>Tier 12/3/72 answer</td>
</tr>
<tr>
<td>03:35</td>
<td>Tier 12/4/72 answer</td>
</tr>
<tr>
<td>03:57</td>
<td>CMD 1/2 sync</td>
</tr>
<tr>
<td>03:57</td>
<td>CMD 1/2 XEC</td>
</tr>
<tr>
<td>04:10</td>
<td>CMD H/6 2 x CSM</td>
</tr>
</tbody>
</table>

---

**LM**

<table>
<thead>
<tr>
<th>TIME</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>01:15</td>
<td>Prime CSM EM 1st signal PM</td>
</tr>
<tr>
<td>01:18</td>
<td>Tier on H/6 01/18</td>
</tr>
<tr>
<td>02:30</td>
<td>Long EM relay to CSM after APS from H/6</td>
</tr>
<tr>
<td>03:30</td>
<td>Tier 12/3/72 answer</td>
</tr>
<tr>
<td>03:35</td>
<td>Tier 12/4/72 answer</td>
</tr>
<tr>
<td>03:57</td>
<td>CMD 1/2 sync</td>
</tr>
<tr>
<td>03:57</td>
<td>CMD 1/2 XEC</td>
</tr>
<tr>
<td>04:10</td>
<td>CMD H/6 2 x CSM</td>
</tr>
</tbody>
</table>
OSIF LOG SHEET

DATE: 21 Jul (GMT)
LOG KEEPER: Saxon

MISSION: Lunar Surface & CSM orbit 17, Dec 25

TIME

0136

FM down -96

0143.13

THRU, 15° Elevation

0148.25

Nascom relay verified.

0150

FM off

0152

TV off, test signals on

0154

Go for cabin depress.

0201 CSM LOS Wng.

0202

AOS:

Increase LBR & B/L voices

0211

Central pseudo nascom

0216

lor San nec

0217

0.5 deg offset in A

0223

-100 CSM dropping

0228 CSM AOS HGA

0244

-100 FM on LM

0251

EVA EXE & WRE on LAR

0253

CM or IM pack

0256

TV on

0258

CM or IM pack

0259

CM or IM pack

0259

CM or IM pack

0259

CM or IM pack

0300

AOS shall

0303

CSM FM on

0306

FM center

0344

CM or IM pack

0354

CM or IM pack

0356

CM or IM pack

0356

CM or IM pack

0359

CM or IM pack


No 18

0349

Nixon listening
**OSIF LOG SHEET**

**DATE:** 21 Jul (GMT)  
**LOG KEEPER:** Saxo

**MISSION:** 725 EVA 10/21 1:25 Am 19

<table>
<thead>
<tr>
<th>GMT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>05:37</td>
<td>1/40 18° CONT</td>
</tr>
<tr>
<td>05:44</td>
<td>2/40 18° CONT</td>
</tr>
<tr>
<td>05:54</td>
<td>3/40 18° CONT</td>
</tr>
<tr>
<td>06:05</td>
<td>4/40 18° CONT</td>
</tr>
<tr>
<td>06:10</td>
<td>5/40 18° CONT</td>
</tr>
<tr>
<td>06:15</td>
<td>6/40 18° CONT</td>
</tr>
<tr>
<td>06:20</td>
<td>7/40 18° CONT</td>
</tr>
<tr>
<td>06:25</td>
<td>8/40 18° CONT</td>
</tr>
<tr>
<td>06:30</td>
<td>9/40 18° CONT</td>
</tr>
<tr>
<td>06:35</td>
<td>10/40 18° CONT</td>
</tr>
<tr>
<td>06:40</td>
<td>11/40 18° CONT</td>
</tr>
<tr>
<td>06:45</td>
<td>12/40 18° CONT</td>
</tr>
<tr>
<td>06:50</td>
<td>13/40 18° CONT</td>
</tr>
<tr>
<td>06:55</td>
<td>14/40 18° CONT</td>
</tr>
<tr>
<td>07:00</td>
<td>15/40 18° CONT</td>
</tr>
<tr>
<td>07:05</td>
<td>16/40 18° CONT</td>
</tr>
<tr>
<td>07:10</td>
<td>17/40 18° CONT</td>
</tr>
<tr>
<td>07:15</td>
<td>18/40 18° CONT</td>
</tr>
<tr>
<td>07:20</td>
<td>19/40 18° CONT</td>
</tr>
<tr>
<td>07:25</td>
<td>20/40 18° CONT</td>
</tr>
<tr>
<td>07:30</td>
<td>21/40 18° CONT</td>
</tr>
<tr>
<td>07:35</td>
<td>22/40 18° CONT</td>
</tr>
<tr>
<td>07:40</td>
<td>23/40 18° CONT</td>
</tr>
<tr>
<td>07:45</td>
<td>24/40 18° CONT</td>
</tr>
<tr>
<td>07:50</td>
<td>25/40 18° CONT</td>
</tr>
<tr>
<td>07:55</td>
<td>26/40 18° CONT</td>
</tr>
<tr>
<td>08:00</td>
<td>27/40 18° CONT</td>
</tr>
</tbody>
</table>
**Honeysuckle Station Log for Apollo 11**

**Appendix 4**

**DSIF LOG SHEET**

**SITE**

**DATE** 14 Jul (GMT)**

**LOG KEEPER** LEE

**MISSION** NCS-725 1/0 19

---

**G/M** 65 19:30

**EVENT**

- 06:54: H/I 4 CSM Nos Co. (1) 00:44, 02:14 FM ON
- 07:01: All loads except 06:35 06:36 06:38 06:39 Cleared
- 07:09: FM Carrier & Subcarrier -96
- 07:11: Beam start 32:1
- 07:12: Step 4th Sec of 11 at end of
- 07:14: FM OFF
- 07:15: CSM LOS 06:35 A/I Restored 106.40 136.10
- 07:19: L/H Dist O/I O/C Complete
- 07:22: Radio Link ATAP after 106.40
- 07:23: W/I MO 7 C/A 56 11:01 12:20
- 07:25: CSM Start down -103
- 07:36: FM Subcarrier (-96)
- 07:38: Beam start 07:40, Beam stop 07:43:11
- 07:42: W/I MO A/C 5 CSM D/1 12
- 07:43: W/I MO Restored
- 07:44: L/H Dist O/I O/C Complete
- 07:45: CSM U/I MO 5 4/6 removed
- 07:47: TV LOS I/0
- 07:49: MO I FM D/1 I/0
- 07:54: CSM U/I M/D. 5 2/1 MO 2
- 08:00: L/A R/A MO 1/0 MO 1/0
- 08:01: Sub-ranges - 3rd scan
- 08:02: Rapid Ring ACR every 5 min under direction from REC
- 08:03: C/A Monitor (R) for 116.31 MO 1000 to 116.35 MO 3000

---

**End of Log**
## OSIF LOG SHEET

### SITE

**DATE:** 7/15 (GMT)  
**Log Keepers:** LGE

**Mission:** NG-725  I/O 20

<table>
<thead>
<tr>
<th>GMT</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>0030</td>
<td>LRA cleared, 1205, 0035, 2405, 0906.</td>
</tr>
<tr>
<td>0130</td>
<td>Terminal L/S from MINE 021 LM.</td>
</tr>
<tr>
<td>0145</td>
<td>Go to M-07 L/S 0030 DD.</td>
</tr>
<tr>
<td>0210</td>
<td>LDS CSM.</td>
</tr>
<tr>
<td>0905</td>
<td>M-2 CSM 7 VLM.</td>
</tr>
<tr>
<td>1220</td>
<td>ていねいな 規則 RANGE</td>
</tr>
<tr>
<td>1230</td>
<td>L/H 21.</td>
</tr>
<tr>
<td>1231</td>
<td>CM CSM 226 at AOS</td>
</tr>
<tr>
<td>1232</td>
<td>APS CSM</td>
</tr>
<tr>
<td>0245</td>
<td>Fun Can/Fun Can (-96)</td>
</tr>
<tr>
<td>0306</td>
<td>During Start WEST SHOT Dump Stop</td>
</tr>
<tr>
<td>1010</td>
<td>Clear LOS 0047, 0047, 2109, GCA 60</td>
</tr>
<tr>
<td>1010</td>
<td>HM 0027, 0027, 2100</td>
</tr>
<tr>
<td>1032</td>
<td>CSM 226</td>
</tr>
<tr>
<td>1038</td>
<td>L/H start went long CSM 11:1 start.</td>
</tr>
<tr>
<td>1037</td>
<td>L/H start good.</td>
</tr>
<tr>
<td>1100</td>
<td>L/H start good.</td>
</tr>
<tr>
<td>1130</td>
<td>APS CSM 11:30 07 AON (1482).</td>
</tr>
<tr>
<td>1135</td>
<td>APS CSM 11:35 07 AON (1482).</td>
</tr>
<tr>
<td>1152</td>
<td>Dump Start Stop 15410.</td>
</tr>
<tr>
<td>1202</td>
<td>L/H to AON (4520 1482) - no problem.</td>
</tr>
<tr>
<td>1214</td>
<td>Take CSM CSM started at 11:42:10 (12572)</td>
</tr>
<tr>
<td>1220</td>
<td>CSM L/H P/L 3 VLM</td>
</tr>
<tr>
<td>1230</td>
<td>APS CSM</td>
</tr>
<tr>
<td>1257</td>
<td>Wing Convergent.</td>
</tr>
<tr>
<td>1308</td>
<td>CSM MEG.</td>
</tr>
<tr>
<td>1315</td>
<td>Start of 1 SET</td>
</tr>
<tr>
<td>1345</td>
<td>APS LIF3 OFF</td>
</tr>
<tr>
<td>1351</td>
<td>CERT 1 Complete</td>
</tr>
</tbody>
</table>

---

**47FL DEC 60**
### DSIF Log Sheet

**DATE:** 21 Jul 69 (GHT)  
**LOG KEEPER:** Saxon

**MISSION:** LCG - 725  
**DAY OF:** 06  
**REV:** 29, 30  
**TET:** 1, 2, 3

<table>
<thead>
<tr>
<th>GMT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0904</td>
<td>MI BE R G 1 be good suspended hot to out &amp; space away in on ship war.</td>
</tr>
<tr>
<td>2132</td>
<td>Track seeding acc mega clock.</td>
</tr>
<tr>
<td>2135</td>
<td>DOCKED!</td>
</tr>
<tr>
<td>2146</td>
<td>ST F D T X 50 201 of y Angel - reported again at 11 00.</td>
</tr>
<tr>
<td>2207</td>
<td>Mega wave good regain</td>
</tr>
<tr>
<td>2317</td>
<td>#8 complete.</td>
</tr>
<tr>
<td>2357</td>
<td>jty N 4 0 0 0 0 0 0 0.</td>
</tr>
<tr>
<td>2340</td>
<td>10x. 09 on LM rep from NC 1 09 1 00 9.</td>
</tr>
<tr>
<td>2346</td>
<td>RF 50 0 0 0 0 0 complete.</td>
</tr>
<tr>
<td>2350</td>
<td>#/13 acn acc 01 30 00 00 00.</td>
</tr>
<tr>
<td>2352</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>2353</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>2357</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>2358</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>2359</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>2359</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0010</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0012</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0013</td>
<td>#.</td>
</tr>
<tr>
<td>0019</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0022</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0031</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0042</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0047</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0049</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0059</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>0119</td>
<td>MI SA. acc. com. 01 30 00 00 00 00.</td>
</tr>
<tr>
<td>Time (GMT)</td>
<td>Event</td>
</tr>
<tr>
<td>------------</td>
<td>-------</td>
</tr>
</tbody>
</table>
| 0138       | CSM Rev 29 |}

**Date:** 21 July (GMT)  
**Log Keeper:** Saxon  
**Mission:** NGC 725  
**Day:** 06  
**Rev:** 29  
**307E1 87E1**
<table>
<thead>
<tr>
<th>GMT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0339</td>
<td>Reading up JET pool, 46.4/sec but rather week</td>
</tr>
<tr>
<td>0347</td>
<td>New JET's minor wing</td>
</tr>
<tr>
<td>0423</td>
<td>1205 #5 in Rock</td>
</tr>
<tr>
<td>0429</td>
<td>OSM loss</td>
</tr>
<tr>
<td>0435</td>
<td>Camp 1 - 1C &amp; 2F fuel have been cleaned since to dump &amp; 1C resn, dump cleaned</td>
</tr>
<tr>
<td></td>
<td>T/E !</td>
</tr>
<tr>
<td>0506</td>
<td>HOS Start shift, 5.9 for meth &amp; 58.8 on U13</td>
</tr>
<tr>
<td>0507</td>
<td>23 Fm on</td>
</tr>
<tr>
<td>0509</td>
<td>FM moisture &amp; submoisture</td>
</tr>
<tr>
<td>0510</td>
<td>Dump start &amp; line</td>
</tr>
<tr>
<td>0513</td>
<td>Start 32:1</td>
</tr>
<tr>
<td>0517</td>
<td>1:1 big high background noise</td>
</tr>
<tr>
<td>0518</td>
<td>End 3:1</td>
</tr>
<tr>
<td>0544</td>
<td>Fm off</td>
</tr>
<tr>
<td>0550</td>
<td>U1 &amp; 4, 1206 in progress, 4U scan</td>
</tr>
<tr>
<td>0552</td>
<td>Tie 4, 06-7, 009 107 as BU</td>
</tr>
<tr>
<td>0553</td>
<td>OP UE 1 amp fast 3:44 AN no power on as it involved in</td>
</tr>
<tr>
<td></td>
<td>Amp &amp; relay - relay were done at Rev 8 &amp; amp removed had 05-74</td>
</tr>
<tr>
<td></td>
<td>on it! Trigger to check all cal procedure now</td>
</tr>
<tr>
<td>0707</td>
<td>Racing change</td>
</tr>
<tr>
<td>0714</td>
<td>005 06-9 rose nice inter 005 pass main pump 12</td>
</tr>
<tr>
<td>0716</td>
<td>LM 5832, 6811 2-way</td>
</tr>
<tr>
<td>0718</td>
<td>2H 108 - 107</td>
</tr>
<tr>
<td>0745</td>
<td>NGC Staff 005 Line GC0301 GC0302 Dec</td>
</tr>
<tr>
<td>0746</td>
<td>LM 58, SIS New</td>
</tr>
<tr>
<td>0747</td>
<td>06-11 06-3</td>
</tr>
<tr>
<td>0757</td>
<td>06-3 LM 985 &amp; 073 76</td>
</tr>
<tr>
<td>0758</td>
<td>06-3 Con</td>
</tr>
<tr>
<td>0736</td>
<td>Configure happy for Con</td>
</tr>
<tr>
<td>GMT</td>
<td>EVENT</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
</tr>
<tr>
<td>0730</td>
<td><strong>AG1 6/3 hour flag was removed</strong></td>
</tr>
<tr>
<td>0740</td>
<td>Low ADR -103 Mode 1 FM/CSM</td>
</tr>
<tr>
<td>0744</td>
<td>Low P - R. Actual 0743 AM1 All the way</td>
</tr>
<tr>
<td>0750</td>
<td>Mode 3 U/L CSM. SPS 8</td>
</tr>
<tr>
<td>0750</td>
<td>CMD bug handled. Up against CSF</td>
</tr>
<tr>
<td>0755</td>
<td>Mode 6 U/L / SPS 7</td>
</tr>
<tr>
<td>0755</td>
<td>Jump Key 1 UP on CMD</td>
</tr>
<tr>
<td>0755</td>
<td>Permissions &amp; torqueboom known to ramp</td>
</tr>
<tr>
<td>0757</td>
<td>Low CSF all CSF 1:11 150.4</td>
</tr>
</tbody>
</table>

When AG1 6/3 is to be initiated, this should be done at Command Not Sure - Loose coupling channel 8 & 6 CSM FM |

Permission to put jump Key 1 UP |

0820 | H/S4 ready GCR (-14) |

0825 | H/S4 ready GCR |

0832 | H/S4 ready GCR |

0925 | Command low EKRP |

0945 | Low aerial - down on |

1130 | CSM. on SPS, 12 |

1230 | AGS CSM |

1300 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

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1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |

1330 | Low CSM - use SPS - REC |
### Appendix 4 \ Honeysuckle Station Log for Apollo 11

<table>
<thead>
<tr>
<th>GMT</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000</td>
<td>Date is “true” = completed 1401</td>
</tr>
<tr>
<td>0130</td>
<td>UTC 7356E4/NS / 70/1350 16:4 - ac researcher in A/B</td>
</tr>
<tr>
<td>1501</td>
<td>BLS Transceivers</td>
</tr>
<tr>
<td>1520</td>
<td>Start Sat-8 91 - complete 1526 -</td>
</tr>
<tr>
<td>1519</td>
<td>Team 1 vs. camp still faulty</td>
</tr>
<tr>
<td>0007</td>
<td>Not a sleep for TX, Not 6:14, 6:57 slept</td>
</tr>
<tr>
<td>2309</td>
<td>Start Apollo 8th, No Apollo Saturn tape mounted</td>
</tr>
<tr>
<td>2325</td>
<td>Apollo 8 countdown observer in camp</td>
</tr>
<tr>
<td>2330</td>
<td>End Apollo 8 after Apollo 6, standing with from simulator</td>
</tr>
<tr>
<td>2347</td>
<td>We should expect -132 approx from Emissary</td>
</tr>
<tr>
<td>2353</td>
<td>Not Emissary in 1H, Not G</td>
</tr>
<tr>
<td>0054</td>
<td>Data not being sent out, work</td>
</tr>
<tr>
<td>0006</td>
<td>Start differential power flow</td>
</tr>
<tr>
<td>0009</td>
<td>Some range rate data errors in line 48 degrees, checking</td>
</tr>
<tr>
<td>0019</td>
<td>Ranges and data normal</td>
</tr>
<tr>
<td>0023</td>
<td>Go on time receive echo 9/36</td>
</tr>
<tr>
<td>0025</td>
<td>155320 to pass from, no report ready to MCT TV</td>
</tr>
<tr>
<td>0826</td>
<td>Go on Apollo only</td>
</tr>
<tr>
<td></td>
<td>Emission from Apollo only</td>
</tr>
<tr>
<td></td>
<td>Cat RTC Group 1 emulated</td>
</tr>
<tr>
<td></td>
<td>Also receive 0389</td>
</tr>
<tr>
<td>1040</td>
<td>Deleted from Apollo by Tracy, configuring</td>
</tr>
<tr>
<td></td>
<td>preset site for Apollo 8. 999 response report at 1555/GMT</td>
</tr>
<tr>
<td>0156</td>
<td>KC contacts CSM again</td>
</tr>
<tr>
<td>0157</td>
<td>RSC receive CSM again</td>
</tr>
<tr>
<td>0150</td>
<td>KC receive CSM OK again</td>
</tr>
<tr>
<td>0149</td>
<td>RTC receive CSM OK even</td>
</tr>
<tr>
<td>0149</td>
<td>SAT 7 Apollo 6th. SAT 8th. blind configuration &amp; coding</td>
</tr>
<tr>
<td>01:16</td>
<td>1570 GMT ECT is end of meeting</td>
</tr>
<tr>
<td>0235</td>
<td>Pump 2 &amp; PTA set up for Apollo 8’s entry to orbital</td>
</tr>
</tbody>
</table>
“Read You Loud and Clear!”

DSIF LOG SHEET 6 TK SITE

DATE 23/JUL/69 (GMT) LOG KEEPER Saxon

MISSION NCG-725 TEC 725 = 2 DAY 7 Zenh.7

TIME EVENT
0250 Control panel oscillating config. to various abused M6
0300 AOS Set Dey bond
0807 Goed
0857 LOS for 30 sec, now 5 sec. lock.
092850 LOS for 10 sec.
1040 Perform normal Tic request.
1044 LOS for 30 sec. loss signal.
1059 Acrobat started
0056 LOS for 1 min.
0532 HFA EGA GSK to HFA. The remote seat HFA did not have.
0540 HFA failed. Lost 2 unf. MK analog time updates.
0542 If AGC two large drops 1st elected. After the lock we lost
We did not have HFA capable to 2000 kph lock lock. 2nd was
post due to HFA switching to work on HFA.
0558 459 AGC started in dist. 0532+9
1055
1200
2056

KL ON
Nose cone 50 deg.

1315

W 10 35 14

1843

S

V

N

MAD

7948

11 1816

1843

76

44

\-

1812

14

1816

1843

76

20
<table>
<thead>
<tr>
<th>GMT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2157</td>
<td>Start S+3</td>
</tr>
<tr>
<td>2146</td>
<td>End of X Mac before offsite</td>
</tr>
<tr>
<td>2135</td>
<td>FEC diagnostic 1 (tab 4/4)</td>
</tr>
<tr>
<td>0202</td>
<td>Start P+3/T+3</td>
</tr>
<tr>
<td>0059</td>
<td>Got on P+3/T+3</td>
</tr>
<tr>
<td>0038</td>
<td>Start C+4/T+4</td>
</tr>
<tr>
<td>0013</td>
<td>End +1F Start 86AB prime + T+3</td>
</tr>
<tr>
<td>0012</td>
<td>Cau on 86AB/89A</td>
</tr>
<tr>
<td>0023</td>
<td>Go on 86AB prime 86AB/89</td>
</tr>
<tr>
<td>0024</td>
<td>86AB/89A</td>
</tr>
<tr>
<td>0021</td>
<td>Go on 86AB prime 86AB/89</td>
</tr>
<tr>
<td>0058</td>
<td>Go on 86AB prime 86AB/89</td>
</tr>
<tr>
<td>0152</td>
<td>AOS prim prime 86AB/89A</td>
</tr>
<tr>
<td>0457</td>
<td>Test on 1st Time</td>
</tr>
<tr>
<td>0157</td>
<td>1st prim up to 1st</td>
</tr>
<tr>
<td>0317</td>
<td>Hipo 686 to 686C 05/2</td>
</tr>
<tr>
<td>0321</td>
<td>800a on net 2 came 02/14 approx 05:50,</td>
</tr>
<tr>
<td>0238</td>
<td>New prim 800</td>
</tr>
</tbody>
</table>
DATE 24 Jul (GMT) LOG KEEPER LEE
MISSION NCA-725 TEC #3 DAY 08

OSIF LOG SHEET HIS SITE

OUT AlSEP #2
0700 Begin count #1
0900 Bring count up MD-3
0945 Go to MD-3
1100 V06RA disabled
1316 Check MD-2 and AlSEP
1340 Sound normal
1355 Declare #1 we can fail #2 last date / back on NE +
outlining against 1600, 1U, (-128)
1415 Wash NE AlSEP
1420 Cancel OEP MD-1, Start seat
1430 Reenter new time - return to Coro
1437 Call ensemble Apollo
1445 A/6 B/2 in RGD 1 damaged
1455 APS CHM - #1 damage now
1505 CHM Los nos. 1507, 1510, 1511, 1512, 1513, 1514, 1515
1514 LD 6038
1516 ASSEP B2M SRT
1616 SEP
1628 Los Gfncy
1628 Los P 1631 1W 1631
1631 STAFF
A

A-12 satellite: 54
Acquisition aid: 35, 73, 75; on Gemini, 108, 112
Acquisition-of-signal: 47, 52, 75, 84, 128, 129, 169; TDRS deployment, 167-168
Ada, Joseph F.: 236
Adams, John: 96
Adelaide switching center, South Australia: 64
Advanced Range Instrumentation Aircraft (See Apollo Range Instrumentation Aircraft)
Advanced Research Projects Agency: 29, 67, 208
Aerobee sounding rocket: 2
Agenzia Spaziale Italiana: 337
Air Force, United States (See also Department of Defense and specific test ranges and locations): xxxiii, 2, 5, 21, 67, 71, 74, 78, 82, 85-88, 94, 116, 117, 120, 122, 131, 137, 149, 154, 206, 208, 226, 238, 253, 308; Andrews Air Force Base, 77; ARJA support, 159-162, 203; Bonham Air Force Base (See Hawaii Ground Station); Department of Defense Manager for Manned Spaceflight, 94; Eastern Space and Missile Center, 237, 239; Edwards Air Force Base, 59, 162, 223, 232; Electronic Systems Division, 161; Hickam Air Force Base, 160; Holloman Air Force Base (See Tula Peak Ground Station); Kindley Air Force Base, 82; Military Airlift Command, 117; National Range Division, 160-161; Patrick Air Force Base, 11, 15, 18, 21, 123, 160, 163; Satellite Control Network, 71, 93; Securing the high ground, 93, 253; United States Air Force Museum, 162; Vandenberg Air Force Base, 2, 85, 87, 163, 202; Wright-Patterson Air Force Base, 161
Alamogordo Bombing Range (See White Sands Missile Range)
Alaska Tracking Station: xxxii, 41-43, 50, 53, 55, 64, 103, 219, 221, 222, 227, 228, 281, 337; Poker Flat, 317-319
Albert monkey flights: 2
Aldrin, Edwin E., Jr.: 174, 175, 177, 179, 180, 341
Alice Springs, Australia Northern Territory: 189
Aller, Robert O.: 258, 282, 325, 336
Allied Signal (See also Honeywell): xix, 289
Alouette satellite: 43
Ames Research Center: xv, 28
Anchored Interplanetary Platform: 39
Anders, William A.: 171
Anderson, Clinton D.: 25
Anderson, Michael P.: 334, 335
Angular measurement: 11, 13, 14, 35, 37, 38, 52
Antarctica (See McMurdo Ground Station)
Antenna Control Unit: 46, 47, 52
Antenna operating modes: 52-53, 112
Antofagasta, Chile: 16, 19, 23, 40
Antigua: 114, 136, 138, 203, 204; Apollo support, 117-121, 146, 149, 151, 162, 163, 169; early-ops support, 18, 21, 40, 98, 112
Apartheid (See Johannesburg, South Africa)
Apollo, Project: 1B network, 145-146; V network, 145-146; Antenna pattern pull, 136; Apollo 1, 166, 167; Apollo 4, 131, 147, 156, 158, 166-167; Apollo 5, 147, 167; Apollo 6, 168-169; Apollo 7, 150, 163, 170-172, 331; Apollo 8, 147, 151, 156, 171-173; Apollo 9, 173; Apollo 10, 173-174; Apollo 11, xxxv, 120, 151, 157, 158, 174-180, 181, 186, 196, 203, 205, 206, 221, 235, 342, 427-454; Apollo 12, 158, 182, 183; Apollo 13, 180-182, 203, 234, 250; Apollo 14, 174, 182, 187; Apollo 15, 183; Apollo 16, 168, 169, 234; Apollo 17, 182, 184, 185, 306; Apollo Lunar Surface Experiments Package telemetry, 182-184, 205; AS-201, 118, 145; Bailout decision during powered descent, 174; Command/Service Module, 112, 136, 137, 144, 145, 150, 151, 157, 166, 169, 170, 171, 173, 180, 181, 185, 196, 232, 306, 341; Flight phases, 143-144, 153; Free–return trajectory, 151, 181; Implications of moving the launch window, 157-159; Lunar Module, 112, 136, 144, 145, 147, 151, 152, 166, 167, 168, 173-179, 181-185, 232, 305; Original tracking plans, 145-147; Portable Life Support System telemetry, 175, 180; Reentry and recovery considerations, 150-152, 156-159, 160,
163; S-IVB transponder interference, 181; Saturn 1B launch vehicle, 118, 154, 167, 196; Saturn
V launch vehicle, 118, 131, 135-138, 145, 147, 151, 154, 156-159, 166, 186, 187, 224; Trans-Earth
Injection tracking, 144; Trans-Lunar Injection tracking, 129, 135, 149, 150, 151, 153, 157-159;
Transposition and docking tracking requirements, 151-152, 158
Apollo Range Instrumentation Aircraft: 158-161, 163, 193, 203, 214; Flight 328 crash, 161-162; Joint
NASA/DOD responsibility, 159-161; Project Configuration Control Board, 161; Two-ocean
versus single-ocean support, 158-159
Apollo-Soyuz Test Project: xl, 135, 190-198, 200, 205, 214, 215, 229, 249, 281, 306, 327; American/
Soviet cultural differences, 195-197; Soviet ground stations, 191, 193; Soviet tracking ships, 193;
Soyuz 16 network rehearsal, 195; Use of ATS-6, 193-195
Application satellites (See also specific satellite names): xxxii, xxxvii, xxxviii, xl, 65, 222, 229, 232,
234, 249, 273, 304, 306
Applications Technology Satellite (See also Apollo-Soyuz Test Project): 50, 55-56, 156, 193-195, 205,
206, 214, 215, 219, 227, 248
Applied Physics Laboratory, Johns Hopkins University: 184
Ariane launch vehicle: 238, 239
Argee Corporation: 282
Army, United States (See also Department of Defense): xiii, 6, 8, 9, 19, 21, 23, 24, 40, 42, 60, 74;
Ballistic Missile Agency, 29; Corps of Engineers, 7, 15, 31, 236; Map Service, 15; Ordnance
Department, 6, 7; Project Orbiter, 15; Signal Corps, 15
Ascension Island: xxxii, 2, 98, 114, 116-119, 123, 124, 149, 160, 162, 163, 189, 192, 220, 237-240
AT&T: 101, 196, 244, 246
Atlantic Missile Range (See Eastern Test Range)
Atwood, William H.: 127
Australia (See also specific locations in Australia): xiv, xv, xxxiv, xxxv, 4, 19, 34, 39, 44, 45, 48-50, 56,
83, 95, 99, 110, 113, 114, 146, 148, 150, 174-176, 188, 189, 193, 203, 208, 212, 220, 223, 226,
(See Geoscience Australia); Department of Supply, 21, 44, 45, 115; Department of Territories,
235; Department of Transport and Communications, 235; Geoscience Australia, 235; Weapons
Research Establishment, 21, 45, 115
Automated Transfer Vehicle: 335
Autotrack: 39, 40, 51-52, 76, 149, 327
Azusa missile tracking system: 9, 10

B

Badgeless controller: xxxvii, 232
Baghadady, Eli: 37
Baikonur-Tyuratam Cosmodrome: 66, 191, 195
Bailey, Harry: 229
Baker, James G.: 3
Baker-Nunn camera: 3-5, 234, 235
Ball Aerospace Corporation: 66
Bandwidth requirements: xxxviii, 35, 62, 164, 174, 298, 300
Barbados: 120
Barbour, Walworth: 84
Barking Sands, Kauai (See Hawaii Ground Station)
Barnes, G. M.: 6
Barnes, Robert: 185
Baumgartner, A. W.: 134
Bavely, James: 124
Beall, J. Glenn: 31
Beijing, China: 318
Beamwidth: 52, 144, 181, 232
Bear Lake, Utah: 223
Bell Telephone: 80, 244, 246, 249
Bender, Ed: 96
Bendix: 21, 57, 80, 86, 156, 161, 222, 227, 228, 229, 331-332; Bendix Aviation Corporation, 21;
   Bendix Field Engineering Corporation, xix, xxxvii, 29, 88, 96, 118, 121, 122, 124, 126, 127, 129,
   204, 214, 237, 240; Pay incentives, 57; Transition to Allied Signal and Honeywell, 289
Benson, Cliff: 229, 331
Berg, Wilfred E.: 16
Bermuda Tracking Station: xxx-xxxi, xxxviii, 64, 73, 80, 81-83, 87, 95, 98-100, 102, 109, 110, 112,
   118, 119, 135-138, 144, 146, 149, 151, 162, 164, 192, 220, 305-306
Berndt, Morton: 140
Big Dish (book): xiii
Bit errors and bit error rates: xlii, 118, 217, 313, 341
Blagonravov, Anatoly: 190
Blaha, John E.: 284
Blossom Point, Maryland: 15, 17, 19, 21, 23, 55, 58, 60, 203
Bobko, Karol J.: 270
Bodin, Wesley J.: 31, 40-41, 236,
   Boeing: 223, 270, 298, 299; Boeing-Delco, 184
Boller and Chivens Company: 3
Bolton, John: 174, 181
Borman, Frank: 171, 172-173, 286
Botswana Ground Station: 226, 240
British Cable and Wireless Company: 88, 116, 237, 239
Brand, Vance D.: 196
Brinkley, Randy H.: 299
Brockett, Norm: 127
Brown, David M.: 334
Brown Field (See San Diego Station)
Brussels, Belgium: 196
Buchli, James F.: 284
Buckhorn Ground Station: 224
Buckley, Edmond C.: xi, xviii, xix, xx, xxxiv, 52, 68, 80, 89, 90, 92-93, 116, 112, 123, 127, 131, 136,
   140, 209, 326, 327, 329
Budget discussions: xxxiv, 28, 45, 79, 103, 137, 152, 199, 200, 211, 218, 254, 332; Guam and Hawaii,
   206-207
Buitrago, Spain (See Madrid)
Bureau of Land Management: 228, 317
Bureau of the Budget: 27, 152, 206
Bush, George W.: 326, 341
Bushuyev, Konstantin D.: 197

C

Cadena, Carlos H.: 229
Calibration aircraft: 14, 76-77; High altitude training, 77
California Tracking Station: 95, 99, 101, 114
Call, Dale: 138
Canary Island Tracking Station: xxxi, 88, 94-97, 100, 114, 118, 119, 138, 146, 162, 163, 205-206
Canberra Deep Space Communication Complex: xiii, xxxv, xxxvi, 34, 46, 50, 175, 212, 222, 231, 235,
   288-290
Canton Island Tracking Station: xxxi, 83, 84-85, 95, 114, 121-123
Capcom: xxxi, 95, 100, 164, 171, 271; Communication Technician, 100
Cape Canaveral, Florida: xxxvi, xxxviii, 32, 64, 72, 74, 79, 80, 81, 87, 88, 89, 92, 94, 95, 98, 99, 100,
Carlucci, Frank C.: 127
Carnarvon, Western Australia: 39, 45, 50, 56, 87, 114, 128, 136, 138, 146, 149, 150, 162, 189
Carpenter, M. Scott: 101
Carrillo Flores, Antonio: 88
Castro, Fidel Ruz: 41
Cellular telephone: xxi, 225, 307, 327, 330
Centaur upper stage: 260, 295, 299, 306
Central Intelligence Agency: 23, 66
Centre National d’Etudes Spatiales: 238, 337
Certification Program (See Training programs)
Chaffee, Roger B.: 166, 167
Chandra X-ray Observatory: 287
Chawla, Kalpana: 334
Chula Vista, California (See San Diego, California)
Cincinnati Observatory: 12
Civil service personnel, use of: xviii, xxxvii, 26, 57, 94
Clark, George Q.: 78
Clark, Laurel: 335
Clarke, Arthur C.: 244
Clemence, Gerald M.: 22
Clements, Henry H.: 94, 331
Code Division Multiple Access: xxi
Cold War: xxxvii, 1, 105, 140, 171, 195, 198
College, Alaska (See Alaska Ground Station)
Collimation tower: 40, 51, 76, 118, 131, 133, 136
Collins, Michael: 171, 174, 175, 178
Collins Radio Company: 149, 209
Commonwealth Scientific and Industrial Research Organization: xv, 235, 318
Commercial satellite (See also COMSAT and INTELSAT): xxxvii, 65, 244–248, 257, 265, 289; Early Bird, xxxvii, 247; Telstar 1, 65, 244, 246
Commercial space transportation: 311
Communication and Navigation Architecture Working Group: 338
Communications blackout behind the Moon: xxxiii, 172, 341
Communications Satellite Act of 1962: 246
Communications Satellite Corporation: xxxvii, 196, 246–247
Compton Gamma Ray Observatory: 272, 285, 286; GRO Remote Terminal System (GRTS), 289–292
Computation and Data Flow Integrated Subsystem: 77
Conrad, Charles, Jr.: 110, 188
Consolidated Vultee Aircraft Corporation: 9
Consolidated Space Operations Contract: xxiv, 323, 326
Consultative Committee for Space Data Systems: xxii
Cooby Creek, Australia: 50, 56, 203
Cooper, L. Gordon, Jr.: 98, 102–103
Cooper’s Island (See Bermuda)
Corliss, William R.: x, xii
Coronal holes: 66
Corpus Christi, Texas (See Texas Tracking Station)
Cosmic Background Explorer: 310
COSPAS–SARSAT satellite project: 236–237
Cost reduction: xxii, xxxiv, xxv, xlii, 300, 313, 323; Rising cost of station operations, 226–227
Costrell, James A.: 326
Council for Scientific and Industrial Research: 208, 210–213
Courier, air and surface: 22, 36
Covington, Ozro M.: xi, xix, xi, 8, 78-80, 101, 178, 185, 201, 327, 331
Crabill, Donald: 152
Crew Exploration Vehicle: 340
Crippen, Robert L.: 224
Crough, Ed: 96
Crowley, J. W.: 70
Crustal Dynamics Project (See Tectonics)
Cubic Corporation: 75
Cunningham, R. Walter: 170
Cushman, Ralph E.: 90, 205

D

Dakar, Senegal: 56, 225, 226, 231, 240
Darwin, Australia: 50, 56, 203
Data Acquisition Facility: 43, 47, 51, 53, 64, 85, 135; Power requirements, 47-49; Staffing and operating cost, 49
Data rate requirements: xxxviii, 36, 201, 265, 298, 300, 301, 335, 338
Deep Space Network (DSN): ix, xii-xvi, xix, xxi, xxxv, xli, 33, 45, 50, 52, 59, 80, 109, 117, 123-124, 128, 144, 146, 147-149, 163, 208, 212, 221, 231, 232, 235, 241, 250-251, 288, 308, 322, 338; As Apollo wing-station, 147-149, 232-233; Ground Communications Facility: xiv; Subnets, xiv; World Net: 208
Delta launch vehicle: 202, 287, 306
Department of Commerce: 121
Department of Defense (See also Air Force, Army and Navy, United States): xxxiii, 2, 12, 27, 94, 115, 153; Advanced Research Projects Agency, 67; Committee on Special Capabilities, 9
Department of Interior: 84, 111, 123, 281
Department of State: xxxiii, xxxiv, 20, 42, 88, 90, 94, 97, 123, 125, 127, 152, 205, 209, 214, 230, 236
Deutsches Zentrum für Luftund Raumfahrt: 337
Diggs, Charles C.: 210
Dinn, Mike: 179-180, 234
Donegan, James J.: xxxviii, 71, 77
Douglas Aircraft Company: 30, 76, 161
Dowling, Jack: 138
Down conversion: 53
Dynamic Explorer Satellite: 228
Dryden Flight Research Center: 207, 223, 224
Dryden, Hugh L.: 26, 90, 106, 131, 205
Duncombe, R. L.: 22
Dunseith, Lynwood: xxxviii, 82, 110, 182, 186

E

Early-ops tracking: 19, 40, 112, 139
Earth Observatory Data & Images archive: 119
Earth rotation, effect on trajectory: 2
Earth Resource Technology Satellite: 201, 202, 314
Easter, Bill: 138
Eastern Test Range: 2, 98, 113, 115, 117, 120, 121, 149, 204, 238
East Grand Forks, Minnesota: 42, 55, 203
Easton, Roger L.: 12, 15
Eccentric Geophysical Observatories: 54
Echo satellite: 17, 244, 245, 246, 263
Ecuadorian Services Company: 228-229
Eglin Test Range: 70, 95, 99, 114
Eisenhower, Dwight D.: 9, 24, 25, 27
Eisenhower, Milton S.: 88
Eisele, Donn F.: 170, 171
Electromagnetic waves: 6, 9, 50, 286
Eleuthera, Bahamas: 120
Elliptical orbit: xiv, 35, 43, 54, 111, 166, 169, 200, 232, 270
Engle, Joe H.: 230
Enhanced Launch Vehicle Imaging System: 335
Ervin, Samuel J., Jr.: 52
Esceula Politecnica Nacional: 229
European Broadcast Union: 196
European Earth Resource Satellite: 204, 314
European Space Agency: 237, 239, 324, 333-335, 336, 337
Explorer spacecraft: 24, 29, 33, 65, 203, 244; Explorer 1, xiii, 24; Explorer 6, 65; Explorer 35, 39; Explorer 55, 65
Extravehicular activity: 141, 149, 175, 176, 234, 267

F

Fairbanks, Alaska (See Alaska Tracking Station)
Fairchild Corporation: 193, 257
Fariss, George: 138
“Faster, Better, Cheaper”: xlii, 321
Federal Aviation Administration: 121, 122, 123, 244, 317; Office of the Associate Administrator for Commercial Space Transportation, 311
Federal Communications Commission: xxii, 244, 260
Fiber optics: 289, 308, 320, 335
Field-of-view: 3, 52, 53, 172, 243, 249, 260, 264
Figure-of-merit: 275, 298
Fish and Wildlife Service, United States: 317
Flaherty, Roger: 252
Fletcher, James C.: 211, 236, 254-255
Flight controller: xxxvi, xxxviii, 61, 68, 99, 102, 109, 110, 164, 172, 176, 182, 184, 271, 278
Ford Aeronutronics: 71
Force, Marilyn: 134
Ford, Gerald R.: 197
Fort Myers: 42, 55, 203, 212, 306
Fort Stewart: 19, 21, 42, 60
Fraleigh, William: 97
Frequency allocation: xxii, 337
Fresnedillas, Spain (See Madrid Tracking Station)
Frutkin, Arnold W.: 93
FRW-2 transmitter: 75, 112

G

Gagarin, Yuri A.: 66, 67
Galapagos Islands: 194
Galileo space probes: iv
Garvey, Joe: 138
Gemini, Project: 80, 88, 107, 108-113, 116, 118, 120, 121, 122, 128, 131, 135-136, 140-141, 144, 145, 164, 169, 172, 213; Agena docking target, 108, 112, 140; Gemini 3, 110, 128-129; Gemini 4, 74, 107, 111, 113; Gemini 5, 111, 139; Gemini 6, 141; Gemini 7, 141; Gemini 8, 141; Gemini 11, 141; Gemini 12, 87, 122, 147, 161; Titan launch vehicle, 139, 145
General Dynamics: 154-156
General Electric: 88, 202, 253
Geostationary orbit (See Geosynchronous orbit)
Geosynchronous orbit: 37, 52, 162, 194, 243, 244, 246, 248, 250, 253, 261, 265, 270-271, 277-279, 282, 298, 300, 336, 338
Giant Leap tour: 206
Gitlin, Thomas A.: 290
Gilmore Creek (See Alaska Tracking Station)
Glenn, John H., Jr.: xxix-xxxi, 85, 100, 101
Glenn Research Center: xxii, 28, 315
Glennan, T. Keith: 31, 36, 84, 85, 88, 91
Global Positioning System: 53
Go/No-Go decision: xxxviii, 73, 82, 100, 115, 129, 135, 149, 151, 164, 305
Goddard Laser Tracking Network: 223, 235
Goddard Range And Range Rate system: 37-39, 42-43, 51, 55-56, 144, 165, 219-220
Goddard, Robert H.: 31-32
Goddard Space Flight Center: iv, x, xiv, xix, xxxviii-xxxxi, xxxix, xl-xl, 30-33, 35-36, 38, 39, 47, 48, 53, 57, 58, 61-63, 64, 65, 68, 74, 77-79, 91, 92, 101, 103, 108, 110, 111, 114, 135, 145, 164-165, 178, 180-182, 185, 187, 192, 194-195, 198, 200, 202, 223, 224, 229, 230, 237, 253-255, 271, 289, 296-297, 311, 316, 322, 323, 324, 326, 331; Advanced Development Division, 35; Communications Division, 59, 330; Competition between Code 500 and Code 800, 217-218; Explorations, Operations, Communications and Navigation Systems Division, 300; Foreign policy work, 215, 226, 323; Image Processing Facility, 217; Manned Flight Operations Division, 80, 138, 201; Manned Flight Support Directorate, 80, 215; Manned Space Flight Support Division, 74; Mission and Data Operations Directorate, 215, 236; Mission Operations and Data Systems Division, 236, 287; Mission Operations Control Center, 215; Multisatellite Operations Control Center, 215; Network Office for International Operations, 215; Network Operations Control Center, xxxix, 201, 215-217, 301; Networks Directorate, 215; Project Operation Control Centers, 201, 215-217, 311; Space Communications Branch, 32; Space Network Project Office, 277; Space Projects Center, 30, 68; Space Sciences Division, 31, 66; STADAN Engineering Division, 40; Suborbital Projects and Operations Directorate, 310, 312; Tracking and Data Systems Directorate, 10, 32, 59, 144, 215
Goetchius, Rod: 80
Goett, Harry J.: 52, 68, 74, 77, 78, 79, 117, 125
Goldin, Daniel S.: 322, 325
Gomez, Louis: 281
Goodman, Charles J.: 196
Grand Canary Island (See Canary Island Tracking Station)
Grand Bahama Tracking Station: 21, 40, 112, 114, 118, 119-120, 136-139, 149, 163, 224, 308
Grand Turk Tracking Station: 18, 21, 40, 95, 100, 112, 114, 136-138
Graves, G. Barry, Jr.: 71, 74, 76, 80, 90
Gray, Don: 138
Great Observatories spacecraft: 281, 286-287
Griffin, L. F.: 126, 127
Grissom, Virgil I.: 166, 167
Ground Network (See also individual station locations): iv, xli-xlili, 301, 302, 303, 311, 315, 320-321; DataLynx, 317-318, 321; Universal Space Network, xlili, 318, 321, 323
Ground track, spacecraft: xli, 19, 34, 42, 72, 84, 92, 113, 118, 129, 172
Grumman Aircraft Engineering Corporation: 167
Guam Tracking Station: 64, 129-135, 138, 147, 151, 162, 163, 166, 192, 206-208, 219, 229, 235-236, 240, 321
Guaymas Tracking Station: xxxi, xxxiv, 88-92, 95, 99, 101, 114, 138, 139-141, 146, 147, 162, 165, 204-205
Guerrero, Jose A. Leon: 134
Guerrero, Manuel F. Leon: 130, 131, 237, 292
H

H-II Transfer Vehicle: 335
Habib, Edmund J.: 14, 37
Hagen, John P.: 22
Hainworth, H. C.: 84
Haise, Fred W., Jr.: 181, 182
Haney, Paul P.: 170
Harris Corporation: 256, 257, 280
Harris, David W.: 17, 77, 239, 325
Harris, Matt: 96
Hauck, Frederick H.: 282
Hawaii Ground Station: 84-87, 95, 99, 100, 101, 110, 113, 114, 129, 138, 146, 149, 151, 162, 163, 166, 171, 192, 206-208, 219, 240; Bonham Air Force Base, 85; Honolulu switching center, 64; Kokee Park Geophysical Observatory, 85, 219, 303-304; University of Hawaii, 240, 303
Headquarters, NASA: xviii-xx, xxiii-xxv, xxxiv, xxxix, 17, 20, 59, 70, 74, 77, 80, 82, 84, 90, 97, 111, 122, 125, 134, 140, 155, 164, 165, 170, 189, 194, 205, 209, 210, 213, 215, 227, 236, 239, 255, 298, 323, 324-325, 332, 336, 338, 340; Apollo Spacecraft Program Office, 170; Code O and Code T, xx, 323-325; Office of Manned Space Flight, 123, 128, 158, 203; Office of Procurement, 90; Office of Program Planning and Evaluation, 36; Office of Space Communications, xi, xx, xxiii-xxiv, 82, 284, 322, 323-325; Office of Space Flight Programs, 77; Office of Space Operations, xx, 258, 325; Office of Space Tracking and Data Systems, 281, 293, 323; Office of Tracking and Data Acquisition, xix, xx, xxii, xxiii, xxxiv, 52, 80, 111, 120, 121, 122, 124, 128, 129, 131, 151, 152, 153, 156, 188, 199, 253, 254, 325
Healey, Fred: 138
Heller, Niles R.: 74
Herget, Paul: 12, 13, 18, 21, 22
Hewitt, Frank: 213
High apogee orbit: xiv, 35, 37, 43, 54, 111, 145, 166, 200
High eccentricity orbit (See High apogee orbit)
High Energy Astronomy Observer: 201
High frequency: 12, 60, 61, 155, 159, 238
High inclination orbit (See Polar orbit)
Hinners, Noel W.: 198, 237
Hoff, Hal: 77
Honeywell: xix, 318
Hooker, Ray W.: 71, 93
Hughes Aircraft Company: 52, 245, 248, 254, 255, 294, 298
Hunter, Dan: 138
Hurd, Cuthbert C.: 21
Husband, Rick D.: 334
Hynek, J. Allen: 3

I

Ikonos satellite: 119
Indian Ocean Station: 226
Inertial Upper Stage: 260, 266, 270, 275, 276
Infrared Space Observatory: 39
Instantaneous contact requirement: 70
Institute of Aerospace Technology: xv, 233
Interagency Operations Advisory Group: 337
Inter-American Geodetic Survey: 60
Intercontinental Ballistic Missile: xxxviii, 2, 24, 66, 86, 87
Interference, radio frequency: 81, 102, 165, 181, 184, 188, 260, 261; Rocket plume attenuation, 118, 138, 306-307; Solar activity, 94, 101
International Brotherhood of Electrical Workers (See Labor dispute)
International Business Machines: 21-22, 32, 74, 77, 81; IBM 1218 computer, 58; IBM 709 computer, 99
International Council of Scientific Unions: 3
International Geophysical Year: 3, 9, 10, 15, 24, 44, 93, 208
International Organization for Standardization: xxii
International Satellite for Ionospheric Studies: 50
International Space Station: xxxvi, xlii, 184, 241, 251, 252, 272, 278, 282, 304, 310, 331, 333, 334, 340
International Telecommunications Satellite Consortium: 64, 247-248, 289, 315; Apollo support, 162-163, 194; Early Bird, xxxvii, 247
International Telecommunication Union: 34
International Ultraviolet Explorer: 55, 201, 216, 228, 310
Internet: 272, 316, 330, 341; Access to South Pole, xlii, 272, 315
Interplanetary Monitoring Platform: 34, 35, 304, 309
Invisible Network: xl, xlii, 102-103, 330, 331
Ippolito, Tony: 308
Ionosphere: 2, 22, 24, 43, 314
Irwin, James B.: 183
Island Lagoon, South Australia: 45, 47, 234
ISS Downlink Enhancement Architecture: 335
Iuliano, Henry: 189, 250

J

Jackson, Chuck: 138
James Webb Space Telescope: 340
Japanese Institute for Aerospace Technology: 318, 337
Jarvis, Gregory B.: 272
Jet Propulsion Laboratory (See also Deep Space Network): xiii-xv, xviii, 24, 28, 29, 33, 117, 165, 209, 228, 232, 235, 308, 322-323, 324, 333
Jochen, Larry: 331
Johannesburg Tracking Station: 19, 21, 41, 42, 56, 114, 124, 128, 149, 152, 208-213, 222, 226, 318, 336, 340
Johnson, Lyndon B.: 28, 106
Jonathan Dickinson Missile Tracking Annex: 308, 335
Jones, Jesse C.: 281
Jordan, B. Everett: 52
Jupiter C launch vehicle: 24

K

Kano, Nigeria: xxxi, 30, 50, 86-88, 93, 95, 97, 114, 124, 125, 127
Karume, Abeid Amani: 127
Kauai, Hawaii (See Hawaii Tracking Station)
Kelly, Richard: 96
Kennedy, Edward M.: 211
Kennedy, Gregory P.: 282
Kennedy, John F.: 78, 106, 108, 245
Kennedy Space Center: 64, 114, 123, 135, 136, 137, 143, 151, 166, 194, 196, 204, 222, 225, 232, 239, 267, 272, 273, 275, 306, 308, 309, 326, 340
Kent, Marion: 207
Kerrigan, E. J.: 89
Kerwin, Joseph P.: 188
Khrushchev, Nikita S.: 105
Killian, James R., Jr.: 25, 26, 27
Kodak Corporation: 3
Kokee Park, Kauai (See Hawaii Tracking Station)
Kosygin, Alexey N.: 190
Kourou, French Guiana: 239
Kraft, Christopher C., Jr.: xix, xxxvi, xxxviii, xl, 79, 174, 179, 182, 197, 205, 224
Kranz, Eugene F.: 110, 180
Kronmiller, George: 37-38
Krugman, Clay: 96
Kubasov, Valeri N.: 196, 197
Kwajalein, Marshall Islands: 2, 87, 98

Labor dispute: 227
LaFleur, Walt: 138, 230
LAGEOS satellite: 222
Lagrange point: 340
Lake Victoria, Africa: 194
LANDSAT: 50, 202, 212, 226, 228
Langley Research Center: 32, 63, 67, 68, 70, 71, 74, 77, 84, 88, 90, 91, 93, 218, 245, 310; Langley Aeronautical Laboratory, 28
Las Cruces, New Mexico: 278, 281, 283, 284, 285, 286
Laser tracking: 222-223, 235
Launch azimuth: 72, 119, 225; Apollo missions, 135-137, 151, 153, 158, 203
Lawless, Ed: 189
Leddy, Raymond: 91
Lee, Roger: 96
Lee, William A.: 170-171
Leonov, Aleksei A.: 196, 197
Leslie, Robert A.: 45
Lewis Flight Propulsion Laboratory (See Glenn Research Center)
Lights-out operations: 259, 308, 318, 320
Lima, Peru: 16, 19, 23, 40, 56, 149, 163, 203
Lindsay, Hamish: xxxvi, 235
Lindsay, John C.: 66
Line-of-sight limitation: xli, 277, 288, 305
Lissajou orbit (See Lagrange point)
Lockheed Missiles and Space Company: 66, 76, 253, 299, 323, 326
London switching center: 61, 64
Looney, Chesley H., Jr.: 12, 16, 23, 35
Lopez Mateos, Adolfo: 88, 89
Loss-of-signal: 72, 84, 124, 129, 172, 307, 309
Lovell, James A., Jr.: 171, 181, 182
Low, George M.: 106-107, 170, 171, 204-205
Lowe, Bryan: 138
Lunar Orbiter space probe: xv
Lunar Reconnaissance Orbiter: 338
Lunar Rover, Apollo: xii, 183-185; Solution for communications time lag, 184; Tracking, 185
Lundy, Wilson T.: 286, 325
Lunney, Glynn S.: 197
Lutz, Russell: 96
Magnetic tapes, 14-track: 22, 48, 53, 60, 216
Manned Lunar Landing Task Group: 106
Manned Spacecraft Center (See Johnson Space Center)
Manned Spaceflight Instrumentation and Communications Panel: 136, 138
Mariner space probe: ix, xv
Mars, exploration of: ix, 212, 336, 338, 339, 340; Mars Reconnaissance Orbiter, xv; Spirit and Opportunity rovers, xvi
Marshall Islands (See Kwajalein, Marshall Islands)
Marshall Space Flight Center: xiv, 166, 187, 306, 322, 324, 326, 335, 337
Mars: 124
Massachusetts Institute of Technology: 71, 156
Mathews, Charles W.: 70
Matthes, Chester: 42
Mayer, John: xxxviii
Mayo, Robert P.: 206
McAuliffe, S. Christa: 272
McCool, William C.: 334
McCormack, John W.: 28
McDivitt, James A.: 107, 113
McElroy, John H.: 230
McKeehan, B. Harry: 20, 21, 54, 226
McMurdo Ground Station: 272, 313-316; McMurdo TDRSS Relay System, 314; Working with NSF, 313
McNair, Ronald E.: 272
Mendez Docurro, Eugenio: 90, 205
Mengel, John T.: xxxiii, 10-13, 15, 18, 19, 36, 59, 74, 201, 218, 327; Space Communications Branch, 32
Mercury, Project: xxix-xxxi, xxxiv, xxxvii, 54, 61, 62, 63, 64, 67, 68, 69, 70, 72, 74, 75, 79, 80, 81, 84, 88, 92, 94, 102, 103, 105, 108, 110, 111, 113, 116, 125, 128, 139, 145, 150, 164, 172, 240, 310, 331; MA-4, 85; MA-5, 101; MA-6, 85, 92, 100, 101; MA-7, 101; MA-8, 98, 101; MA-9, 98, 99, 102, 105, 109, 121; Project 7969, 67
Mercury Space Flight Network: 65-103; 12 ground rules, 72-73; Communication gap, 73, 84; Mercury Control, 70, 71, 73, 74, 78, 83, 92, 101, 109; Site selection, 71, 73-75, 80-82; Tracking And Ground Instrumentation Unit, 71-72, 74-75, 79, 84, 90; Tracking System Study Group, 68, 70-71, 103
Mexican National Commission for Outer Space: 204
Microwave relay: xiv, 60, 94, 147, 175, 176, 181, 225, 307, 308, 311, 315, 316
Midway Island: 98, 115
Minitrack Network (See also Naval Research Laboratory): 9-24; Antenna array, 13-14, 16, 18; Calibration, 14, 19, 22, 76; Data processing, 21-22; Initial cost, 12; Mark II and Project Moonbeam, 15; Minitrack Optical Tracking System, 14, 17; Origin of the name, 11; Picket Line, 19, 40, 42; Role of the Defense Department, 15, 21; Role of the State Department, 20, 59-60; Site selection, 16, 18-19
Mintz, Frank P.: x
Mobile Laser Ranging System: 223
Mobile stations (See Temporary tracking stations)
Mogan, Kathleen M.: x
Mongas Lopez, Ricardo: 90, 91
Montoya, Percy: 96
Morse, Gary A.: 301
Mosquera, Fabian: 229
Moss, Frank E.: 211, 212
MPS-26 radar: 54, 128
Muchea, Western Australia: xxxi, 54, 95, 99, 100, 115, 128
Mudgway, Douglas J.: xii
Multipath interference: 14
Multiplexing/De-multiplexing of signals: 224-225, 265
Musgrave, F. Story: 270

N

Nairobi, Kenya: 127
NASA Communications Network: 37, 53, 59–63, 64, 77, 131, 164, 176, 188, 189, 215, 225, 234, 241, 251; Switching centers, 61, 64, 131, 189
NASA, establishment of: 24–29; Anderson, Clinton D., 25; Atomic Energy Commission, 25, 27; Civilian charter, xxxiv, 24, 93, 244; Department of Science and Technology, 27; National Advisory Committee for Aeronautics, 25–28, 207, 310; National Aeronautics and Space Act of 1958, 28; Select Committee on Astronautics and Space Exploration, 28; Special Committee on Space and Astronautics, 28; President’s Science Advisory Committee, 25, 26
NASA Integrated Support Network: xiv, 278, 323
NASA Long-Range Plan document: 36
National Academy of Sciences: 2, 3, 4, 10, 25, 27, 93
National Facilities Study: 337
National Institute of Aerospace Technology (Spain): xv, 233
National Oceanic and Atmospheric Administration: 219, 228, 317, 321, 337
National Science Foundation: 25, 27, 272, 277, 314, 316
National Space Development Agency of Japan: 237, 333, 334
National Telecommunications and Information Administration: xxii
Nationalizing of overseas stations: xxxv, 20, 229, 321
Naval Research Laboratory: 7, 9–10, 12, 15, 18, 19, 21–23, 31, 32, 55, 59, 60, 74, 93; Office of Naval Research, 21, 30
Navy, United States (See also Department of Defense and names of specific ranges and ships): xxxiii, 2, 6, 15, 16, 24, 31, 40, 74, 84, 98, 101, 113, 116, 122, 127, 130, 134, 150, 152, 154–157, 240, 292, 303, 304, 313; Blossom Point, 15, 17, 19, 21, 23, 55, 58, 60, 203; Bureau of Yards and Docks, 15, 121; Facilities Engineering Command, 97; Instrumentation Ships Project Office, 154, 156; Naval Academy, 55, 228; Naval Observatory, 22, 280, 304
Network centralization: xxxviii, 109–110, 141, 164, 216, 218, 330
Network Director: 165, 301
Network Operations Control Center (Pasadena): xiv
Network Operations Control Center (Greenbelt): xxxix, 201, 215–216
Network Operations Manager: 165
Network Test and Training Facility: 55, 58, 203, 219, 228, 310, 337
Newberry, Stan C.: 325
Newfoundland Tracking Station: 42, 55, 192, 203
New Mexico Institute of Technology: 281
New Mexico State University: 281, 284
Nimbus meteorological satellite: 36, 39, 43, 54, 195, 228
Nitze, Paul H.: 127
Nixon, Richard M.: 190, 197
North American Aviation: 170; North American Rockwell, 254
North Carolina (See Rosman Tracking Station)
North Pole: 272, 318, 319
Northern Mariana Islands: 129, 130, 290
Nunn, Joseph: 3
Ocean cables: xiv, xxxii, 60, 64, 88, 98, 99, 110, 113, 129, 225, 238
O’Connor, Gerry: 100
Odenthal, Larry: 138
Office of General Counsel: 90, 239
Office of Manned Space Flight (See Headquarters, NASA)
Office of Program Planning and Evaluation (See Headquarters, NASA)
Office of Space Communications (See Headquarters, NASA)
Office of Space Tracking and Data Systems (See Headquarters, NASA)
Office of Tracking and Data Acquisition (See Headquarters, NASA)
Onizuka, Ellison S.: 272
Operating cost: xxi, xli, xlii, 20, 152, 160, 161, 203, 211, 212, 214, 217, 226, 228, 239, 249, 260, 290, 301, 306, 311, 312, 320, 321, 322, 323, 335; Ground station, 36, 43, 49, 103, 123, 148, 152, 204, 206, 215, 227, 249; Ship, 128, 150, 152, 156, 214
Operation Moonwatch: 4-7
Operation Paperclip: 2
Optical tracking (See also Minitrack Optical Tracking System): 2–6, 8, 10, 326; Acquisition, 4, 6, 10, 13; Optical network: 3–4; Weather and lighting, 6
Orbit determination: 18, 22, 35, 40, 47, 53, 70, 100, 169
Orbit inclination, effect on tracking: 19, 34, 50, 67, 73, 87, 270, 272, 305, 312
Orbiting Astronomical Observatory: 50, 61, 215, 227
Orbiting Geophysical Observatory: 39, 50, 54, 56, 61
Orbiting Geophysical Project: 50
Orbiting Solar Observatory: 50, 66
Orellana, José Rubén: 229
Orroral Valley Tracking Station: 44, 47-49, 53, 56, 192-193, 220, 221, 222, 233-235
Owen, Robert L.: 181
Owens, Joseph S.: 282

P

Pacific Missile Range: 2, 70, 85, 87, 115, 121, 240, 303
PAGEOS satellite: 219
Paine, Thomas O.: 178, 187, 190, 206, 207
Pakistan: 50, 226
Palermo, Sicily: 146
Parkes Observatory: xxxv, 174–178, 181, 182
PEACESAT: 304
Performance matrix, MSFN and STADAN: 217
Perkin-Elmer Corporation: 3
Perth, Western Australia: 114–115, 150, 189, 318
Peterson, Donald H.: 270
Phillips, Samuel C.: xx, 137, 139, 167, 171
Phoenix Islands: 276, 289, 300
Picard, Fredrick: 127
Pickett, Eugene: 134
Pierce, John R.: 244
Pioneer space probe: iv, 147, 158, 172; Pioneer 3, xiii, xv; Pioneer 4, xiii, xv; Pioneer 6–9, xv; Pioneer 10, xv; Pioneer 11, xv
Polar orbit: 34, 41, 50, 228, 315, 319, 320
Polar Orbiting Geophysical Observatory: 54
Ponce de Leon Tracking Station: 273, 306, 307-309, 335
Portugal: 209
Pretoria, South Africa (See Johannesburg Tracking Station)
Puerto Rico: 98
Pulse Amplitude Modulation: 75
Pulse Code Modulation: 108, 109, 159

Q

Quann, John J.: 282
Quito, Ecuador: 16, 19, 42, 56, 192, 193, 220, 222, 228-231; CLIRSEN agency, 231; Ecuadorian Services Company, 229; Mount Cotopaxi, 228, 230

R

Rabasa, Oscar: 91
RADARSAT: 314
Radar tracking: 2, 6, 8, 9, 15, 70, 71, 73-75, 87, 95, 100, 101-102, 108, 135, 144, 153, 162-163, 219-220, 261; Beacon track, 74, 94; FPQ-6, 58, 111-112, 128, 135; FPS-16, 11, 74, 98, 112; MPS-26, 54, 128; Skin track, 74, 111; Very Long Range Tracking, 74-75, 112
Radio Corporation of America: 8, 43, 57, 71, 72, 74, 80, 135, 173, 244, 253, 255, 278
Radio interferometry: 9, 11, 33, 39; Operating theory, 13; Azusa missile tracking, 9, 10; Tracking Viking guided missile, 10-11
Ramon, Ilan: 335
Rangel, Charles B.: 210, 211
Ranger space probes: xv
Ratsiraka, Didier: 213, 214
Raytheon: 289
Reagan administration: 238, 274
Reeves Instrument Corporation: 74, 80
Relay communication satellite: 244
Remote sensing: 201, 202, 217, 281, 300
Rendezvous and docking, tracking requirements: 108, 112, 129, 141, 144, 178, 190, 195
Resnik, Judith A.: 272
Roberts, Tecwyn: xl, 138
Robledo, Spain (See also Madrid Deep Space Communication Complex): xiii, 148, 221, 233
Rodd Naval Auxiliary Air Station: 115
Rogers Commission (See Space Shuttle Program, Challenger)
Rosen, Milton W.: 10
Rosenthal, Alfred: x, xx, 33
Rosman Tracking Station: 39, 42, 43, 50, 51-53, 55, 64, 192-194, 219, 221, 227-228, 340
Rouillier, Charles: 96, 138
Roy, Melba: 38
Rusk, D. Dean: 127

S

S-band (See also Unified S-band): 36-39, 51, 52, 64, 74, 95, 123, 145, 165, 185, 201, 262, 264, 265, 267, 269, 271, 291, 292, 293, 298, 304, 306, 312, 315, 318, 340; S-band ranging, 35; Saturn V plume attenuation, 118
Sade, Richard S.: 230
Samet, Arthur: 207
San Diego Tracking Station: 18, 19, 21, 23, 40, 55, 60, 203
Sanford, J. Terry: 52
San Nicholas Island: 98, 102
Santiago, Chile: 16, 19, 23, 40, 42, 56, 192-193, 220, 221, 222, 236, 304-305, 318, 321
Sardinia, Italy: 209
Satellite Instructional Television Experiment: 194
Saxon, John: 234, 427
Switching, Conferencing And Monitoring Arrangement: 113
Satellite Command Antenna on Medium Pedestal: 131, 311
Scheer, Julian W.: 170
Schmidt camera (See Baker-Nunn camera)
Schneider, William C.: xxxii-xxxiii, 112, 325
Schirra, Walter M.: 69, 102, 170, 171
Schultz, Hank: 138
Schulz, Gary: 331
Scobee, Francis R.: 272
Scott, David R.: 183
Seamans, Robert C., Jr.: 106, 117, 125
Seasat program: 281
Seaton, Fredrick A.: 85
Seychelles (See Indian Ocean Station)
Shepard, Alan B., Jr.: 33, 82
Ship's range and tracking: xxxii, xxxiii, xxxvi, 40, 64, 98, 101, 113-116, 123, 128, 144-147, 150-158, 159, 162-163, 173, 193; Apollo Instrumentation Ships, 150-151, 156, 203; American Mariner, 98; Coastal Sentry Quebec, 95, 98, 113, 114, 128, 146, 150; Cost versus land station, 152-153, 214-215; Huntsville, 98, 151, 153, 156, 157, 162, 163, 166, 173, 178; Inertion tracking, 151, 152, 154; Mercury, 151, 158, 162; Range Tracker, 98, 113, 114; Redstone, 151, 157, 158; Reentry tracking, 123, 151, 153, 157, 173; Retrofit, 153-155; Rose Knot Victor, 95, 98, 113, 114, 150; Twin Falls Victory, 98; Vanguard, 151, 154, 155, 158, 163, 188; Watertown, 98, 150, 153, 156, 157, 162
Short arc solution: xxxviii
Sicily, Italy: 146, 209
Side-tone ranging: 37
Siepert, Albert F.: 117
Silverstein, Abe: 70, 77, 80
Simpson, George L., Jr.: 52
Simulations: xiv, 19, 59, 73, 76-77, 100, 111, 179, 180, 234; Integrated sim, 77, 278
Siry, Joseph W.: 22
Site survey: 7, 16, 50, 74, 81, 85, 120, 129, 130, 131, 209, 288
Skylab, Project: xl, 135, 161, 186-189, 306; Reentry tracking, 188-189
Slayton, Donald K.: 110, 196
Smith, Albert E.: 87
Smith, Glenn: 96, 331
Smith, Michael J.: 272
Smithsonian Astrophysical Observatory: 2-6, 208, 234
Smylie, Robert E.: 230, 281, 325
Solar Dynamics Observatory: 338
Solar Maximum Mission: 236
Solrad 1: 65
Soule, Hartley: 68
Sounding rocket: 1, 2, 32, 66, 140, 204, 310, 312, 317, 332
South Africa (See Johannesburg)
South Atlantic Anomaly: 287
Southern Rhodesia (See Zimbabwe)
South Pole (See McMurdo Ground Station)
Soviet Union: xxi, xxxvii, 1, 2, 22, 23, 24, 36, 66-67, 105, 141, 215, 236; ASTP, 190-198
Space Electronics Company: 71
Space Network (See Tracking and Data Relay Satellite System)
Space Networks Interoperability Panel: 336-337
O and GSFC, 323; Consolidation of management structure, 323, 325; Consolidated Space Operations Contract, xxiv, 322, 325; Shift in program responsibilities from Headquarters to JSC, xxiv, 322
Space Race: xxxvii, 28, 171, 198, 321, 340
Space Shuttle: xii, xx, 64, 198, 200, 225, 226, 231, 240, 250, 254–255, 257, 266, 271, 278, 286, 287, 298, 299, 304–305, 331; Approach and Landing Test support, 223–224; Challenger accident, 237, 271–273, 276, 282, 299, 292, 303; Columbia accident, 332; De-orbit and reentry coverage, 226; OMS-1 burn tracking, 225; OMS-2 burn, 226; Plume attenuation, 138, 306; SRB, 306–309; Return-to-Launch-Site abort tracking, 307; RTHU maneuver affect on data coverage, 305; Schedule conflict with Ariane 9, 238; Spacehab, 281; Spacelab, 281; STS-1, 224, 226, 308; STS-2, 228, 235; STS-3, 232; STS-4, 275; STS-5, 267; STS-8, 224, 282; STS-9, 275; STS-29, 276, 277, 284; STS-31, 286; STS-37, 285, 287; STS-43, 276, 277; STS-54, 266, 276, 277; STS-61, 286; STS-70, 276, 277; STS-87, 307; STS-93, 287; STS-114, 335; TDRS launch mode, 260–261, 299; Text And Graphics System, 271
Space Station Freedom: 282
Space Task Group: 32–33, 68, 70, 72, 77, 310
Space Telescope Science Institute: 216
Space Transportation System (See Space Shuttle)
Spearing, Robert E.: 82, 236, 257, 259, 260, 324, 325, 342
Speed, transmission: xxxviii, 60, 61, 64, 224, 330
Spencer, Tom: 127
Spin stabilization: 66, 203, 247
Spintman, Daniel A.: 230
Spitzer Space Telescope: 287
Sputnik: xxxviii, 23–24, 25, 28, 66, 244
St. Incia: 120
St. John's, Canada (See Newfoundland Tracking Station)
Stafford, Thomas P.: 196
Stapp, John P.: 282
Station Director: 45, 57, 86, 123, 129, 138, 140, 236
Station equipment, disposition of: 40, 42, 47, 54, 55–56, 123, 224, 235, 236, 240, 289, 306; Johannesburg, 212; Tananarive, 127, 158, 204, 214
Station performance, measure of: 217
Station workload: 87, 222
Stelter, Lavern R.: 59, 60, 61, 331
Stevens, Mike: 230
Stocklin, Frank J.: 290
Stockwell, E. J.: 124
Stromberg-Carlson: 80
Suarez Dias, Jorge: 90
Submarine cables (See Ocean cables)
Subpanel on Launch Area Instrumentation (See USB Implementation Subpanel)
Surveyor lunar lander: xv, xxxviii
Svalbard Ground Station: 318–321; EUMETSAT, 320; Konnesberg Satellite Services, 318; Norwegian Space Center, 319, 320
Swigert, John L., Jr.: 181
Syncom satellite: 52, 245, 247

T

Tananarive Tracking Station (See Madagascar Tracking Station)
Taylor, Roy A.: 52, 227
Teague, Olin E.: 210, 333
Technology Readiness Level: 254
Tectonics: 222–223, 240, 304
Telemedicine: 272, 327
Telemetry Online Processing System: 216
Telephone, network usage: 60, 100, 113
Teletype: xxxvi, xxxviii, 22, 47, 48, 53, 58, 60, 64, 83, 100, 113, 159, 271
Television: 35, 62, 64, 109, 164, 165, 170-173, 176-178, 184, 191, 194, 196, 205, 341; Color, 174;
Digital video, 112, 298; First live broadcast to the Rocky Mountains and the Appalachians, 195;
High Definition, 217, 335; Scanner Converter Reversing Switch, 178; Signal protocol, 196; Slow
scan, 173, 176, 177;
Television Infrared Observatory Satellite: 39, 65
Telstar: 65, 244, 246
TELTRAC: 112, 131
Temporary tracking stations: 41, 50, 55-56, 98, 203
Ten-minute “dead time” rule: 72, 109
Tension between the networks: xxxiii, 123, 124, 217-218
Tereshkova, Valentina V.: 105, 141
Terlaje, E. S.: 166
Test and Training Satellite: 147, 172
Texas Tracking Station: 95, 101, 114, 162, 204
Thiele, Otto: 138
Thompson, Floyd L.: 78
Thompson, Henry: 78
Tidbinbilla, Australia (See Canberra and Orroral Valley)
Timing requirements: xxxviii, 12, 14, 53, 173, 279; WWV, 53
Tindall, Bill: xxxviii
Tinian: 129
Tourey, Richard: 10
Tourist attraction, ground station as: 50, 87, 150
Town Hill (See Bermuda Tracking Station)
Townsend, John: 32, 284
Tracking and Data Relay Satellite, First Generation: xxxix, 251, 261-270; Attitude Control System,
261, 263; General specifications, 262; Launch and deployment of, 268-270; Multiple Access
antenna system, 254, 262, 265, 298, 301; Omni Antenna, 262, 266-267, 269, 270; Power system,
261, 264; Reaction Control System (See Attitude Control System); Single Access antenna system, 254,
262, 264-265, 266, 270, 271, 298, 300; Space-to-Ground Link Antenna, 262, 265-266, 267,
269-270, 291; TDRS-1, 228, 261, 267-272, 274, 276, 277, 282, 287, 288, 289, 290, 296, 316;
TDRS-2, 272-273, 276, 296; TDRS-3, 274-276, 297; TDRS-4, 276, 277, 284, 297, 304, TDRS-
5, 276, 277, 297; TDRS-6, 276, 277, 297; TDRS-7, 276, 277, 290, 293, 297; TDRS-East, 275,
277, 281; TDRS-West, 275, 277, 281; Thermal Control System, 263-264
Tracking and Data Relay Satellite, Second Generation: xxxix, 292-301; Critical Design Review, 299;
Data capacity, 298, 300; Definition studies, 293, 296-297; General specifications, 291; Impact of
Challenger accident on launch mode, 274, 295, 299; Initial MA low performance problem, 299;
Ka-band efficiencies, 252, 293-294, 298, 300, 337; Launch using Atlas II-A/Centaur, 295, 299;
Phase A Preliminary Analysis, 293, 296-297; Phase B Definition Study, 293, 296-297; Power
supply, 294-295, 298; Pre Phase A Advanced Study, 293, 296; Propulsion system, 295; Storage
locations on-orbit, 275-276, 300; TDRS-H, 297, 299; TDRS-I, 297, 299; TDRS-J, 297, 300
Tracking and Data Relay Satellite System: xxi, xli, 193, 194, 237, 241, 249-302, 305, 322, 323, 334,
340-342; 100% viewing, 250, 272, 275, 292; Availability of the system, 275-277; “Bent-pipe”
repeater, 250-252; C-band service, 292, 293; Columbia Communications Corporation, 292;
Contel, 257, 271; DRSS Requirements and Interface Panel, 253; Electromagnetic Compatibility
Analysis, 260; Fairchild, 193, 257; Forward link, 271, 278; Guam Remote Ground Terminal, 290,
292, 296-297; Ka-band, 252, 293, 294, 298, 300, 338; Ku-band, 257, 262, 264, 265, 278, 280,
292, 293, 335; Launch mode, 251, 272, 295, 299; Leased service approach, 254, 258-259, 292;
Lessons learned, 258-259; Loading analysis, 253-254; McMurdo TDRSS Relay System, 315-316;
Multiple Access service, 265, 280, 300-301; Naming contest (Cacique and Danzante), 284-286;
Network Control Center, 278-279; Operations Control Center, 280; Origins of, 243-249; Public
Law 95-76, 256; Remote sensing support, 281, 300; Request for Proposals, 255, 298; Return
link, 278, 292; S-band, 262, 264, 265, 267, 299, 291, 292, 293; S-band Tracking, Telemetry and
Command System, 280; Second TDRSS Ground Terminal, 282-286, 289, 290, 296-297; Single Access service, 265, 280; Shared system, 256-257, 259, 293; Spacecom (See Western Union Space Communications); Space Network, xlii, 250, 252, 272-278, 289, 300-301, 308, 312, 322, 335; Space-to-Ground Link Terminal, 280; Tightly coupled system, 259; Timing accuracy, 280; U.S. territory-based solution, 290; Western Union Space Communications, 255-259, 278, 292, 293, 299; White Sands Complex (See White Sands Ground Terminal); White Sands Complex Alternative Resource Terminal, 277; White Sands Ground Terminal, 252, 259, 277-281, 282, 287, 296-297; Zone of Exclusion, 272, 288, 292

Training programs: 19, 20, 58-59, 210, 228, 229, 321
Transportable Laser Ranging System: 223
Traveling Wave Tube: 247, 249, 271
True, Virgil: 85, 138
Truly, Richard H.: 230, 284
Truszynski, Gerald M.: xi, xviii, xx, 152, 199, 204, 205, 207, 213, 255, 325, 332-333
TRW: 256, 257-258, 260, 271, 273, 276
Tsirianana, Philibert: 54
Tula Peak, New Mexico: 226, 231-232

U

Unattended operations (See Lights-out operations)
Uninterruptible power supply: 48, 311
United Nations: 54, 128
UNIVAC: 61; 1218 computer, 110
Universal Space Network: xlii, 318, 321, 323
University of Chile: 40, 56, 312, 318
University of New South Wales: 235
University of Tasmania: 56, 220, 234
Uplink Downlink (book): xii

V

V-2 rocket: 2, 8, 11
Vaccaro, Michael J.: 79
Van Allen, James A.: 24
Vanguard, Project: 10, 12, 14-16, 18-19, 23, 24, 31, 32, 33, 35, 39, 263; Computing Center, 21-22, 74; Control Center, 22
Varson, W. F.: 137, 138, 139
Vaught Aircraft Company: 86
Vavra, Paul: 71
Vensel, Joseph: 207
Verwoerd, Hendrik E.: 209, 210
Very Long Baseline Interferometry: 304
Viking, Project: ix, xv, 161, 212
Vision for Space Exploration: 326; Exploration Systems Mission Directorate, 340
von Braun, Wernher: 2, 15
von Bun, F. O.: 195
Voskhod: 141
Vostok: 105; Vostok 1, 66-67; Vostok 6, 105, 141
Voyager space probe: ix, xv, 161
W

WAC Corporal sounding rocket: 2
Wainright, Lewis: 138
Wake Island: 98
Wallops Flight Facility: 55, 58, 91, 100, 114, 219, 228, 308, 310-312, 335; As the GSFC Suborbital Projects and Operations Directorate, 310; Electrical Systems Branch, 311; Mid-Atlantic Regional Spaceport, 311; Mobile Range Control System, 311; Scout launch vehicle, 310
Wallops Island (See Wallops Flight Facility)
Watson, Bill: 200, 305, 318, 320-321, 337-338
Weather Bureau: 5, 121, 122
Weingarten, Murray T.: xix, 29-30, 331-332
Wiesner, Jerome: 106
Weitz, Paul J.: 188, 267
Western Electric: 80
Western Union: 256-259, 278, 292, 293; 111 Torn-Tape Relay System, 64; Goetchius, Rod, 80
Whipple, Fred L.: 3-6
White, Edward H. II: 107, 166, 167
White Sands (See White Sands Missile Range)
White Sands Missile Range: 2, 7-8, 9, 10, 12, 30, 60, 70, 74, 78, 95, 98, 109, 114-115, 146, 147, 163, 219, 232, 252, 278, 281, 282, 283, 284, 338
White, Tom: 96
Williams, Walt: 207
Wing-station: 147-148, 232-233, 308
Winkfield Tracking Station: 42, 56, 220, 222, 232
Womack, Otto: 138
Wood, H. William: xli, 68, 71, 72, 73, 76, 81, 138, 178-179, 180, 193, 201, 330
Woomera, South Australia: xxxi, 4, 19, 21, 23, 44, 45, 47, 48, 54, 56, 84, 95, 114, 128, 163, 203, 208, 212, 234
Working Group on Tracking and Computation: 2
World Administrative Radio Conference: xxii
Wright, G. R.: 5

X

X-band: 11, 312, 314, 320, 338

Y

Yagi antenna: 34, 36, 39, 48, 51, 219-220
Yarragadee, Western Australia: 226
Young, John W: 224, 234
Yven, Clet: 238

Z

Zanzibar Tracking Station: xxxi, 30, 54, 93, 95, 115, 124-128, 333
Zimbabwe: 128
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