

## 4.3.4 SURVEYOR LUNAR PHOTOMAP AND MAP SERIES

The Surveyor lunar landing site maps were produced in 1967-1968 in photomap and lunar map form by ACIC and TOPOCOM in support of study of Surveyor Missions I, III, and VI results. The maps are identified by the number of the Surveyor landing vehicle whose location is shown on each sheet. The 1:2,000 and 1:1,000 scale maps were produced both in photomap and lunar map form, while the 1:500 and 1:100 scale maps were produced only as lunar maps. Enlarged high resolution photographic framelets from Lunar Orbiter Missions I, II and III were used to produce the image bases for these various sites in an effort to provide maximum definition of site features and topography.

Vertical and horizontal positions are generally based on local analytical photogrammetric triangulation, using Lunar Orbiter mission site photographs and preliminary Photo Support Data. These control solutions only provided an array of control points supporting the relative positioning of features on the map sheets. The absolute selenographic values shown are not considered to be reliable.

Contour information on the 1:2,000 scale maps is shown at a 10 meter interval with five meter supplementary contours. A two meter interval and a one meter supplementary contour are depicted on the 1:500 scale maps. All contours are expressed as radius vectors but should only be used for the relative elevation information shown.

The Surveyor Photomap series reflects photomosaic detail, lithographed in black and overprinted in red with contours, crater depths and rim elevation values. The map margin information contains vertical and horizontal reliability statements, relative error information, and a map legend describing the overprinted information.

The Surveyor Lunar Map Series depicts hypsography by shadient relief, contours, rim elevations above surrounding terrain, and crater depths. The base map is a green-black duotone printing. Relief values are overprinted in black; contours in red.

In constructing the Surveyor maps, portions of individual high resolution Lunar Orbiter photo framelets were enlarged to a scale of 1:2,000 and were mosaiced together with adjustment to the contained film reseau. The photomosaic base was reproduced with described overprints resulting in the photomap sheets. The Lunar Map series at 1:2,000 was produced by using the base mosaic which provided control for delineation of features on the shadient relief drawings. An enlargement of the mosaic similarly served in compilation of the 1:500 scale maps. Contours and spot elevations were interpolated from the analytical photogrammetric control solutions assisted by photometric tracings and measurements.

Surveyor Site I Mapping . . . . . 4.3.4.1  
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Section 4.3.4

## 4.3.4.1 SURVEYOR SITE I MAPPING

Lunar Photomap  
1st Edition, January 1968  
Scale: 1:2,000  
Projection: Mercator  
Sheet Size: 24" x 30"  
Published by: ACIC

Lunar Map  
1st Edition, January 1968  
Scale: 1:500  
Projection: Mercator  
Sheet Size: 24" x 30"  
Published by: ACIC

Lunar Map  
1st Edition, January 1968  
Scale: 1:2,000  
Projection: Mercator  
Sheet Size: 24" x 30"  
Published by: ACIC

Pictorial Lunar Map  
1st Edition, October 1967  
Scale: 1:100  
Projection: True Orthographic  
Sheet Size: 39" x 43"  
Published by: TOPOCOM

1. 1:500-1:2,000 Surveyor I Site mapping was produced on a Mercator projection (standard parallels at 2°30'N-S) with coverage from 2°31'S to 2°33'S and 43°21'12"W to 43°24'W for the 1:2,000 scale maps. The 1:500 scale map provides coverage from 2°31'45"S to 2°32'15"S and 43°22'15"W to 43°22'57"W. The maps were compiled from Lunar Orbiter III high resolution frame 183, framelet numbers 872 through 878. Framelets 875 and 876 were used to provide the base imagery for the 1:500 scale map. The map margin contains a site location diagram keyed to a LAC index and another keyed to ORB I-9.2 (100) and ORB III-12 (100) map outlines, both of which overlap the site. These Surveyor I Site maps have an evaluated horizontal accuracy of three meters and a vertical accuracy of ten meters, both expressed at 90% probability.

2. The 1:100 scale Pictorial Map was produced on a true Orthographic Projection based on the local lunar surface with the Surveyor I Site as its center. The extent of coverage is 46 meters in any direction from portions of the Surveyor I camera station. The base imagery was compiled from Lunar Orbiter III high resolution frame 183. The map margin contains a site location diagram keyed to ORB III-12 (100) map outline. This sheet contains no overprinted contour or relative height information and its accuracy is unevaluated.

#### 4.3.4.2 SURVEYOR SITE III MAPPING (Published by TOPOCOM)

Lunar Photomap  
1st Edition, January 1968  
Scale: 1:2,000  
Projection: Mercator  
Sheet Size: 24" x 30"

Lunar Map  
1st Edition, February 1968  
Scale: 1:500  
Projection: Mercator  
Sheet Size: 24" x 28"

Surveyor III Site mapping was produced on a Mercator projection (standard parallels at 2°30'N-S) with coverage from 3°11'12"S to 3°13'12"S and 23°21'36"W to 23°24'24"W for the 1:2,000 scale map. The 1:500 scale map provides coverage from 3°11'48"S to 3°12'18"S and 23°22'42"W to 23°23'18"W. The maps were compiled from portions of Lunar Orbiter III high resolution frame 154. Map margin information includes a site location diagram keyed to a LAC index and another keyed to ORB I-7 (100) and ORB III-9 (100) map outlines, both of which overlap the site. The maps compiled for Surveyor III Site have an evaluated horizontal accuracy of three meters and a vertical accuracy of ten meters, both expressed at a 90% probability.

4.3.4.3 SURVEYOR SITE VI MAPPING  
(Published by TOPOCOM)

Lunar Photomap (Experimental)  
1st Edition March 1969  
Scale: 1:1,000 (approximate)  
Projection: Mercator  
Sheet Size: 26" x 30"

The Surveyor VI Site map was produced on a Mercator projection (standard parallels at 2°30'N-S) with coverage from 0°28'45"N to 0°30'13"N and 1°23'17"W to 1°24'40"W. The base imagery was compiled from Lunar Orbiter II high resolution frame 121 using portions of framelets 265 through 267. The map margin contains a site location diagram keyed to LAC 59 with reference to ORB II-8 (100) map outline in which the Surveyor Site is located. The contour interval is one meter with 50-centimeter supplementary contours.

The map datum is an arbitrary one based on the lunar surface surrounding the Surveyor VI landing site. Contour values, as stated on the map, are relative to measurements made from the assumed landing site datum. The accuracy of the sheet is unevaluated.