

LUNAR TOPOGRAPHIC ORTHOPHOTOMAP (LTO)
AND LUNAR ORTHOPHOTMAP (LO) SERIES
(Published by DMATC)

Lunar Topographic Orthophotomaps and Lunar Orthophotomaps
Scale: 1:250,000
Projection: Transverse Mercator
Sheet Size: 25.5"x 26.5"

The Lunar Topographic Orthophotomaps and Lunar Orthophotomaps Series are the first comprehensive and continuous mapping to be accomplished from Apollo Mission 15-17 mapping photographs. This series is also the first major effort to apply recent advances in orthophotography to lunar mapping. Presently developed maps of this series were designed to support initial lunar scientific investigations primarily employing results of Apollo Mission 15-17 data.

Individual maps of this series cover 4 degrees of lunar latitude and 5 degrees of lunar longitude consisting of 1/16 of the area of a 1:1,000,000 scale Lunar Astronautical Chart (LAC) (Section 4.2.1). Their alphanumeric identification (example – LTO38B1) consists of the designator LTO for topographic orthophoto editions or LO for orthophoto editions followed by the LAC number in which they fall, followed by an A, B, C or D designator defining the pertinent LAC quadrant and a 1, 2, 3, or 4 designator defining the specific sub-quadrant actually covered. The following designation (250) identifies the sheets as being at 1:250,000 scale.

The LTO editions display 100-meter contours, 50-meter supplemental contours and spot elevations in a red overprint to the base, which is lithographed in black and white. LO editions are identical except that all relief information is omitted and selenographic graticule is restricted to border ticks, presenting an unencumbered view of lunar features imaged by the photographic base. Both editions carry a Lunar Transverse Mercator (LTM) Grid to facilitate reference and relation of features by rectangular coordinates. The LTM Grid is shown by border ticks in red.

Map margin information includes a location diagram keyed to the LAC System and qualifying and explanatory statements on the photography, control, datum, nomenclature, grid system, relief information and accuracy data contained. More recently published sheets portray lunar longitude in a 360 degree system rather than 0-180 degrees east or west.

The control basis for this map series is the Apollo 15 (April 1973) Control System described in Section 3.2.3.5. The orthophotography and relief information have been developed through analytical stereoplotter compilation with Apollo 15-17 mapping photography. In isolated cases, Apollo panoramic and Lunar Orbiter mission photography have been used to fill coverage gaps. In other instances, there are areas where relief information is limited or complete voids exist. More specific commentary is included with listing of available map sheets.

The evaluated horizontal and vertical accuracy of subject series at 90% probability generally ranges from 160-500 meters and 30-115 meters respectively relative to the Apollo 15 (April 1973) Datum. In instances where significant inaccuracy exists in relating map sheets to this Datum, a statement of accuracy with respect to local datum is also provided.

MAP #	TITLE / REGION	ED	LAT	LONG	DATE	REMARKS
LTO38B1	HUMASON	2	30	57.5W	1974	Void North of 31°00'N
LTO38B2	NIELSEN	4	30	52.5W	1975	Void North of 31°00'N Rectified imagery extended to cover crater Nielson
LTO38B3	FREUD	2	26	52.5W	1974	Void South of 26°N. Rectified imagery extended to cover crater Freud.
LTO38B4	ZINNER	2	26	57.5W	1974	Void South of 26°N.
LTO39A1	KRIEGER	1	30	47.5W	1973	Void North of 31°25'N.
LTO39A2	ANGSTROM	1	30	42.5W	1973	Void North of 13°20'N.
LTO39A3	PRINZ	2	26	42.5W	1974	Void South of 26°10'S.
LTO39A4	VAISALA	2	26	47.5W	1974	Void South of 26°20'N. Rectified imagery extended to cover crater Vaisala.
LTO39B1	FEDEROV	1	30	37.5W	1974	Void North of 31°15'N.
LTO39B2	DELISLE	1	30	32.5W	1974	Void North of 31°15'N.
LTO39B3	DIOPHANTUS	1	26	37.5W	1974	
LTO39B4	ARTSIMOVICH	1	26	37.5W	1974	
LTO39C1	BRAYLEY	1	22	37.5W	1975	
LTO39C2	MONS VINOGRADOV	1	22	32.5W	1979	
LTO40A1	CAVENTOU	1	30	27.5W	1974	Void North of 31°15'N
LTO40A2	MCDONALD	1	30	22.5W	1974	Void North of 31°00'N.
LTO40A3	LAMBERT	1	26	22.5W	1974	
LTO40A4	LA HIRE	1	26	27.5W	1974	
LTO40B1	SAMPSON	1	30	17.5W	1974	Void North of 30°30'N.
LTO40B2	LANDSTEINER	1	30	12.5W	1974	Orthophotography and contours restricted to South of 29°50'N.
LTO40B3	KOVALEVSKIJ	1	26	12.5W	1974	
LTO40B4	HEINRICH	1	26	17.5W	1974	
LTO40C2	PUPIN	1	22	12.5W	1974	Void South of 20°45'N
LTO40D1	EULER	1	22	27.5W	1976	
LTO40D2	PYTHEAS	1	22	22.5W	1976	
LTO41A3	SPURR	2	26	2.5W	1974	
LTO41A4	BEER	1	26	7.5W	1974	
LTO41B3	JOY	1	26	7.5E	1974	
LTO41B4	HADLEY	2	26	2.5E	1975	
LTO41C1	CONON	1	22	2.5E	1974	
LTO41C2	GALEN	1	22	7.5E	1974	
LTO41C3	BOWEN	2	18	7.5E	1975	
LTO41C4	YANGEL'	2	18	2.5E	1974	Southwest corner is void.
LTO41D1	WALLACE	1	22	7.5W	1974	Southwest corner is void.
LTO41D2	HUXLEY	1	22	2.5W	1974	
LTO42A3	BANTING	1	26	17.5E	1974	
LTO42A4	LINNÉ	2	26	12.5E	1974	Northeast corner is void.
LTO42B3	VERY	1	26	27.5E	1974	Void North of 26°45'N.

LTO42B4	SARABHAI	1	26	22.5E	1974	Void North of 26°25'N.
LTO42C1	DESEILLIGNY	1	22	22.5E	1974	
LTO42C2	CLERKE	1	22	27.5E	1974	
LTO42C3	DAWES	2	18	27.5E	1975	
LTO42C4	BRACKETT	1	18	22.5E	1974	
LTO42D1	HORNSBY	2	22	12.5E	1974	
LTO42D2	BESSEL	1	22	17.5E	1974	
LTO42D3	MENELAUS	1	18	17.5E	1974	
LTO42D4	SULPICIUS GALLUS	1	18	12.5E	1974	
LTO43A4	LE MONNIER	1	26	32.5E	1974	
LTO43C1	HILL	1	22	42.5E	1974	Void North of 23°15'N.
LTO43C2	MACROBIUS	1	22	47.5E	1979	
LTO43C3	PROCLUS	1	18	47.5E	1974	
LTO43C4	CARMICHAEL	1	18	42.5E	1974	
LTO43D1	LITTROW	2	22	32.5E	1974	
LTO43D2	FRANCK	1	22	37.5E	1974	
LTO43D3	THEOPHRASTUS	1	18	37.5E	1974	
LTO43D4	VITRUVIUS	1	18	32.5E	1974	
LTO44D3	ECKERT	1	18	57.5E	1974	
LTO44D4	PEIRCE	2	18	52.5E	1974	
LTO60A1	DAUBREE	1	14	12.5E	1973	
LTO60A2	AUWERS	1	14	17.5E	1974	
LTO60B1	PLINIUS	1	14	22.5E	1974	
LTO60B2	JANSEN	1	14	27.5E	1974	
LTO60B3	CARREL	1	10	27.5E	1977	
LTO60B4	ROSS	1	10	22.5E	1979	
LTO61A1	CAJAL	1	14	32.5E	1974	
LTO61A2	LUCIAN	2	14	37.5E	1974	
LTO61A3	CAUCHY	1	10	37.5E	1974	
LTO61A4	SINAS	1	10	32.5E	1980	
LTO61B1	LYELL	1	14	42.5E	1974	
LTO61B2	GLAISHER	1	14	47.5E	1974	
LTO61B3	WATTS	1	10	47.5E	1974	
LTO61B4	DA VINCI	1	10	42.5E	1973	
LTO61C1	LAWRENCE	1	6	42.5E	1974	
LTO61C2	CAMERON	1	6	47.5E	1974	
LTO61C3	AMVILLE	1	2	47.5E	1974	
LTO61C4	SECCHI	1	2	42.5E	1974	
LTO61D1	WALLACH	1	6	32.5E	1979	
LTO61D2	ARYABHATA	1	6	37.5E	1979	
LTO61D3	MENZEL	1	2	37.5E	1979	
LTO61D4	MASKELYNE ORIENTALIS	1	2	32.5E	1979	

LTO62A1	YERKES	1	14	52.5E	1974	
LTO62A2	CURTIS	1	14	57.5E	1974	
LTO62A3	SHAPLEY	1	10	57.5E	1974	
LTO62A4	TEBBUTT	1	10	52.5E	1974	
LTO62B1	FAHRENHEIT	1	14	62.5E	1974	
LTO62B2	CONDORCET	1	14	67.5E	1974	Cartographic information lacking in Northeast quadrant and North of 15°30'N.
LTO62B3	KROGH	1	10	67.5E	1974	
LTO62B4	AUZOUT	1	10	62.5E	1974	
LTO62C1	FIRMICUS	1	6	62.5E	1974	
LTO62C2	DUBYAGO	1	6	67.5E	1974	
LTO62C3	POMORTSEV	1	2	67.5E	1974	
LTO62C4	CONDON	1	2	62.5E	1974	
LTO62D1	ABBOT	1	6	52.5E	1974	
LTO62D2	DALY	1	6	57.5E	1974	
LTO62D3	AMEGHINO	1	2	57.5E	1974	
LTO62D4	SMITHSON	1	2	52.5E	1974	
LTO63A2	SABATIER	1	14	77.5E	1979	
LTO63A3	WILDT	1	10	77.5E	1979	
LTO63A4	CONDORCET SE	1	10	72.5E	1979	
LTO63B1	THEILER	1	14	82.5E	1976	
LTO63B2	GODDARD	1	14	87.5E	1976	
LTO63B3	JANSKY	1	10	87.5E	1975	
LTO63B4	VIRCHOW	1	10	82.5E	1976	
LTO63C1	KNOX-SHAW	1	6	82.5E	1974	
LTO63C2	TACHINNI	1	6	87.5E	1974	
LTO63C3	PEEK	1	2	87.5E	1973	
LTO63C4	SCHUBERT	1	2	82.5E	1973	
LTO63D1	BOETHIUS	1	6	72.5E	1974	
LTO63D2	BANACHIEWICZ NW	1	6	77.5E	1979	
LTO63D3	NOBILI	1	2	77.5E	1974	
LTO63D4	RESPIGHI	1	2	72.5E	1974	
LTO64D1	NUNN	1	14	92.5E	1974	
LTO64D2	ERRO	1	14	97.5E	1974	
LTO64D3	FOX	1	10	97.5E	1974	
LTO64D4	MCADIE	1	10	92.5E	1974	
LTO65A3	GUYOT	1	10	117.5E	1974	
LTO65B4	RECHT	1	10	122.5E	1974	
LTO65C1	KING	1	6	122.5E	1974	
LTO65C4	ZANSTRA	1	2	122.5E	1974	
LTO65D2	KATCHALSKY	2	6	117.5E	1975	
LTO65D3	ABUL Wafa	1	2	117.5E	1975	

LTO66A3	RUTHERFORD	1	10	137.5E	1974	Lacking cartographic information North of 10°N.
LTO66B4	GLAUBER	1	10	142.5E	1974	Lacking cartographic information North of 10°50'N.
LTO66C1	FISCHER	1	6	142.5E	1974	
LTO66D2	BERGMAN	1	6	137.5E	1974	
LTO75C1	SCHEELE	1	-10	37.5W	1974	
LTO75C2	NORMAN	1	-10	32.5W	1974	
LTO75D2	WINTHROP	1	-10	42.5W	1974	
LTO76C1	BONPLAND	1	-10	17.5W	1974	
LTO76C2	GUERICKE	1	-10	12.5W	1974	
LTO76D1	EPPINGER	1	-10	27.5W	1974	
LTO76D2	KUIPER	1	-10	22.5W	1974	
LTO77A3	HERSCHEL	1	-6	2.5W	1979	
LTO77B3	HIPPARCHUS	1	-6	7.5E	1979	
LTO77B4	GLYDEN	1	-6	2.5E	1979	
LTO77C1	ALBATEGNIUS	1	-10	2.5E	1974	Lacking cartographic information South of 10°S.
LTO77C2	HALLEY	1	-10	7.5E	1974	Lacking cartographic information North of 11°30'S.
LTO77D1	DAVY	1	-10	7.5W	1974	
LTO77D2	AMMONIUS	1	-10	2.5W	1974	Lacking cartographic information South of 11°30'S
LTO78A3	ALFRAGANUS	1	-6	17.5E	1974	Void South of 5°30'S.
LTO78A4	LINDSAY	1	-6	12.5E	1979	Void South of 5°30'S.
LTO78B3	TORRICELLI	1	-6	27.5E	1974	
LTO78B4	HYPATIA	1	-6	22.5E	1974	Lacking cartographic information Northwest corner.
LTO78C1	KANT	1	-10	22.5E	1974	Void South of 11°30'S
LTO78C2	MADLER	1	-10	27.5E	1974	Void South of 11°30'S
LTO78D1	ANDEL	1	-10	12.5E	1974	
LTO78D2	DESCARTES	1	-10	17.5E	1974	Lacking cartographic information South of 11°15'S.
LTO79A2	LEAKEY	1	-2	37.5E	1974	Lacking cartographic information North of 2°S.
LTO79A3	CAPELLA	1	-6	37.5E	1974	
LTO79A4	ISIDORUS	1	-6	32.5E	1974	
LTO79B1	LUBBOCK	1	-2	42.5E	1974	Void South of 1° S 40° 30' S.
LTO79B2	MESSIER	1	-2	47.5E	1974	
LTO79B3	AMONTONS	1	-6	47.5E	1974	
LTO79B4	GUTENBERG	1	-6	42.5E	1974	
LTO79D1	DAGUERRE	1	-10	32.5E	1974	Void South of 11°25'S.
LTO79D2	GAUDIBERT	1	-10	37.5E	1974	Void South of 11°S.
LTO80A1	GEIKIE	1	-2	52.5E	1974	
LTO80A2	WEBB	1	-2	57.5E	1974	
LTO80A3	BILHARZ	1	-6	57.5E	1974	
LTO80A4	LINDBERGH	1	-6	52.5E	1974	
LTO80B1	MORLEY	1	-2	62.5E	1974	
LTO80B2	MACLAURIN	1	-2	67.5E	1974	
LTO80B3	BORN	1	-6	67.5E	1976	Cartographic information lacking in Southwest corner.

LTO80B4	ACOSTA	2	-6	62.5E	1975	
LTO80C1	SOMERVILLE	1	-10	62.5E	1974	
LTO80C2	BARKLA	1	-10	67.5E	1977	
LTO80D2	AL-MARRAKUSHI	1	-10	57.5E	1974	Lacking cartographic information in Southwest corner.
LTO81A1	RANKINE	1	-2	72.5E	1974	
LTO81A2	GILBERT	1	-2	77.5E	1974	
LTO81A3	KASTNER	1	-6	77.5E	1975	
LTO81A4	VON BEHRING	1	-2	72.5E	1975	
LTO81B1	HALDANE	1	-2	82.5E	1973	
LTO81B2	RUNGE	1	-2	87.5E	1973	
LTO81B3	WIDMANNSTATTEN	1	-6	87.5E	1973	
LTO81B4	KIESS	1	-6	82.5E	1973	
LTO81C1	KREIKEN	1	-10	82.5E	1973	
LTO81C2	HOUTERMANS	1	-10	87.5E	1973	
LTO81D1	KAPTEYN	1	-10	72.5E	1979	
LTO81D2	LA PEROUSE	1	-10	77.5E	1977	
LTO82A1	PURKYNE	1	-22	92.5E	1973	
LTO82A2	WYLD	1	-2	97.5E	1973	
LTO82A3	LUDWIG	1	-6	97.5E	1973	
LTO82A4	HIRAYAMA	1	-6	92.5E	1973	
LTO82D1	BRUNNER	1	-10	92.5E	1973	
LTO82D2	GANSKIJ	1	-10	97.5E	1973	
LTO83B4	NECHO	1	-6	122.5E	1976	
LTO83C1	DANJON	2	-10	122.5E	1975	
LTO83C3	DOBROVOLSHIJ	1	-14	127.5E	1973	
LTO83C4	DELPORTE	1	-14	122.5E	1973	
LTO83D2	SHERRINGTON	1	-10	117.5E	1974	
LTO84B3	TAMM	1	-6	147.5E	1976	
LTO84D4	VOLKOV	2	-14	132.5E	1974	
LTO85A4	CHAPLYGIN	1	-6	152.5E	1979	
LTO85C1	PLANTE	1	-10	162.5E	1979	
LTO85C2	HEAVISIDE	1	-10	167.5E	1979	
LTO85C3	IBN HAYYAN	1	-14	167.5E	1976	
LTO86D4	AITKEN BOREALIS	1	-14	172.5E	1976	
LTO100A1	SKLODOWSKA OCCIDENTALIS	1	-18	92.5E	1977	
LTO100A2	DKLODOWSKA ORIENTALIS	1	-18	97.5E	1976	
LTO100C1	TITIUS	2	-22	102.5E	1975	Void in Southwest corner.
LTO101B1	LITKE	1	-18	122.5E	1973	
LTO101B2	TSIOLKOVSKIJ BOREALIS	2	-18	127.5E	1973	
LTO101B3	TSIOLKOVSKIJ AUSTRALIS	1	-22	127.5E	1979	
LTO101B4	BABAKIN	2	-22	122.5E	1974	

LTO101C1	NEUJMIN	1	-26	122.5E	1973	
LTO101C2	WATERMAN	1	-26	127.5E	1973	Void South of 26° S and East of 126° E.
LTO102A1	PATSAEV	3	-18	132.5E	1974	
LTO102A4	FESNEKOV	1	-22	132.5E	1973	
LTO102B2	ISAEV	1	-18	147.5E	1974	
LTO102B3	ANDRONOV	1	-22	147.5E	1974	
LTO102D1	STARK	2	-26	132.5E	1974	
LTO103A1	GRAVE	1	-18	152.5E	1974	
LTO103A4	RASPLETIN	1	-22	152.5E	1974	
LTO103B2	ZWICKY	1	-18	167.5E	1976	Lacking cartographic information in deep shadows.
LTO104A1	AITKEN AUSTRALIS	1	-18	172.5E	1976	Lacking cartographic information in deep shadows.

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