

LUNAR SCIENCE INFORMATION BULLETIN

Universities Space Research Association

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The Lunar Science Institute
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February 24, 1975

SIXTH LUNAR SCIENCE CONFERENCE SCHEDULED

The Sixth Annual Lunar Science Conference will be held at the Lyndon B. Johnson Space Center, Houston, March 17 through March 21, 1975. Over 500 lunar and planetary scientists and principal investigators are expected to attend the five-day event. The Program Committee met January 27-29 to consider 318 abstracts submitted for publication and to prepare a program for the Conference. Eighteen sessions were constructed in which scientists will discuss the major problems in lunar science: Constraints on structure and composition of the deep interior; Characteristics and movement of materials in the lunar regolith; Characterization and evolution of the mare basins; Characterization and evolution of the lunar crust; Nature of impact processes and their effects on lunar materials; and, The Moon as an interplanetary/interstellar probe. In addition, three sessions have been planned to consider other topics of broad general interest, and one afternoon was reserved for small meetings to discuss more specialized topics. Preparation of the abstract volume LUNAR SCIENCE VI was completed in time to go to press on February 3, 1975. The two-volume work will be distributed to all participants at the Conference. A copy of the program is included with this Bulletin.

PROCEEDINGS OF PREVIOUS CONFERENCES

All sets (author, editor, and \$20) of the FIFTH LUNAR SCIENCE CONFERENCE PROCEEDINGS have now been mailed. If anyone who is included in this group has not yet received his set, please notify the Proceedings Office at the Institute (Mrs. Shack, ext. 30). Mailing of reprints of papers was completed in early February and should be received by the authors soon.

Pergamon Press has announced the availability of microfilm editions of the Apollo 11 Lunar Science Conference Proceedings (1970) and the Fourth and Fifth Proceedings (1973, 1974). These editions are priced at \$30 each, and can be ordered from Microforms International, 380 Saw Mill River Road, Elmsford, N. Y. 10523.

In case your library's collection of these important works in lunar science is incomplete, it has been noted that M.I.T. Press is having a special sale through May 1 on the Proceedings of the Second and Third Conferences. Proceedings of the Second LSC are \$15 per volume, 3 volume set for \$40 (Order no. LLS, LLS2, LLS3); Proceedings of the Third LSC are \$25 per volume, 3 volume set \$70 (order no. LTL1, LTL2, LTL3). The combined offer for the two sets is \$100. Order from M.I.T. Press, 28 Carlton Street, Cambridge, Massachusetts 02142.

Prices quoted here are subject to revision by the publishers.

SOVIET AMERICAN CONFERENCE PREPRINTS - II

The second and final installment of these preprints is now available. The blue pages included with this Bulletin are a list of the papers and an order form. May we again ask that you request only those papers which you need. Supplies are limited.

To those who requested paper no. 225, Walker, R. M., "The Interaction of Energetic Solar and Galactic Nuclei with Lunar and Meteoritic Material," preprints of this paper will not be available. It will be published in Annual Review of Earth and Planetary Sciences, v. 3, 1975.

Also, one of the papers presented at the Conference, Ness, N. F. et al., "Magnetic Field Observations Near Mercury: Preliminary Results from Mariner 10," has been published in Science 185, 151-159 (July 12, 1974).

The publication of the NASA SP which will contain the full Proceedings of this Conference is expected in late 1975. Details concerning this SP will be published as soon as the information becomes available.

CONFERENCE ON RECENT ACTIVITY WITHIN THE MOON POSTPONED (LSIB #4)

This Conference which was scheduled for April 14-16, 1975, has been deferred. The timing of the Conference, a month after the 6th Lunar Science Conference and very near the deadline for submission of manuscripts for the Proceedings, had a serious impact on the level of response from the lunar science community. Information concerning the rescheduling of this conference and its topical organization will be published as it becomes available.

CHANGE OF DATE - NEWCASTLE CONFERENCE (LSIB #3)

This Conference titled, "HISTORICAL AND PRESENT DAY OBSERVATIONS OF THE LUNAR AND PLANETARY ORBIT--GEOPHYSICAL AND COSMOLOGICAL IMPLICATIONS," has been rescheduled. New dates are April 22-25, 1975, at the University of Newcastle upon Tyne. For details and additional information contact: Dr. F. Richard Stephenson, School of Physics, The University, Newcastle upon Tyne NE1 7RU England.

USGS PUBLICATION

The first in a series of edited voice transcripts of the activities on the lunar surface during each of the six manned lunar landings has been completed by USGS, Branch of Astrogeology, Flagstaff. The publication by N. G. Bailey and G. E. Ulrich, "Apollo 11 Voice Transcript Pertaining to the Geology of the Landing Site," is available from the National Technical Information Service, Springfield, VA 22151 as PB-235988, \$3.75 prepaid. The Apollo 12 and 14 volumes are due within the next two months and the entire series is expected to be completed by mid-summer.

NEW NASA SP'S

Two publications recently published by NASA in its Special Publications series are:

Fimmel, Richard O., Swindell, William, and Burgess, Eric, PIONEER ODYSSEY; ENCOUNTER WITH A GIANT. NASA SP-349. (1974) 171 pages.

This SP is a graphic description of the Pioneer 10 encounter with Jupiter. Contains many of the photographs obtained from this mission. With its index and suggestions for further reading, it could be useful in classroom teaching.

AVAILABLE FROM: Superintendent of Documents, Washington, D.C., as stock no. 3300-00584. Price \$5.50 prepaid.

Batson, Raymond M., Jordan, Raymond, Larson, Kathleen B., ATLAS OF SURVEYOR 5 TELEVISION DATA. NASA SP-341. (1974) 597 pages.

"This atlas is a compendium of the Surveyor 5 television mosaics. It is divided into two main sections. The first consists of improved mosaics of panoramas and basic cartographic data used in investigating surface detail, and the second contains individual frame data, including photoindex mosaics and tabulations in which individual frames are identified. A short section containing a set of special-purpose mosaics assembled by the staff of the Jet Propulsion Laboratory is also included."

AVAILABLE FROM: Superintendent of Documents, Washington, D.C., as stock no. 3300-00579. Price \$14.40 prepaid.

LUNAR SAMPLE THIN SECTIONS FOR EDUCATIONAL USE

The National Aeronautics and Space Administration (NASA) has prepared a sample package containing thin sections of lunar material. The Thin Section Educational Package consists of 11 polished thin sections of lunar rocks and soils specifically selected to be representative of the lunar sample collection. A condensed description is provided which describes the thin sections, relates them to the suite of rocks and soils they represent, attempts to fit them into a broad picture of their relationship with the Moon, what we have learned of it, and what unsolved problems remain. The purpose of this program is to broaden the use of the lunar sample collection for scientific and educational purposes and to provide the samples as an educational tool. The Thin Section Educational Package is available to any educational institution offering undergraduate or graduate course work in geosciences. A leaflet describing more of the details of the program is available by contacting the Lunar Sample Curator, Lyndon B. Johnson Space Center, Code TL, Houston, TX 77058.

GSA WINNER

The set of Proceedings of the Fourth Lunar Science Conference which was offered at the Geological Society of America meeting in Miami Beach was won by Joseph Newhart, Bowling Green State University, Ohio. Congratulations, Joe!

CALENDAR OF EVENTS

- March 17-21 SIXTH LUNAR SCIENCE CONFERENCE, Houston, TX
For information contact: Conference Office
 Lunar Science Institute
 3303 NASA Road #1
 Houston, TX 77058
 713-488-5200, ext. 30
- March 18 AMERICAN GEOPHYSICAL UNION ABSTRACT DEADLINE
for the Fifty-Sixth Annual Meeting
- April 21 DEADLINE for manuscripts to be included in the
Proceedings of the 6th Lunar Science Conference
- April 22-25 HISTORICAL AND PRESENT DAY OBSERVATIONS OF LUNAR
AND PLANETARY ORBITS...GEOPHYSICAL & COSMOLOGICAL
IMPLICATIONS, University of Newcastle-upon-Tyne.
Rescheduled. See page 2 this Bulletin for details
- May 29-June 7 Eighteenth Plenary Meeting of COSPAR and Associated
Symposium, Golden Sands, Bulgaria
For information contact: Z. Niemirowicz
 COSPAR Secretariat
 51 bd de Montmorency
 75016 Paris, France
- June 9-11 THE MOON: A NEW APPRAISAL FROM SPACE MISSIONS AND
LABORATORY ANALYSES. Royal Society, London
(Conference described in LSIB #3)
For information contact: Executive Secretary
 Royal Society
 6 Carlton House Terrace
 London SW1Y 5AG, England
- June 16-20 Fifty-Sixth Annual Meeting of the American Geophysical
Union, Washington, D. C.
For information contact: American Geophysical Union
 Suite 100, lower level
 1909 K Street, N.W.
NOTE: NEW ADDRESS Washington, D. C. 20036
 202-331-0370
- July 28-August 1 Thirty-Eighth Annual Meeting, The Meteoritical Society,
Tours, France
For information contact: P. Pellas
 Laboratoire de Mineralogie
 de Museum
 61 rue de Buffon
 75005 Paris, France

CURRENT LUNAR ARTICLES RECEIVED IN LSI LIBRARY, NOVEMBER 1974-FEBRUARY 1975
 (Address of first author appears, as published)

- Alfvén, H. (Univ. of Calif. at San Diego, La Jolla, CA), Lindberg, L.: Magnetization of celestial bodies with special application to the primeval earth and Moon. THE MOON 10, 323-335. (1974)
- Alvarez, R. (Instituto de Geofísica, Universidad Nacional Autónoma de México, México 20, D. F. México): Dielectric comparison of lunar and terrestrial fines at lunar conditions. JOURNAL OF GEOPHYSICAL RESEARCH 79, 5453-5457. (1974)
- Arkani-Hamed, J. (Lunar Science Inst., Houston, TX 77058): Lunar mascons as consequences of giant impacts. THE MOON 10, 307-322. (1974)
- Arnold, H.J.P.: The camera in space. SPACEFLIGHT 16, 442-453. (1974)
- Arnold, K. (Akademie der Wissenschaften der DDR, Zentral-institut für Physik der Erde, DDR-15, Potsdam, Telegrafenberg, Germany): Geodetic aspects of laser distance measurements to the Moon and radio-interference measurements to quasars. GERLANDS BEITRÄGE FÜR GEOPHYSIK 83, 249-269. (1974)
- Arthur, D.W.G. (U.S. Geological Survey, 601 E. Cedar Ave., Flagstaff, AZ 86001): Lunar crater depths from Orbiter IV long-focus photographs. ICARUS 23, 116-133. (1974)
- Atwood, B. (Dept. of Physics, Wesleyan Univ., Middletown, CT), Curreri, D.R.: Group velocity correction to lunar laser ranging. THE MOON 11, 3-8. (1974)
- Baldwin, R.B. (Oliver Machinery Co., Grand Rapids, MI 49504): On the accretion of the earth and Moon. ICARUS 23, 97-107. (1974)
- Baldwin, R.B. (Oliver Machinery Co., Grand Rapids, MI 49504): Was there a "thermal lunar cataclysm" 3.9-4.0 x 10⁹ years ago? ICARUS 23, 157-166. (1974)
- Benson, J. (Dept. of Space Physics & Astronomy, Rice Univ., Houston, TX 77001), Freeman, J.W.: Low energy mass spectra of the lunar ionosphere. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1181. (1974)
- Benton, E.V. (Physics Dept., Univ. of San Francisco, San Francisco, CA 94117), Henke, R.P., Bailey, J.V.: Heavy cosmic-ray exposure of Apollo astronauts. SCIENCE 187, 263-265. (1975)
- Berg, O.E. (Goddard Space Flight Center, Greenbelt, MD 20771), Richardson, F.F., Rhee, J.W., Auer, S.: Preliminary results of a cosmic dust experiment on the Moon. GEOPHYS. RES. LETTERS 1, 289-290. (1974)
- Bernhardt, P.A. (Radioscience Lab., Stanford Electronics Laboratories, Stanford Univ., Stanford, CA 94305): Separation of lunar and solar periodic effects in data. JOURNAL OF GEOPHYS. RES. 79, 4343-4349. (1974)
- Binder, A.B. (Max-Planck-Institut für Kernphysik, Heidelberg, F.R.G.): On the origin of the Moon by rotational fission. THE MOON 11, 53-76. (1974)
- Breakwell, J.V. (Stanford Univ., Stanford, CA), Kamel, A.A., Ratner, M.J.: Station-keeping for a translunar communication station. CELESTIAL MECHANICS 10, 357-373. (1974)
- Burnett, D.S. (Calif. Institute of Techn., Pasadena, CA), Goldberg, R.H., Tombrello, T.A.: Fluorine in lunar samples, (abstract). AMERICAN PHYSICAL SOCIETY. BULLETIN 20, 32. (1975)
- Butler, P. (TL, NASA Johnson Space Center, Houston, TX 77058), Dealing, T.E.: The dissection and consortium allocation of Apollo 17 lunar rocks from the boulder at Station 7. EARTH & PLANETARY SCI. LETTERS 23, 429-434. (1974)
- Carr, M.H. (U.S. Geological Survey, Menlo Park, CA 94025), Meyer, C.E.: The regolith at the Apollo 15 site and its stratigraphic implications. GEOCHIMICA ET COSMOCHIMICA ACTA 38, 1183-1197. (1974)
- Carriere, Z. (Institut Catholique de Toulouse, France): The Perfectly ring-shaped and the abortive lunar craters (in French). ANNALES DE LA SOCIÉTÉ SCIENTIFIQUE DE BRUXELLES, 88 (3), 347-355. (1974)
- Chao, E.C.T. (U.S. Geological Survey, National Center, Reston, VA), Minikin, J.A., Thompson, C.L.: Preliminary petrographic description and geologic implications of the Apollo 17 Station 7 Boulder Consortium Samples. EARTH & PLANET. SCI. LETTERS 23, 413-428. (1974)
- Chapront-Touzé, M. (Bureau des Longitudes, Palais de l' Institut, 3 rue Mazarine, Paris 6e): Iterative construction of a solution of the main problem on the Moon. Small Divisors (in French). ASTRONOMY & ASTROPHYSICS 36, 5-16. (1974)
- Classen, J. (Astronomical Observatory, Pulsnitz, German Democratic Republic): Degassing of the Moon III. The maria and interior of the Moon. SOLAR SYSTEM RESEARCH 8, 70-73. (1974)
- Criswell, D.R. (Lunar Science Institute, Houston, TX 77058), Wollenhaupt, W.R., Srnka, L.: Lunar limb shocks and surface roughness in the source regions. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1182. (1974)
- Dalins, I. (Space Sciences Lab., NASA Marshall Space Flight Center, Huntsville, AL 35812), McCarty, V.M., Kaschak, G., and Donn, W.L.: Investigations of acoustic-seismic effects at long range: early-arriving seismic waves from Apollo 16. JOURNAL OF THE ACOUSTICAL SOCIETY OF AMERICA 56, 1361-1366. (1974)
- De Vegt, C., (Hamburger Sternwarte, Germany): On the angular diameter of TX pisces from lunar occultations. ASTRONOMY & ASTROPHYSICS 34, 457-458. (1974)
- Dowty, E. (Dept. of Geology & Institute of Meteoritics, Univ. of New Mexico, Albuquerque, N.M.), Prinz, M., Keil, K.: Ferroan anorthosite: a widespread and distinctive lunar rock type. EARTH & PLANET. SCI. LETTERS 24, 15-25. (1974)
- Drozd, R.J. (Laboratory for Space Physics, Washington Univ., St. Louis, MO 63130), Hohenberg, C.M., Morgan, C.J., Ralston, C.E.: Cosmic-ray exposure history at the Apollo 16 and other lunar sites: Lunar surface dynamics. GEOCHIM. ET COSMOCHIM. ACTA 38, 1625-1642. (1974)
- Duennbier, F. (Dept. of Earth & Planetary Sciences, Marine Biomedical Institute, Univ. of Texas Medical Branch, Galveston, TX 77550), Sutton, G.H.: Thermal moonquakes. JOURNAL OF GEOPHYSICAL RES. 79, 4351-4363. (1974)
- Duennbier, F. (Dept. of Earth & Planetary Sciences, Marine Biomedical Institute, Univ. of Texas Medical Branch, Galveston, TX 77550), Sutton, G.H.: Meteoroid impacts recorded by the short-period component of Apollo 14 lunar passive seismic station. JOURNAL OF GEOPHYSICAL RESEARCH 79, 4365-4374. (1974)

- Dyal, P. (NASA Ames Research Center, Moffett Field, CA 94035), Parkin, C.W., Daily, W.D.: Magnetism and the interior of the Moon. REVIEWS OF GEOPHYSICS & SPACE PHYSICS 12, 568-591. (1974)
- Elek, A. (All Union Science Academy Moscow, Geochemistry & Analytical Chemistry Institute, Moscow, USSR), Perneczki, G., Szabo, E., Dogadkin, N.N.: Determination of rare earth in the Luna-16 lunar sample by means of neutron activation analysis. MAGYAR KEMIAI FOLYIRAT (Hungarian Journal of Chemistry) 80, 481-483. (1974)
- Emmott, N.W.: Captain Vancouver and the lunar distance. JOURNAL OF NAVIGATION 27, 490-495. (1974)
- Estes, R.H. (Goddard Space Flight Center, Greenbelt, MD): On the analytic lunar and solar perturbations of a near earth satellite. CELESTIAL MECHANICS 10, 253-270. (1974)
- Evsyukov, N.N. (Khar'kov Univ. Observatory): A two-parameter regional subdivision of the lunar surface. SOVIET ASTRONOMY 18, 359-362. (1974)
- Fleischer, R.L. (General Electric Research & Development Center, Schenectady, NY 12301), Hart, H.R., Jr.: Surface history of some Apollo 17 lunar soils. GEOCHIMICA ET COSMOCHIMICA ACTA 38, 1615-1613. (1974)
- Freeman, J.W. (Dept. of Space Physics & Astronomy, Rice Univ., Houston, TX 77001), Ibrahim, M., Hills, H.K.: The lunar surface potential and plasma sheath effects. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION, 56, 1181. (1974)
- Frisillo, A.L. (NASA Johnson Space Center, Houston, TX 77058), Olhoeft, G.R., Strangway, D.W.: Effects of vertical stress, temperature and density on the dielectric properties of lunar samples 72441, 12, 15301, 38 and a terrestrial basalt. EARTH & PLANET. SCI. LETTERS 24, 345-356. (1974)
- Froeschle, M.M. (Observatoire de Paris, Paris, France): Comparison de catalogues de cratères lunaires. THE MOON 11, 101-111. (1974)
- Gleadow, A.J.W. (Dept. of Geology, School of Earth Sci., Univ. of Melbourne, Parkville, Vic. (Aust.)), LeMaitre, R.W., Sewell, D.K.B., & Lovering, J.F.: Chemical discrimination of petrographically defined glass groups in Apollo 14 and 15 lunar breccias. CHEMICAL GEOLOGY 14, 39-62. (1974)
- Goldstein, B.E. (Jet Propulsion Lab., 4800 Oak Grove Dr., Pasadena, CA 91103): Solar-wind compression of Apollo 12 site magnetic field. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1182. (1974)
- Gooley, R. (NASA Johnson Space Center, Houston, TX 77058), Brett, R., Warner, J., Smyth, J.R.: A lunar rock of deep crustal origin: Sample 76535. GEOCHIMICA ET COSMOCHIMICA ACTA 38, 1329-1339. (1974)
- Griffin, W.L. (Mineralogisk-Geologisk Museum, Oslo, Norway), Sundvoll, B., Kristmannsdottir, H.: Trace element composition of anorthosite plagioclase. EARTH & PLANET. SCI. LETTERS 24, 213-223. (1974)
- Griscom, D.L. (Solid State Division, Naval Res. Lab., Washington, D.C. 20375): Ferromagnetic resonance spectra of lunar fines: some implications of line shape analysis. GEOCHIMICA ET COSMOCHIMICA ACTA 38, 1509-1519. (1974)
- Griscom, D.L. (Solid State Div., Naval Res. Lab., Washington, D.C.), Marquardt, C.L., Friebele, E.J.: Magnetic hysteresis in the F.M.R. spectra of fine-grained spherical iron: possible evidence for a new carrier of hard remanence in lunar soils and rocks. EARTH & PLANETARY SCIENCE LETTERS 24, 78-86. (1974)

- Grodzka, P.G. (Lockheed Missiles & Space Co., Inc., Huntsville, AL 35807), Bannister, T.C.: Heat flow and convection experiments aboard Apollo 17. SCIENCE 187, 165-167. (1975)
- Gurevich, V.B.: On the possibility of determining the rotation elements of the Moon by the Sumner method (RUSS). ASTRONOMICHEISKII ZHURNAL 51, 1120-1122. (1974)
- Habibullin, Sh. T. (Dept. of Astronomy, Kazan State Univ., Kazan, USSR), Rizvanov, N.G., Bystrov, N.F.: Star-calibrated lunar photography by method of separate plates for a determination of the coordinates of lunar control points. THE MOON 11, 125-136. (1974)
- Habibullin, Sh. T. (Dept. of Astronomy, Kazan State Univ., Kazan, USSR), Gurshtein, A.A., Sanovich, A.N.: On the problem of lunar time. THE MOON 11, 29-34. (1974)
- Hammond, A.L.: Exploring the solar system (III): Whence the Moon? SCIENCE 186, 911-913. (1974)
- Hardy, D.A. (Dept. of Space Physics & Astronomy, Rice Univ., Houston, TX 77001), Hills, H.K., Freeman, J.W.: Low-energy Plasma in the geomagnetic tail at lunar distance: I, General features. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1168. (1974)
- Harwood, F.M., Nather, R.E., Walker, A.R., Warner, B., Wild, P.A.T.: Photoelectric observations of lunar occultations. MONTHLY NOTICES OF THE ROYAL ASTRON. SOCIETY 170, 229-236. (1975)
- Head, J.W. (Dept. of Geological Sciences, Brown Univ., Providence, RI): Stratigraphy of the Descartes region (Apollo 16): implications for the origin of samples. THE MOON 11, 77-99. (1974)
- Heiken, G.H. (NASA Johnson Space Center, Planetary & Earth Sciences Div., Houston, TX 77058), McKay, D.S., Brown, R.W.: Lunar deposits of possible pyroclastic origin. GEOCHIMICA ET COSMOCHIMICA ACTA 38, 1703-1718. (1974)
- Hewins, R.H. (Dept. of Metallurgy & Materials Science, Lehigh Univ., Bethlehem, PA), Goldstein, J.I.: Metal-olivine associations and Ni-Co contents in two Apollo 12 mare basalts. EARTH & PLANETARY SCIENCE LETTERS 24, 59-70. (1974)
- Hughes, D.W.: Micrometeoroid density from lunar craters. NATURE 252, 94-95. (1974)
- Hulme, G. (Lunar & Planetary Unit, Dept. of Environmental Sciences, Univ. of Lancaster, Bailrigg, Lancashire LA1 4YQ, United Kingdom): Generation of magma at lunar impact crater sites. NATURE 252, 556-558. (1974)
- Irving, A.J. (Dept. of Geophysical Sciences, Univ. of Chicago, Chicago, IL 60637), Steele, I.M., Smith, J.V.: Lunar noritic fragments and associated diopside veins. AMERICAN MINERALOGIST 59, 1062-1068. (1974)
- Jackson, T.S. (Physics Dept., Univ. of Hull, Yorkshire, England): Some consequences of a steady thermal Moon. PLANETARY & SPACE SCIENCE 22, 1691-1701. (1974)
- Johannsen, K.G., Koury, A. (2311 Utah Ave., El Segundo, CA 90245): The Moon as source for G/T measurements. IEEE TRANSACTIONS ON AEROSPACE AND ELECTRONIC SYSTEMS 10, 718-727. (1974)
- Jirsak, T. (Matematicko-fyzikalni fakulta UK, Praha): Gravimeter on the surface of Moon. CESKOSLOVENSKY CASOPIS PRO FYSIKU--SEKCE A 24, 504. (1974)
- Katterfeld, G.H. (Leningrad State Univ., USSR), Charushin, G.V.: General grid systems of planets. MODERN GEOLOGY 4, 253-267. (1973)
- Keihm, S.J. (Lamont-Doherty Geological Obs., Palisades, NY 10964), Langseth, M.G.: Microwave emission spectrum of the Moon: mean global heat flow and average depth of the regolith. SCIENCE 187, 64-66. (1974)

- Kerridge, J.F. (Institute of Geophysics & Planetary Physics and Dept. of Geology, Univ. of California, Los Angeles, CA 90024), Kaplan, I.R., Petrowski, C., Chang, S.: Light element geochemistry of the Apollo 16 site. GEOCHIMICA ET COSMOCHIMICA ACTA 39, 137-162. (1975)
- Kliment, V., Vandlik, T., Schchashnar, V.: Oxygen determination in a regolith sample of Luna-16 by the activation method using neutrons with 14 Mev energy (RUSS). GEOKHIMIYA no. 10, 1571-1572. (1974)
- Kunze, A.W.G. (NASA Johnson Space Center, Houston, TX 77058): Lunar mascons: another model and its implications. THE MOON 11, 9-17. (1974)
- Koman, G.G.: Determination of the elements of intermediate orbit of the Moon artificial satellites according to the initial data (RUSS). VESTNIK MOSKOVSKOGO UNIV., FIZIKA I ASTRONOMIYA 15, 456-462. (1974)
- Krass, M.S.: Principal problem of electromagnetic sounding theory of the Moon. PHYSICS OF THE EARTH no. 7, 54-63. (1974)
- Kurat, G. (Dept. of Geology & Institute of Meteoritics, The University of New Mexico, Albuquerque, N.M. 87131), Keil, K., Prinz, M.: Rock 14318: A polymeric lunar breccia with chondritic texture. GEOCHIMICA ET COSMOCHIMICA ACTA 38, 1133-1146. (1974)
- Leonardi, P. (Istituto Geologico, Corso Ercole D'este 32, Univ. of Ferrara, Italy): On the stratified rocks of the lunar Apennines photographed by the Apollo 15 astronauts. MODERN GEOLOGY 4, 245-252. (1974)
- Lichtenstein, B.R. (Dept. of Planetary & Space Science, Univ. of Calif., Los Angeles, CA 90024), Coleman, P.J., Jr., Russell, C.T.: Apollo 15 subsatellite magnetometer observations of the lunar cavity enhancements. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1182. (1974)
- Lin, R.P. (Space Science Lab., Univ. of Calif., Berkeley, CA 94720), McGuire, R.E., Anderson, K.A., Howe, H.C., McCoy, J.E.: Mapping of the lunar remanent magnetic field by energetic electron scattering. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1181. (1974)
- Link, F. (Institut d'Astrophysique, Paris, France): Some remarks on Danjon's Law. THE MOON 11, 137-140. (1974)
- Mark, R.K. (Dept. of Planetary & Space Sciences, Univ. of Calif., Los Angeles, CA 90024), Lee-Hu, C., Wetherill, G.W.: Rb-Sr age of lunar igneous rocks 62295 and 14310. GEOCHIMICA ET COSMOCHIMICA ACTA 38, 1643-1648. (1974)
- Maurette, M. (Laboratoire Rene Bernas, 91406 Orsay, France), Price, P.B.: Electron microscopy of irradiation effects in space. SCIENCE 187, 121-129. (1975)
- Metzger, A.E. (Jet Propulsion Lab., 4800 Oak Grove, Pasadena, CA 91103), Parker, R.H., Gilman, D., Peterson, L.E., Trombka, J.I.: Observation of a cosmic gamma-ray burst on Apollo 16. I. Temporal variability and energy spectrum. ASTROPHYSICAL JOURNAL 194, L19-L25. (1974) (SEE Trombka, J.I. for Part II)
- Mikhail, J.S. (Helwan Obs., Cairo, Egypt): Mono-chromatic intensity measurements of selected areas of lunar surface for possible investigations. THE MOON 11, 141-195. (1974)
- Moore, P.R. (Dept. of Space Physics & Astronomy, Rice Univ., Houston, TX 77001), Hardy, D.A., Burke, W.J.: Low-energy plasma in the geomagnetic tail at lunar distance: II, Joint observations. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1168. (1974)
- Morbey, C.L. (National Research Council of Canada, Astrophysics Branch, Victoria, B.C., Canada): Distortion mechanisms for lunar occultation diffraction patterns. ASTRONOMICAL JOURNAL 79, 1304-1306. (1974)
- No author cited: A gravity map of the Moon's far side. SCIENCE NEWS 106, 391. (1974)
- Nehru, C.E. (Dept. of Geology & Institute of Meteoritics, Univ. of New Mexico, Albuquerque, NM 87131), Prinz, M., Dowty, E., Keil, K.: Spinell-group minerals and ilmenite in Apollo 15 rake samples. AMERICAN MINERALOGIST 59, 1220-1235. (1974)
- Nunes, P.D. (U.S. Geological Survey, Denver, CO), Tatsumoto, M., Unruh, D.M.: U-Th-Pb and Rb-Sr systematics of Apollo 17 Boulder 7 from the north massif of the Taurus-Littrow Valley. EARTH & PLANETARY SCIENCE LETTERS 23, 445-452. (1974)
- Nyland, E. (Inst. of Earth & Planet. Physics, Dept. of Physics, Univ. of Alberta, Edmonton, Canada), Roebroek, E.J.: Bounds on the P velocity for the whole Moon. NATURE 253, 179-180. (1974)
- Olhoeft, G.R. (Dept. of Physics, Univ. of Toronto, Toronto, Ontario, Canada), Strangway, D.W.: Dielectric properties of the first 100 meters of the Moon. EARTH & PLANETARY SCIENCE LETTERS 24, 394-404. (1974)
- Pike, R.J. (U.S. Geological Survey, Menlo Park, CA 94025): Depth/diameter relations of fresh lunar craters: revision from spacecraft data. GEOPHYSICAL RESEARCH LETTERS 1, 291-294. (1974)
- Pike, R.J. (U.S. Geological Survey, Menlo Park, CA 94025): Ejecta from large craters on the Moon: comments on the geometric model of McGetchin et al. EARTH & PLANET. SCI. LETTERS 23, 265-274. (1974)
- Rao, D.R.K. (Indian Institute of Geomagnetism, Colaba, Bombay 400 005, India), Sastri, N.S.: The O₁ component of the Geomagnetic lunar daily variation in the Indian equatorial region. JOURNAL OF GEOMAGNETISM & GEOELECTRICITY 26, 285-293. (1974)
- Rehfuss, D.E. (Lunar Science Institute, Houston, TX 77058): Glass production differences for equal-diameter impact craters. THE MOON 11, 19-28. (1974)
- Rose, M.F. (Naval Surface Weapons Center), Fuller, M.: Shock effects on lunar soils. (abstract). AMERICAN PHYSICAL SOCIETY. BULLETIN 20, 49. (1975)
- Ross, C.L. (High Altitude Obs., National Center for Atmospheric Research, Boulder, CO): A search for forward scattering of sunlight from the lunar libration clouds. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1180. (1974)
- Russell, C.T. (Space Science Center, Univ. of Calif., Los Angeles, CA 90024), Coleman, P.J., Jr., Schubert, G.: Lunar magnetic field: permanent and induced dipole moments. SCIENCE 186, 825-826. (1974)
- Russell, C.T. (Institute of Geophysics & Planetary Physics, Univ. of Calif., Los Angeles, CA), Lichtenstein, B.R., Schubert, G., Coleman, P.J., Jr., Goldstein, B.: On the properties of compressional disturbances over the lunar libras. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1182. (1974)

Rzhevskii, V.V., Dukhovskoi, E.A., Kruglov, N.T., Petrochenkov, R.G., Silin, A.A., Shvarev, V.V.: Thermal properties of lunar soil (Luna-20) and its terrestrial analogues. DOKLADY AKADEMII NAUK SSSR 218, 1043-1045. (1974)

Rzhevskii, V.V., Golovkin, A.R., Dukhovskoi, E.A., Petrochenkov, R.G., Silin, A.A., Shvarev, V.V.: Lunar soil (Luna-20) electric property investigations depending on the frequency and density. DOKLADY AKADEMII NAUK SSSR 218, 799-802. (1974)

Schneider, E. (Max Planck Institut für Kernphysik, 6900 Heidelberg, West Germany), Hörz, F.: Microcrater populations on Apollo 17 rocks. ICARUS 22, 459-473. (1974)

Schneider, H.E. (Dept. of Space Physics & Astronomy, Rice Univ., Houston, TX 77001), Freeman, J.W.: Energetic nighttime lunar ions. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1182. (1974)

Schubert, G. (Dept. of Planetary & Space Science, Univ. of Calif., Los Angeles, CA 90024), Lichtenstein, B.R., Coleman, P.J., Jr.: Simultaneous Explorer 35 and Apollo 15 orbital magnetometer observations: implications for lunar electrical conductivity inversions. JOURNAL OF GEOPHYSICAL RESEARCH 79, 2007-2013. (1974)

Schubert, G. (Dept. of Planetary & Space Science, Univ. of Calif., Los Angeles, CA 90024), Lichtenstein, B.R.: Observations of Moon-plasma interactions by orbital and surface experiments. REVIEWS OF GEOPHYS. & SPACE PHYS. 12, 592-626. (1974)

Settle, M. (Dept. of Earth & Planetary Sciences, Mass. Inst. of Techn., Cambridge, MA), Head, J.W., McGetchin, T.R.: Ejecta from large craters on the Moon: discussion. EARTH & PLANETARY SCIENCE LETTERS 23, 271-274. (1974)

Shevchenko, V.V.: About nature of lunar globe surface albedo. ASTRONOMICHEISKII ZHURNAL 51, 1064-1071. (1974)

Sjogren, W.L. (Jet Propulsion Lab., Calif. Inst. of Techn., Pasadena, CA), Wimberly, R.N., Wollenhaupt, W.R.: Lunar gravity: Apollo 16. THE MOON 11, 35-40. (1974)

Sjogren, W.L. (Jet Propulsion Lab., Calif. Inst. of Techn., Pasadena, CA), Wimberly, R.N., Wollenhaupt, W.R.: Lunar gravity: Apollo 17. THE MOON 11, 41-52. (1974)

Smith, B.F., (NASA Ames Research Center, Moffett Field, CA 94035), Schubert, G., Colburn, D.S., Sonnet, C.P., Schwartz, K.: Regional conductivity anomaly at Mare Imbrium inferred from Apollo 15 lunar surface magnetometer measurements. EOS: TRANSACTIONS OF THE AMERICAN GEOPHYSICAL UNION 56, 1181. (1974)

Smith, D. (Dept. of Space Research, Univ. of Birmingham, Birmingham B15 2TT, England), Adams, N.G., Khan, H.A.: Flux and composition of micrometeoroids in the diameter range 1-10 μm'. NATURE 252, 101-106. (1974)

Smyth, J.R. (Lunar Science Institute, Houston, TX 77058): Crystal chemistry of armalcolites from Apollo 17. EARTH & PLANETARY SCIENCE LETTERS 24, 262-270. (1974)

Stettler, A. (Physikalischs Institut, Univ. of Bern, Bern, Switzerland), Eberhardt, P., Geiss, J., Gröglar, N.: ³⁹Ar-⁴⁰Ar ages of samples from the Apollo 17 Station 7 Boulder and implications for its formation. EARTH & PLANETARY SCIENCE LETTERS 21, 453-461. (1974)

Storey, W.C. (Grant Inst. of Geology, Edinburgh, Scotland), O'Hara, M.J.: Experimental petrology of sample 77135. EARTH & PLANETARY SCIENCE LETTERS 23, 435-438. (1974)

Surkov, Yu. A. (V.I. Vernadskiy Institute of Geochemistry and Analytical Chemistry, Academy of Sciences USSR, Moscow), Kolesov, G.M., Kirnozov, F.F.: On the chemical composition of regolith returned by Luna-20 from a continental region of the Moon. GEOCHEMISTRY INTERNATIONAL 11, 1-6. (1974)

Surkov, Yu. A., Shandor, V.V., Toporov, Yu. P., Vdovykin, G.P.: Study of thermodesorption products from lunar soil. GEOKHIMIYA no. 10, 1516-1522. (1974)

Tokis, J.N. (Dept. of Astronomy, Univ. of Manchester, England): Rotational dynamics of celestial deformable bodies. THE MOON 10, 337-355. (1974)

Toksöz, M.N. (Dept. of Earth & Planetary Sciences, Mass. Inst. of Techn., Cambridge, MA 02139), Dainty, A.M., Solomon, S.C., Anderson, K.R.: Structure of the Moon. REVIEWS OF GEOPHYSICS & SPACE PHYSICS 12, 539-567. (1974)

Trombka, J.I. (NASA Goddard Space Flight Center, Greenbelt, MD 20771), Eller, E.L., Scnmaidebeck, R.L., Adler, I., Metzger, A.E., Gilman, D., Gorenstein, P., Bjorkholm, P.: Observation of a cosmic gamma-ray burst on Apollo 16. II. X-ray time profile and source location. ASTROPHYSICAL JOURNAL 194, L27-L33. (1974) (SEE Metzger, A.E. et al., for Part I)

Tykvá, R.: Determination of natural radionuclides in a regolith sample of Luna 16. GEOKHIMIYA no. 10, 1573-1574. (1974)

Warasila, R.L. (Dept. of Earth & Space Sciences, State Univ. of New York at Stony Brook, Stony Brook, N.Y.), Schaeffer, O.A.: Trapped solar wind He, Ne, and Ar and energetic He in Surveyor 3. EARTH & PLANETARY SCIENCE LETTERS 24, 71-77. (1974)

Wildey, R.L. (Dept. of Physics & Astronomy, Northern Arizona Univ., Flagstaff, AZ): Astronomical supplement to the 1:5,000,000 albedo map of the Moon and the establishment of a 1:2,500,000 auxiliary mosaic. THE ASTRONOMICAL JOURNAL 79, 1471-1476. (1974)

Winzer, S.R. (Astrochemistry Branch, NASA Goddard Space Flight Center, Greenbelt, MD), Nava, D.F., Schuhmann, S., Kouns, C.W., Lum, R.K.L., Philpotts, J.A.: Major, minor and trace element abundances in samples from the Apollo 17 Station 7 Boulder: implications for the origin of early lunar crustal rocks. EARTH & PLANETARY SCIENCE LETTERS 23, 439-444. (1974)

Yuzefovich, A.P. (Moscow Institute of Geodesic, Aerophotographic, and Cartographic Engineers, USSR): The accuracy of representation of the gravitational potential of the Moon. SOLAR SYSTEM RESEARCH 8, 66-69. (1974) (Translated from: Astronomicheskii Vestnik 8, 77-81. (1974))

Zabalueva, E.V. (Inst. of Space Studies, Academy of Sciences of the USSR. Astronomical Society, Academy of Sciences of the USSR), Leikin, G.A., Kurochkina, A.I.: Significant indices for differentiation of cratered regions of the lunar surface. SOLAR SYSTEM RESEARCH 8, 61-65. (1974) (Translated from: Astronomicheskii Vestnik 8, 70-76. (1974))

REPORT ON THE 1:250,000 LUNAR MAPPING PROGRAM

This lunar map series based on Apollo 15, 16, and 17 vertical metric photography was begun in 1973. Currently 174 map sheets are available. A numbering system based on the existing Lunar Astronomical Chart (LAC) system is used for this series. Each LAC region is divided into four provinces lettered A, B, C, and D. Each province is then divided into quarters numbered 1, 2, 3, and 4. The number of the 1:250,000 map consists of the LAC number, a province letter, and the number of the quarter. The following "sheet numbering guide" illustrates LAC 58 subdivided into corresponding 1:250,000 scale maps.

SHEET NUMBERING GUIDE

1	2	1	2
A		B	
4	3	4	3
	58		
1	2	1	2
D		C	
4	3	4	3

Each map sheet covers an area 4° N-S by 5° E-W. Figures 1 and 2 identify the maps published to date and their location. Table 1 provides the name for each sheet.

Copies of these maps may be obtained by writing Col. A. T. Strickland, Lunar Programs Office, Code SM, NASA Headquarters, Washington, D. C. 20546.

The LSI has compiled a Data User's Guide containing a more detailed description of the format, coverage, names, and use of the 1:250,000 scale lunar map series. Anyone wishing a copy should write the Photo/Map Library, Attention: Mary Ann Hager, LSI, and ask for the "Data User's Guide for 1:250,000 Scale Lunar Maps."

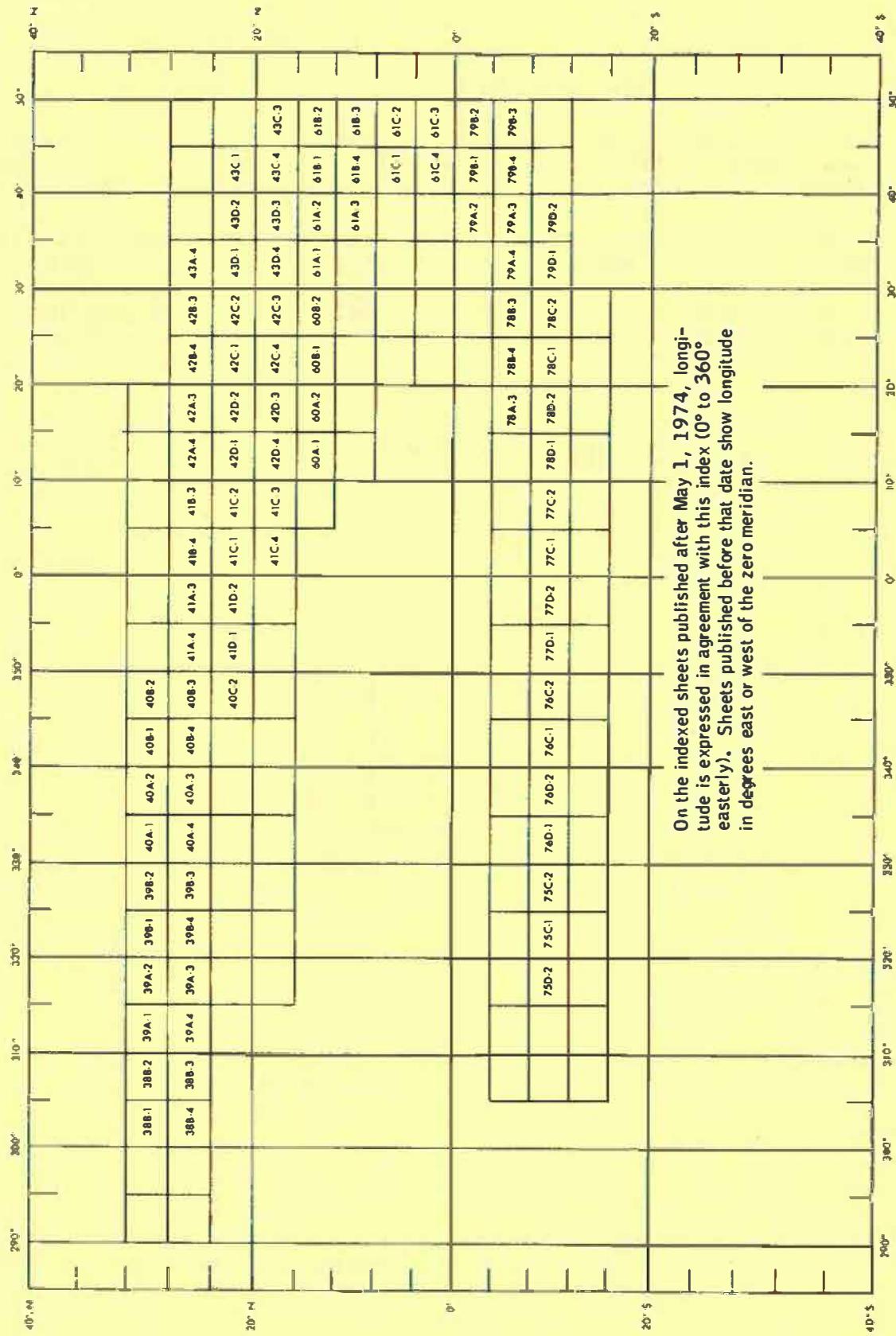


Figure 1

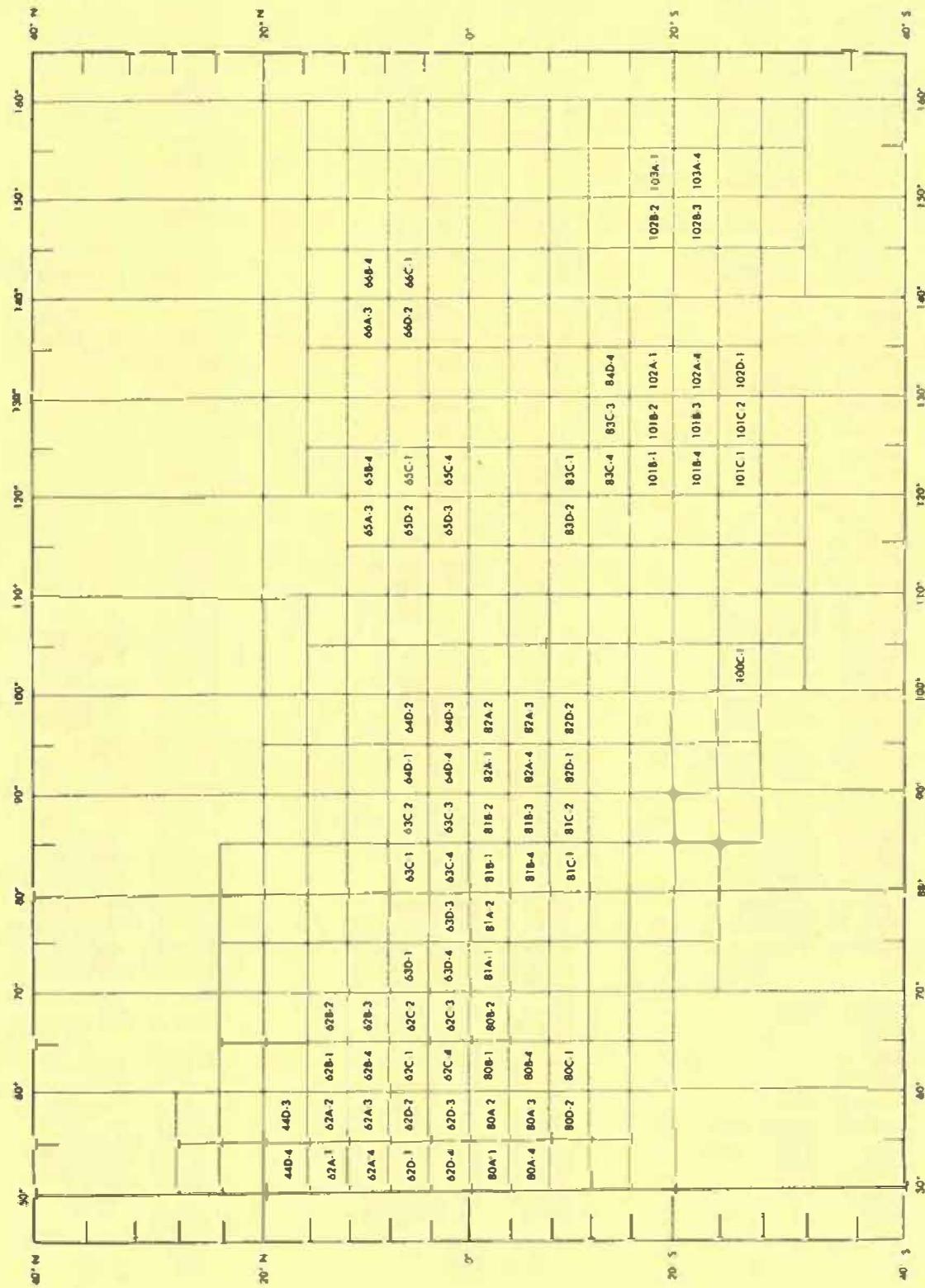


Figure 2

LUNAR TOPO-ORTHOPHOTOMAPS - 1:250,000 SCALE

38B-1	Humason	61A-2	Lucian	78B-3	Torricelli
38B-2	Nielson	61A-3	Cauchy	78B-4	Hypatia
38B-3	Freud	61B-1	Lyell	78C-1	Kant
38B-4	Zinner	61B-2	Glaisher	78C-2	Mädler
39A-1	Krieger	61B-3	Watts	78D-1	Anděl
39A-2	Ångström	61B-4	DaVinci	78D-2	Descartes
39A-3	Prinz	61C-1	Lawrence	79A-2	Leakey
39A-4	Väisälä	61C-2	Cameron	79A-3	Capella
39B-1	Fedorov	61C-3	Anville	79A-4	Isidorus
39B-2	Delisle	61C-4	Secchi	79B-1	Lubbccck
39B-3	Diophantus	62A-1	Yerkes	79B-2	Messier
39B-4	Artsimovich	62A-2	Curtis	79B-3	Amontons
40A-1	Caventou	62A-3	Shapley	79B-4	Gutenberg
40A-2	McDonald	62A-4	Tebbutt	79D-1	Daguerre
40A-3	Lambert	62B-1	Fahrenheit	79D-2	Gaudibert
40A-4	LaHire	62B-2	Condorcet	80A-1	Geikie
40B-1	Sampson	62B-3	Krogh	80A-2	Webb
40B-2	Landsteiner	62B-4	Auzout	80A-3	Bilharz
40B-3	Kovalevskij	62C-1	Firmicus	80A-4	Lindbergh
40B-4	Heinrich	62C-2	Dubyago	80B-1	Morley
40C-2	Pupin	62C-3	Pomortsev	80B-2	MacLaurin
41A-3	Spurr	62C-4	Condon	80B-4	Acosta
41A-4	Beer	62D-1	Abbot	80C-1	Somerville
41B-3	Joy	62D-2	Daly	80D-2	Al-Marrakushi
41B-4	Hadley	62D-3	Ameghino	81A-1	Rankine
41C-1	Conon	62D-4	Smithson	81A-2	Gilbert
41C-2	Galen	63C-1	Knox-Shaw	81B-1	Haldane
41C-3	Bowen	63C-2	Tachinni	81B-2	Runge
41C-4	Yangel'	63C-3	Peek	81B-3	Widmannastätten
41D-1	Wallace	63C-4	Schubert	81B-4	Kiess
41D-2	Huxley	63D-1	Boethius	81C-1	Kreiken
42A-3	Banting	63D-3	Nobili	81C-2	Houtermans
42A-4	Linné	63D-4	Respihgi	82A-1	Perkyně
42B-3	Very	64D-1	Nunn	82A-2	Wyld
42B-4	Sarabhai	64D-2	Erro	82A-3	Ludwig
42C-1	Deselligny	64D-3	Fox	82A-4	Hirayama
42C-2	Clerke	64D-4	McAdie	82D-1	Brunner
42C-3	Dawes	65A-3	Guyot	82D-2	Ganskij
42C-4	Brackett	65B-4	Recht	83C-1	Danjon
42D-1	Hornsby	65C-1	King	83C-3	Dobrovolskij
42D-2	Bessel	65C-4	Zanstra	83C-4	Delporte
42D-3	Menelaus	65D-2	Katchalsky	83D-2	Sherrington
42D-4	Sulpicius Gallus	65D-3	Abul Wafa	84D-4	Volkov
43A-4	leMonnier	66A-3	Rutherford	100C-1	Titius
43C-1	Hill	66B-4	Glauber	101B-1	Litke
43C-3	Proclus	66C-1	Fischer	101B-2	Tsiolkovskij
43C-4	Carmichael	66D-2	Bergman		Borealis
43D-1	Littrow	75C-1	Scheele	101B-3	Tsiolkovskij
43D-2	Franck	75C-2	Norman		Australis
43D-3	Theophrastus	75D-2	Winthrop	101B-4	Babakin
43D-4	Vitruvius	76C-1	Bonpland	101C-1	Neujmin
44D-3	Eckert	76C-2	Guericke	101C-2	Waterman
44D-4	Peirce	76D-1	Eppinger	102A-1	Patsaev
60A-1	Daubree	76D-2	Kuiper	102A-4	Fesenkov
60A-2	Auwers	77C-1	Albatengnius	102B-2	Isaev
60B-1	Plinius	77C-2	Halley	102B-3	Andronov
60B-2	Jansen	77D-1	Davy	102D-1	Stark
61A-1	Cajal	77D-2	Ammonius	103A-1	Grave
		78A-3	Alfraganus	103A-4	Raspletin

Table 1