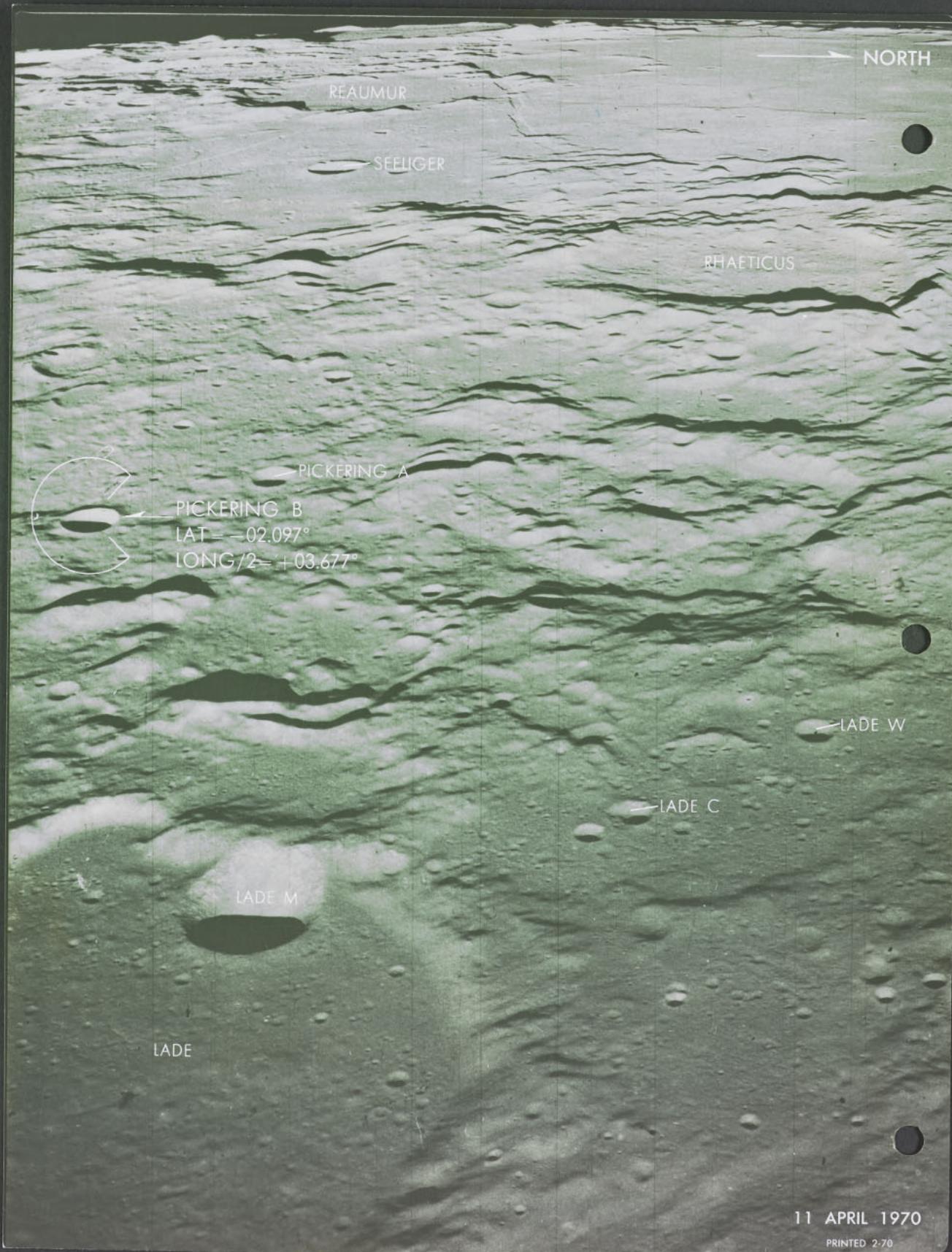


APOLLO 13	
CSM LUNAR LANDMARK MAPS	
PART NO.	S/N
SKB32100082 - 322	1002

INDEX SHEET  
LAUNCH DATE APRIL 11, 1970

TYPE	NUMBER	LATITUDE	LONGITUDE	DIAMETER (ft)	SCALE	TAB NO.
Selenodetic Reference Point	Pickering B	-02.097°	+07.354°	19350	Oblique 1:1:2.5M	PICK B
Training Landmark	H-2	-03.033°	-04.767°	7100	Oblique 1:300K	H-2
Landing Site Landmarks	13-1	-04.043°	-15.599°	980	15° Oblique 30° Oblique	13-1
	13-2	-03.606°	-15.315°	1200	15° Oblique 30° Oblique	13-2
	13-3	-03.189°	-15.478°	2750	15° Oblique 30° Oblique	13-3
	13-1,2,3	—	—	—	1:300K 1:200K 1:360K Oblique 1:630K	13-1,2,3 13-1,2,3 (35°)
Landing Site	—	-03.669°	-17.484°	—	0° Phase Oblique 0° Phase Oblique 1:25K 1:100K	LAM 13
Selenodetic Reference Points	Theon Senior B	+00.171°	+14.057°	18660	Oblique 1:2.5M	THEON B
	Taruntius O	+02.333°	+54.317°	20840	Oblique 1:2.5M	TARUN O
	130	+01.266°	+23.679°	2100	Oblique 1:630K	LDMK 130
	Secchi B	+03.833°	+41.483°	17730	Oblique 1:2.5M	SECCHI B
	Mosting A	-03.250°	-05.283°	43640	1:2.5M	MOST A
	Reamur X	-02.917°	-00.673°	16650	Oblique 1:2.5M	REAM X
	Euclides F	-06.377°	-33.707°	19680	1:2.5M	EUCL F
	Moltke	-00.586°	+24.128°	21500	Oblique 1:2.5M	MOLTKE

Printed  
3-20-70



11 APRIL 1970

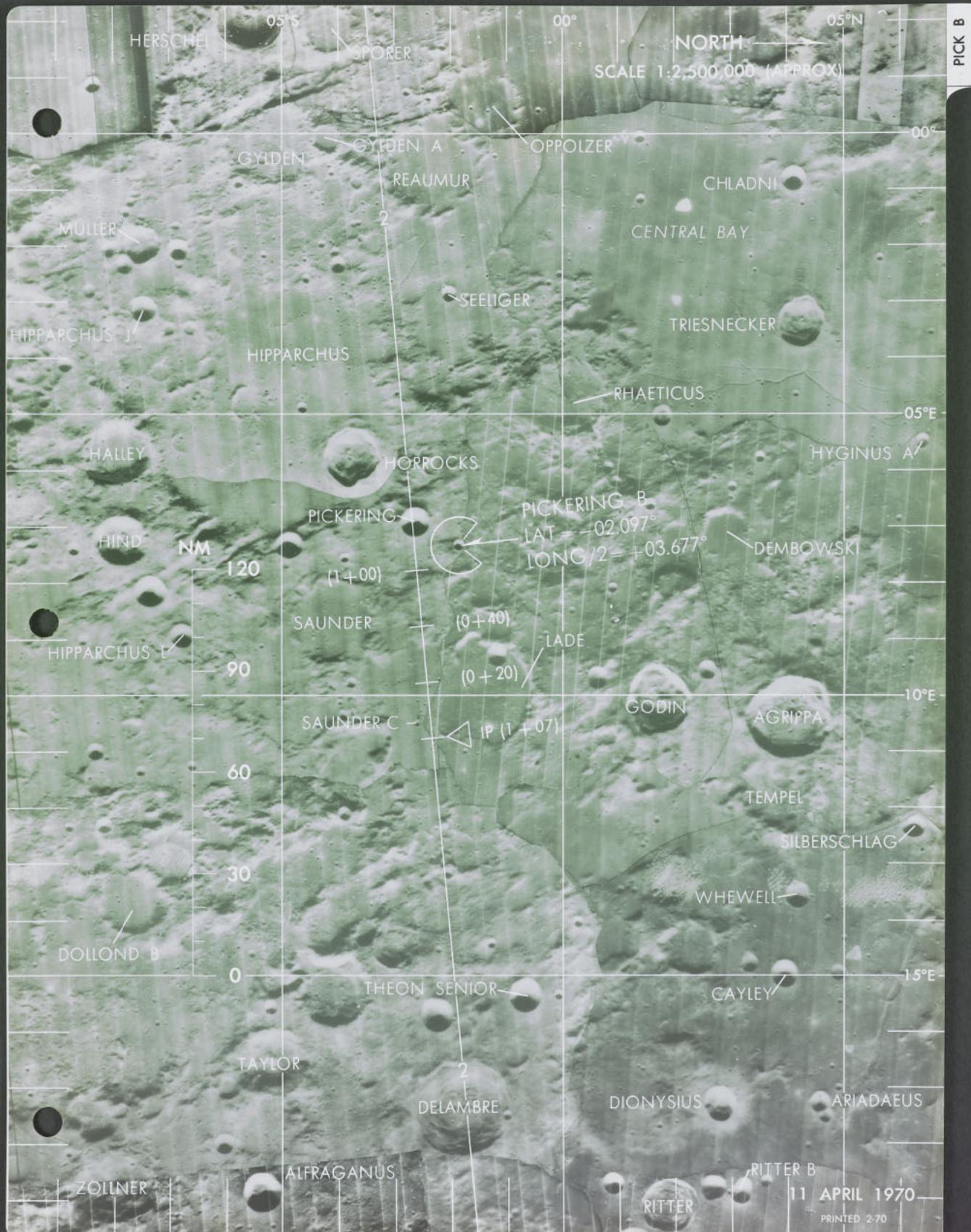
PRINTED 2-70

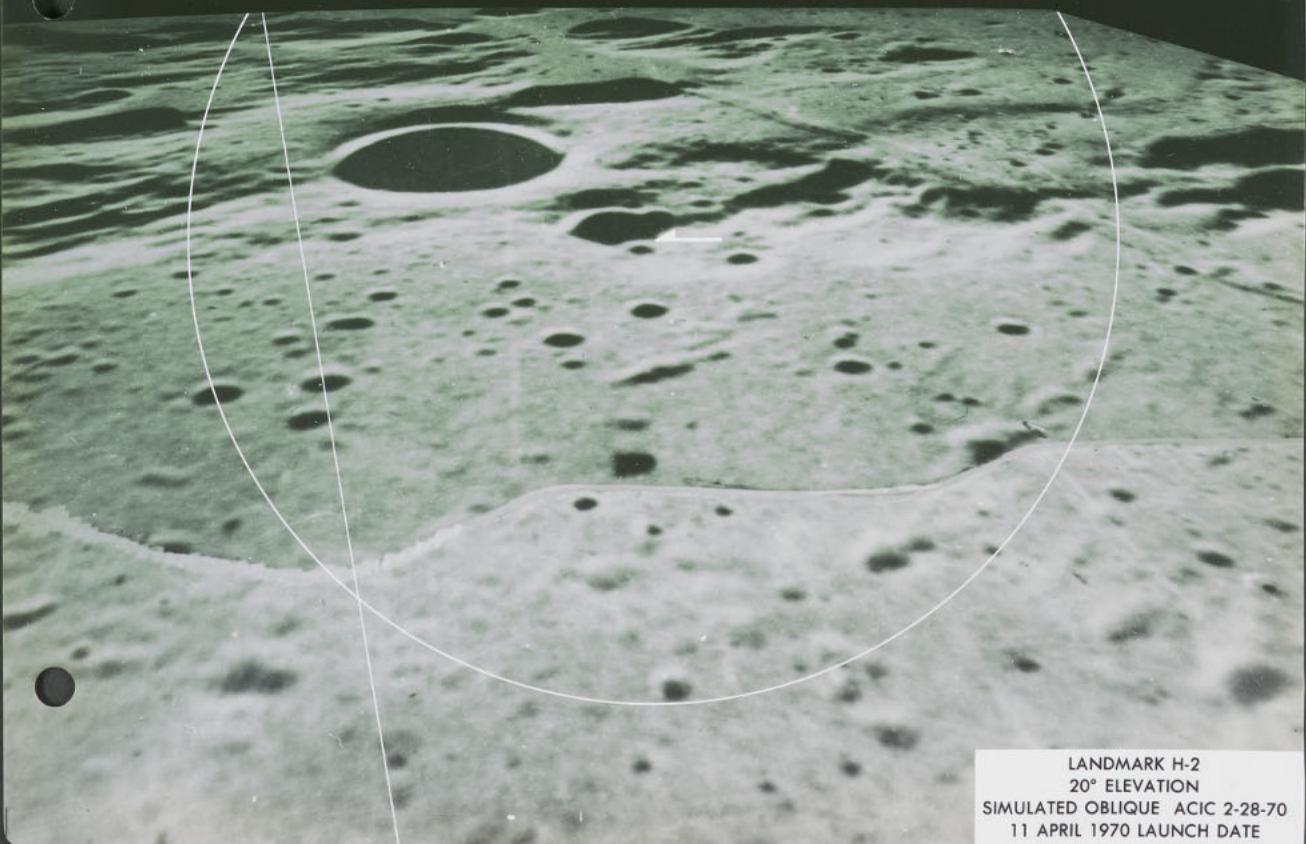
## INDEX SHEET

LAUNCH DATE APRIL 11, 1970

TYPE	NUMBER	LATITUDE	LONGITUDE	DIAMETER (ft)	SCALE	TAB NO.
Control Points	CP 1	+06.850°	+107.150°	3460	1:2.5M 1:880K	CP 1
	CP 2	+00.550°	+68.100°	3220	Oblique 1:630K	CP 2
	CP 3	-08.800°	+12.517°	2030	1:2.5M 1:630K	CP 3
	CP 4	-11.633°	-20.133°	3450	1:2.5M 1:630K	CP 4
	CP 5	-10.900°	-44.200°	3050	1:2.5M 1:630K	CP 5
Future Site Photo Targets	Censorinus	-00.311°	+32.481°	—	25° Elevation 40° Elevation	CENS COAS
	Davy Rille	-10.950°	-06.100°	—	40° Elevation 25° Elevation	DAVY RILLE (25°)
	Descartes	-08.858°	+15.517°	—	25° Elevation 40° Elevation	DESC COAS
Control Point	Davy Rille	-11.163°	-7.179°	3040	Oblique 1:630K	DAVY RILL
Visual Targets	3	+5°	+120°	—	—	V-3
	5	~+6°	~+87°	—	—	V-5
	1	~ -3°	~+147°	—	—	V-1
	17	+2°	-60°	—	—	V-17
	9	0°	+32°	—	—	V-9
	15	-3°	-42°	—	—	V-15
	16	-17°	-40°	—	—	V-16
	4	+13°	+90°	—	—	V-4
	7	—	—	—	—	V-7
	8	—	—	—	—	V-8
Visual Targets (Unscheduled)	2,6,10,11, 12,13,14, 18,19,20	—	—	—	—	—

Printed  
3-20-70



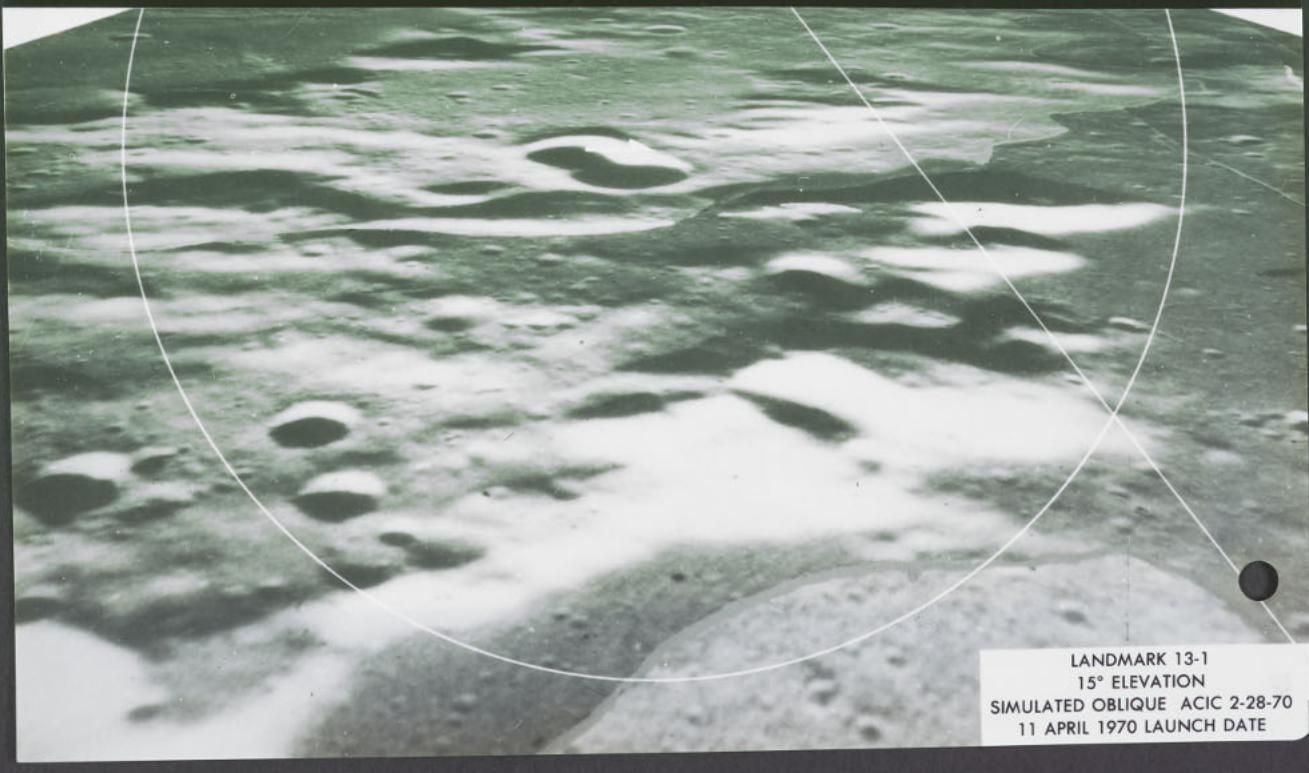


NORTH →

H-2 (20°)

LANDMARK H-2  
20° ELEVATION  
SIMULATED OBLIQUE ACIC 2-28-70  
11 APRIL 1970 LAUNCH DATE

NORTH



LANDMARK 13-1  
15° ELEVATION  
SIMULATED OBLIQUE ACIC 2-28-70  
11 APRIL 1970 LAUNCH DATE

## LANDING SITE LANDMARK DATA SHEET

LAUNCH DATE APRIL 11, 1970

## ELLIPSE CENTER DATA

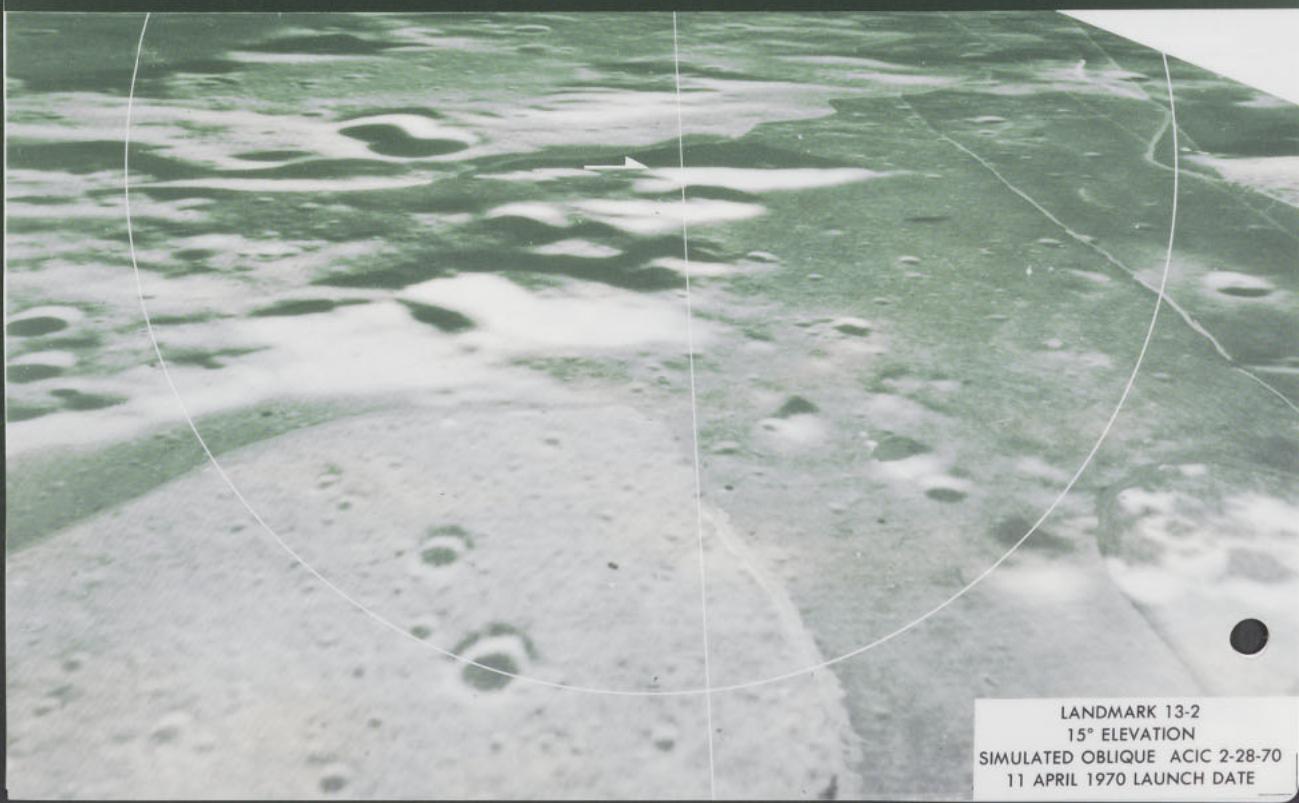
LATITUDE (0.001°)	LONG/2 (0.001°)	LONGITUDE (0.001°)	ALTITUDE (0.01 NM)
-03.669°	-08.742	-17.484°	-000.76

## LANDMARK DATA

LANDMARK NUMBER	LATITUDE (0.001°)	LONG/2 (0.001°)	LONGITUDE (0.001°)	ALTITUDE (0.01 NM)	NOMINAL DISTANCE FROM GROUND TRACK (NM)	LANDMARK DIAMETER (ft)
13-1	-04.043°	-07.799	-15.599°	-000.28	6.73	980
13-2	-03.606°	-07.658	-15.315°	-000.00	8.77	1200
13-3	-03.189°	-07.739	-15.478°	-000.76	7.00	2750
13-4	-03.707°	-07.006	-14.012°	-000.73	3.38	1200
13-5	-03.226°	-07.057	-14.114°	-000.85	4.89	1200



13-2 (15°)



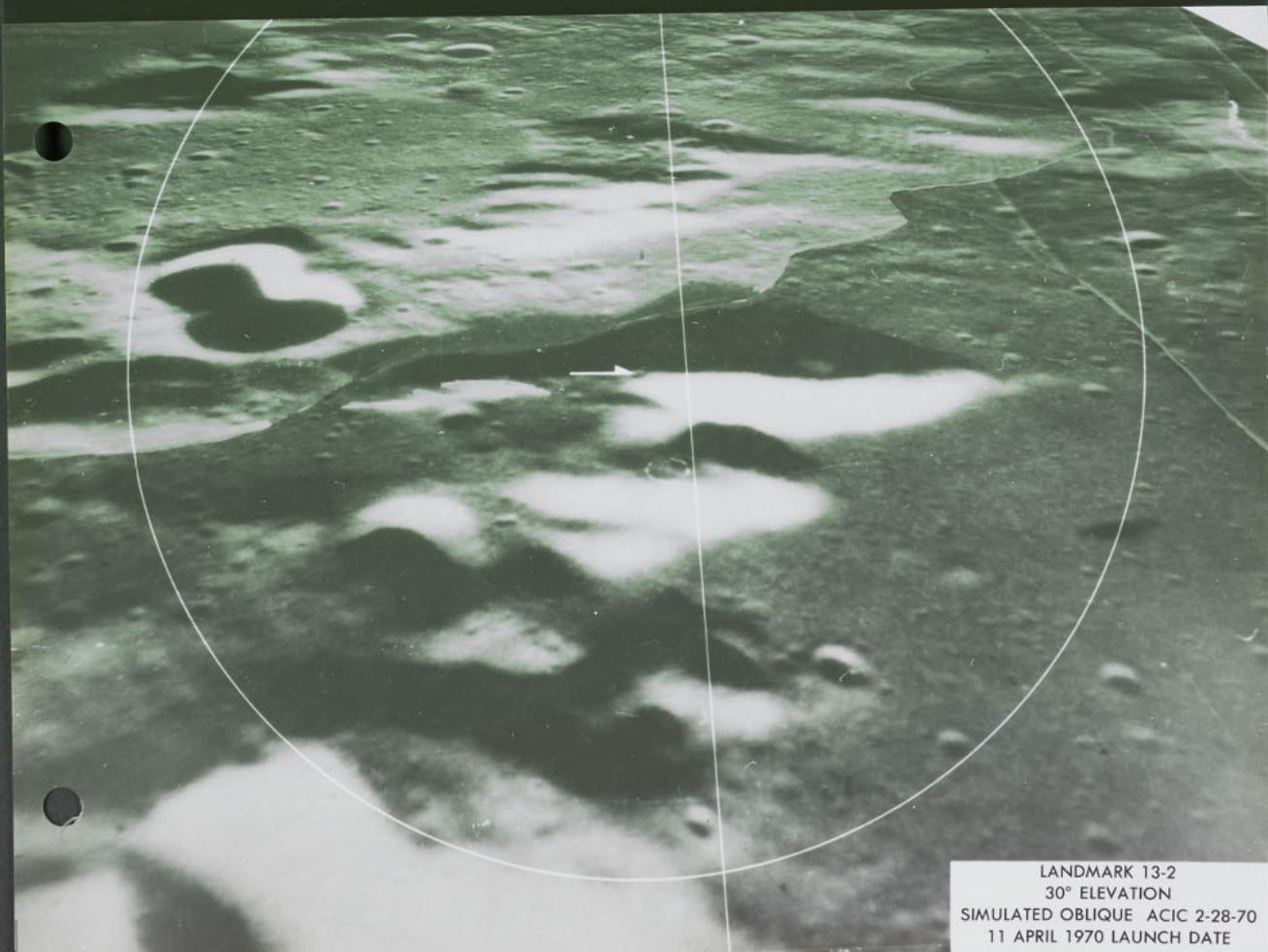
LANDMARK 13-2  
15° ELEVATION  
SIMULATED OBLIQUE ACIC 2-28-70  
11 APRIL 1970 LAUNCH DATE

NORTH

13-1 (30°)



LANDMARK 13-1  
30° ELEVATION  
SIMULATED OBLIQUE ACIC 2-28-70  
11 APRIL 1970 LAUNCH DATE



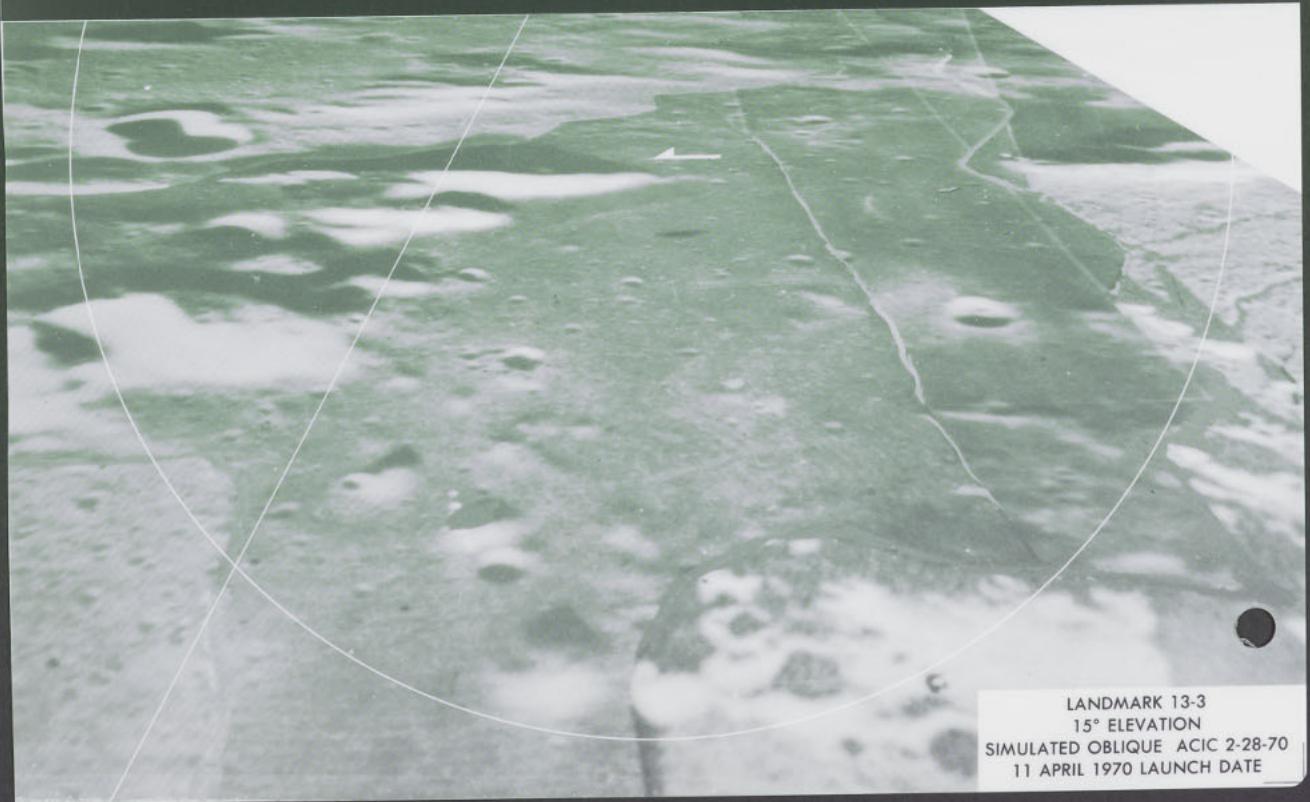
LANDMARK 13-2  
30° ELEVATION  
SIMULATED OBLIQUE ACIC 2-28-70  
11 APRIL 1970 LAUNCH DATE

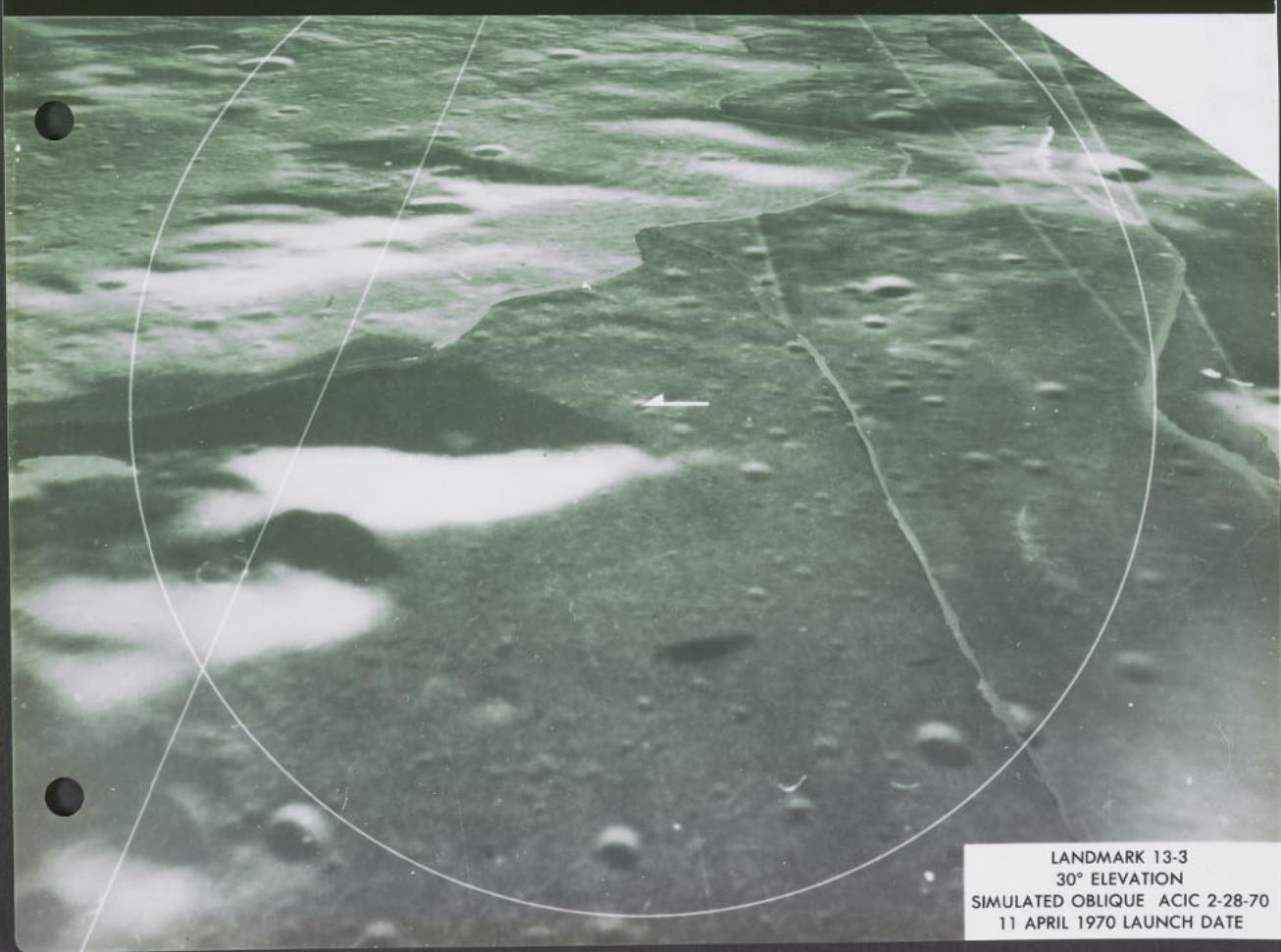
NORTH →

13-2 (30°)

13-3 (15°)

NORTH

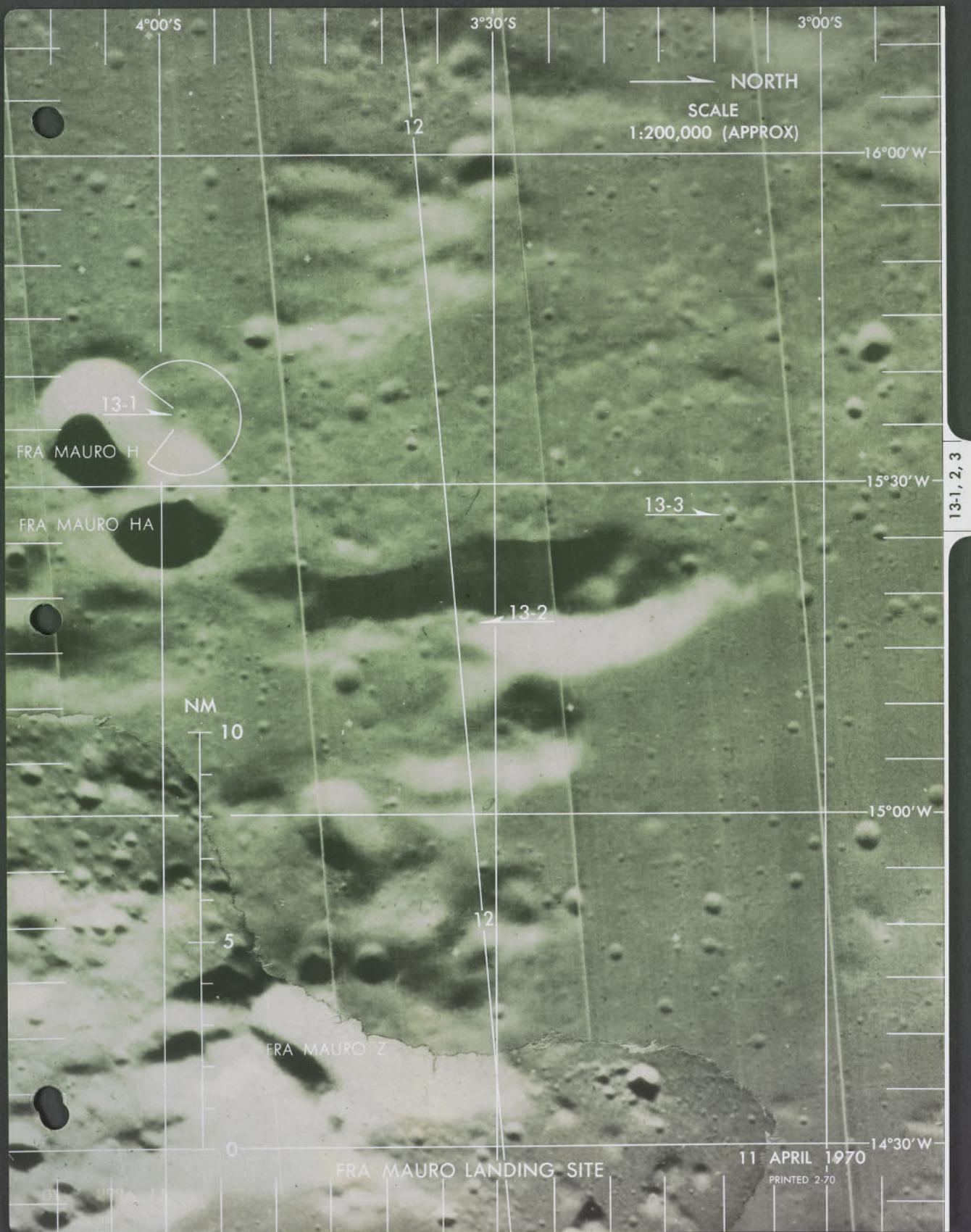


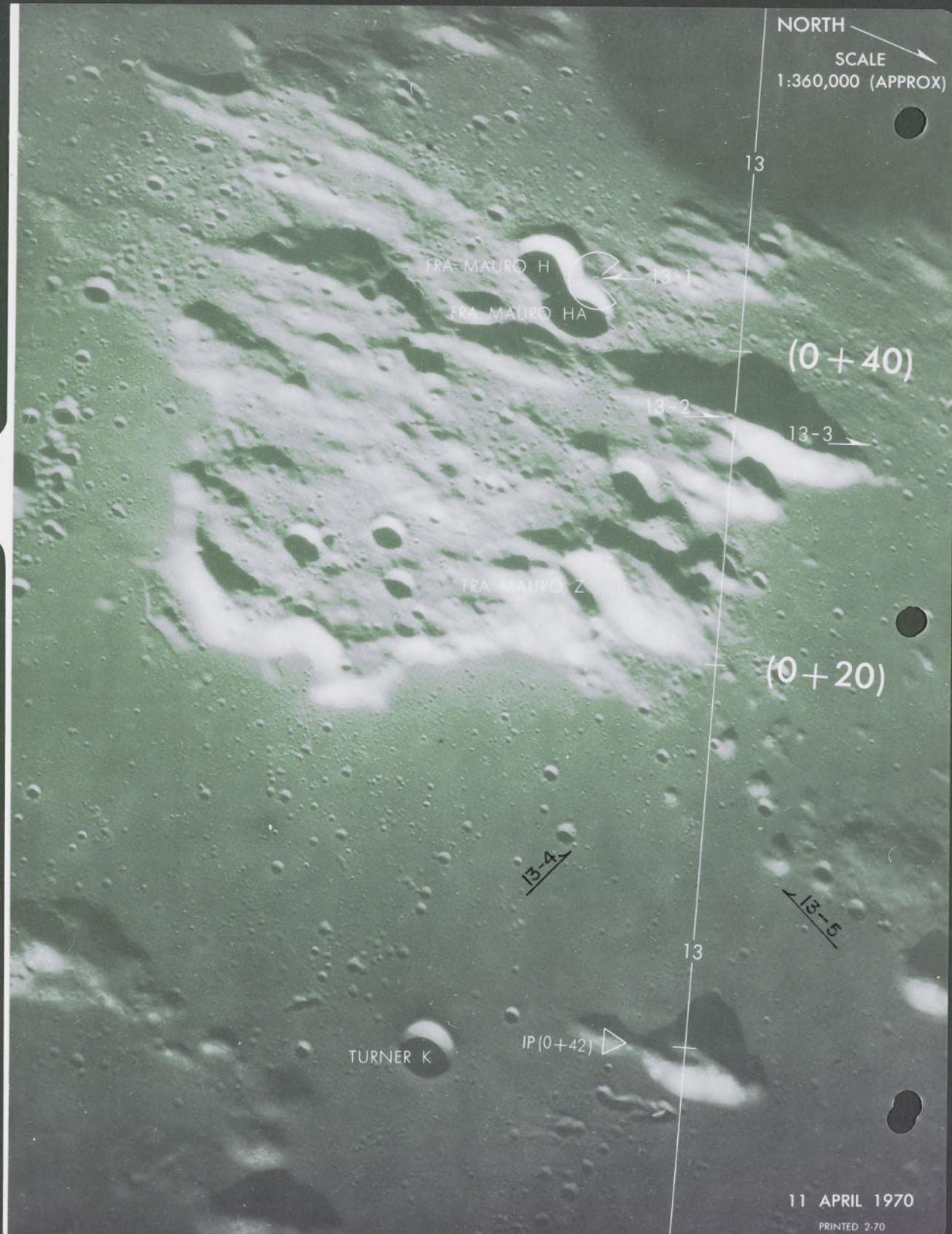


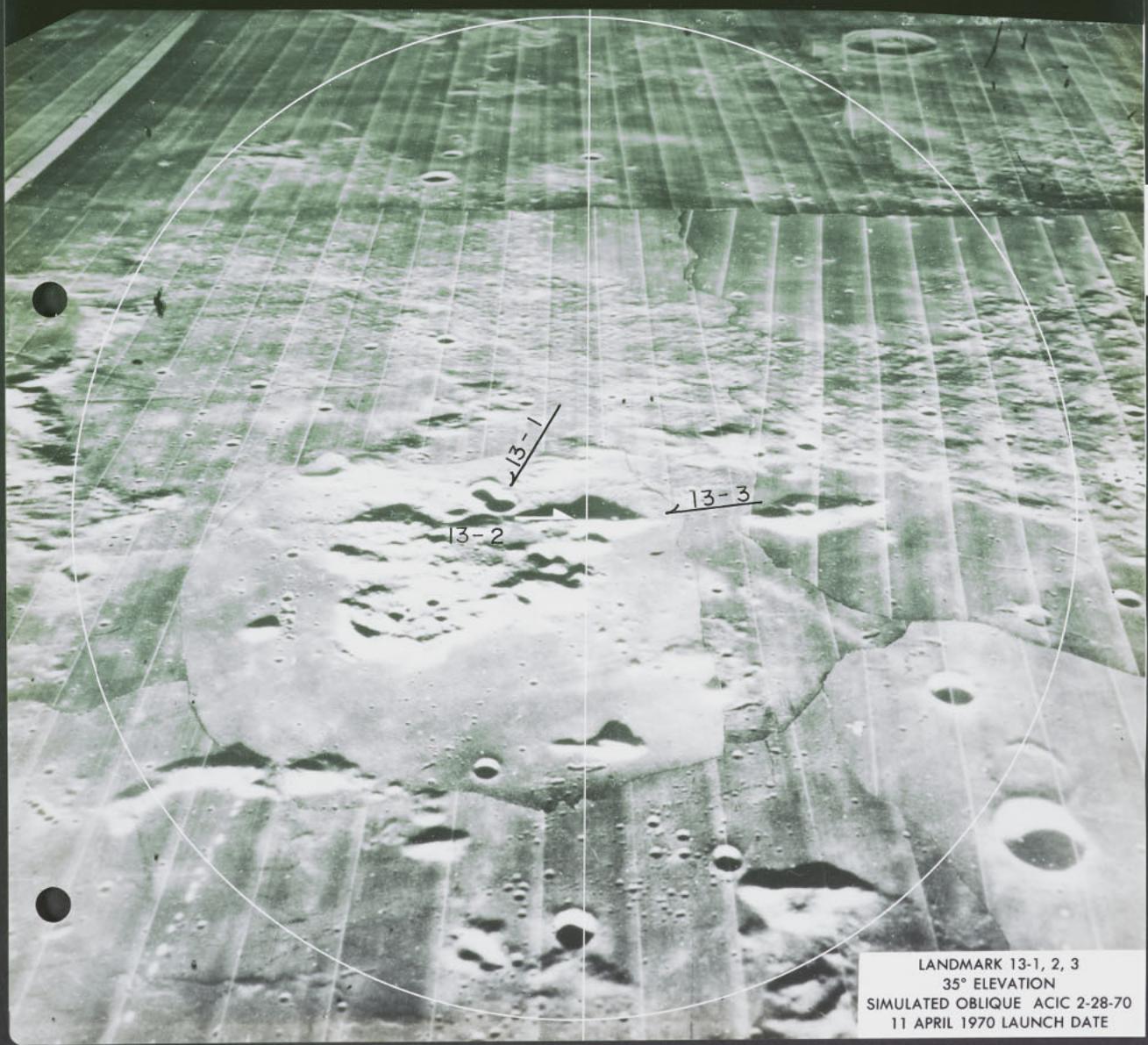
13-3 (30°)

NORTH →

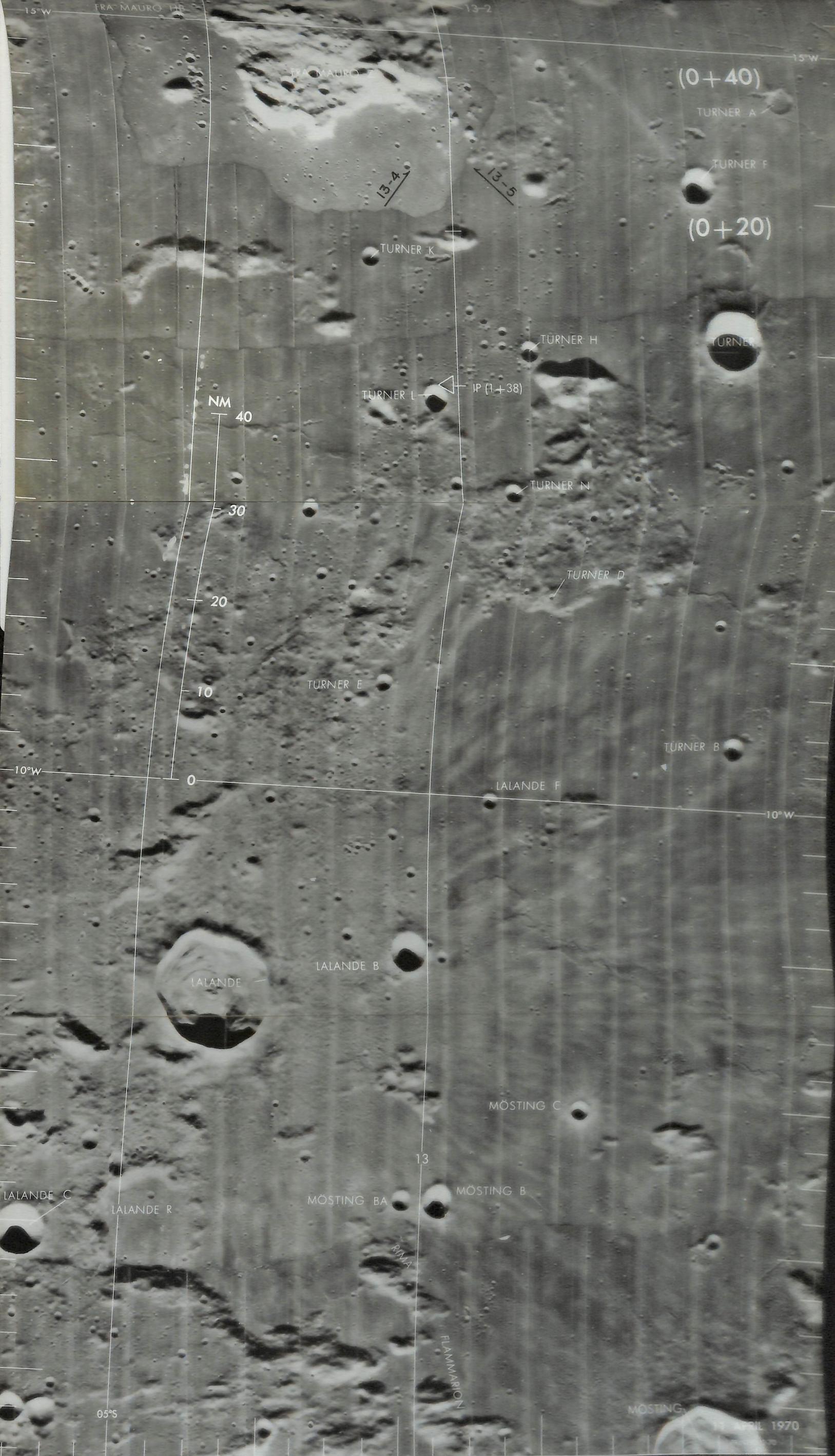


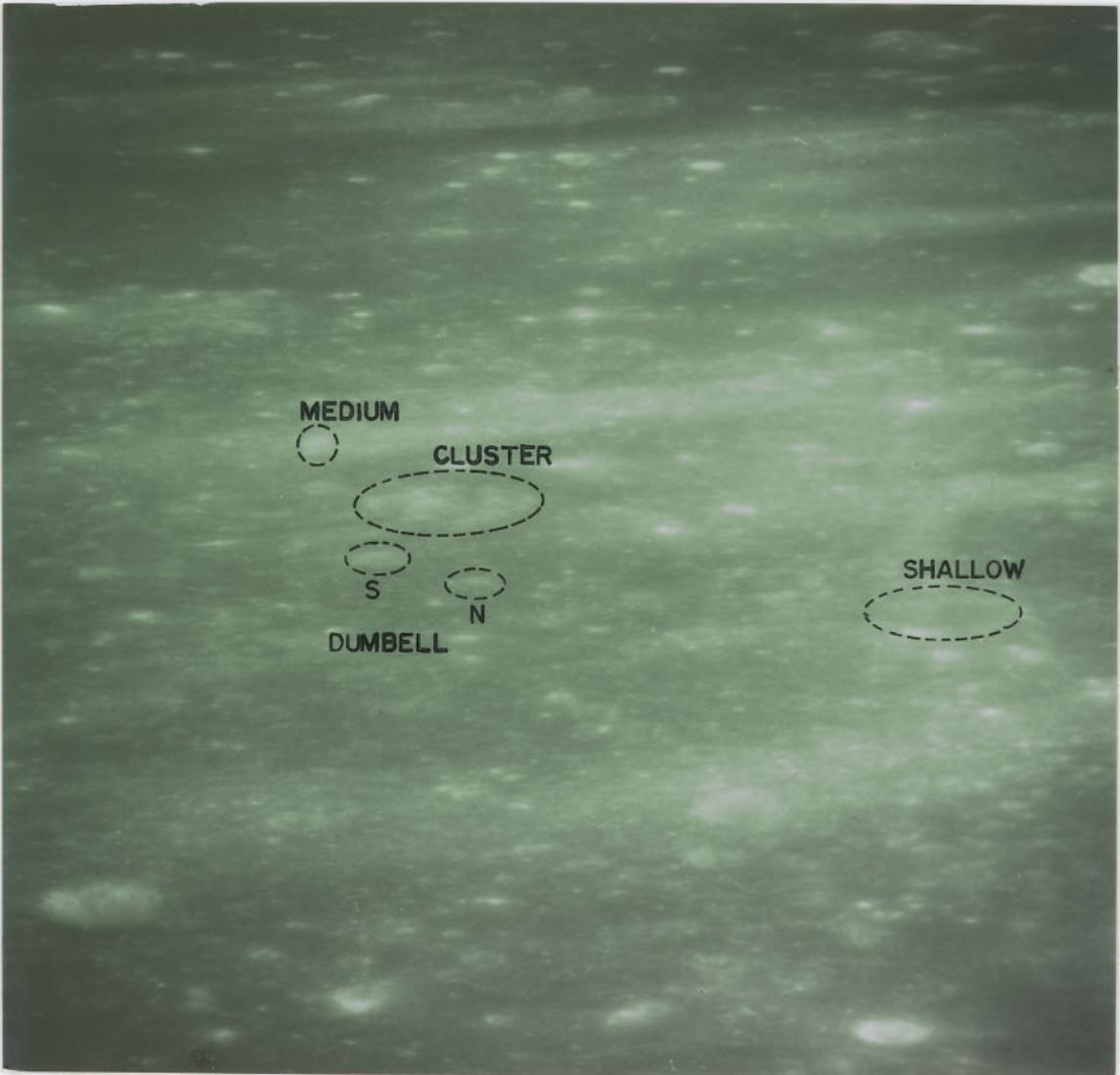












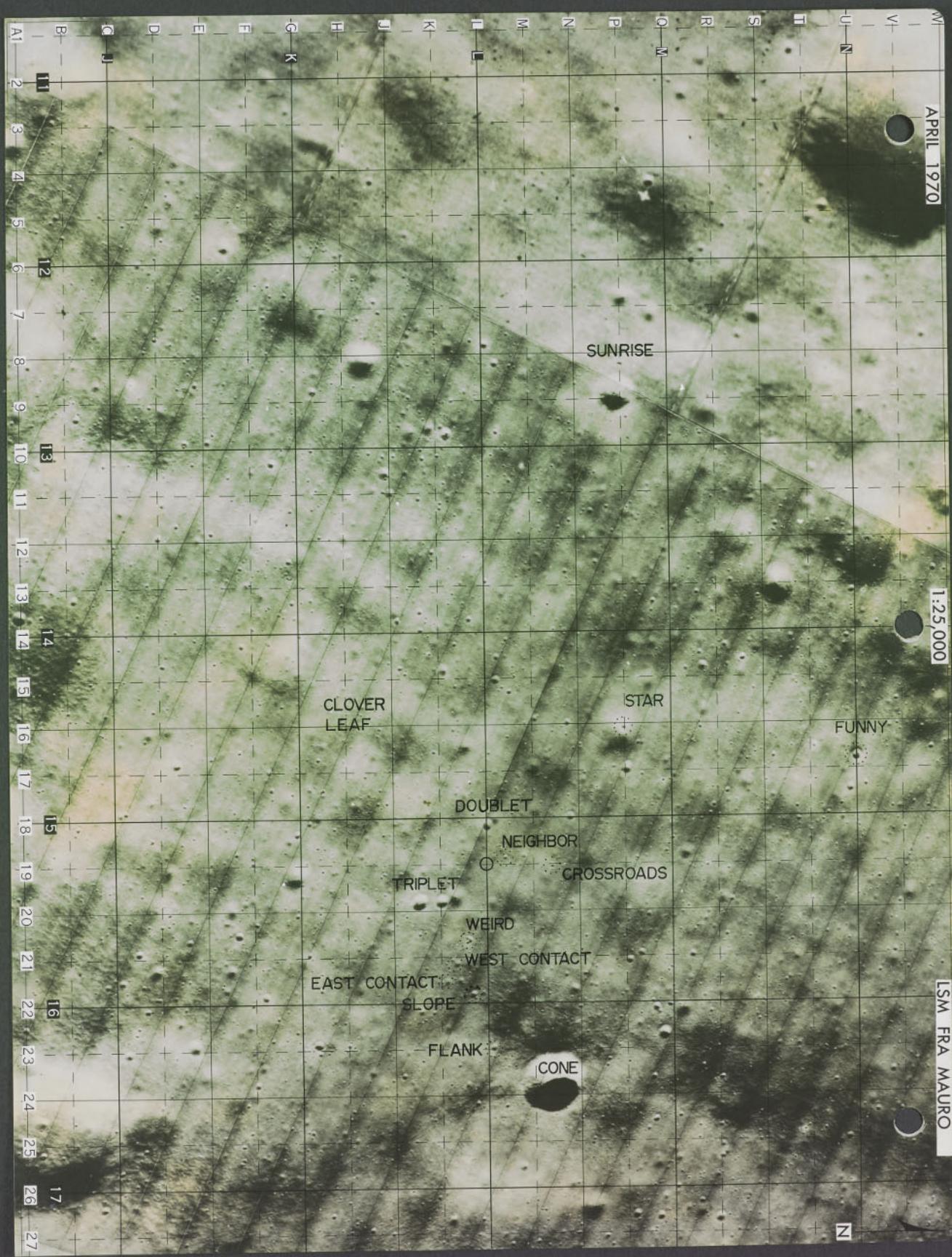
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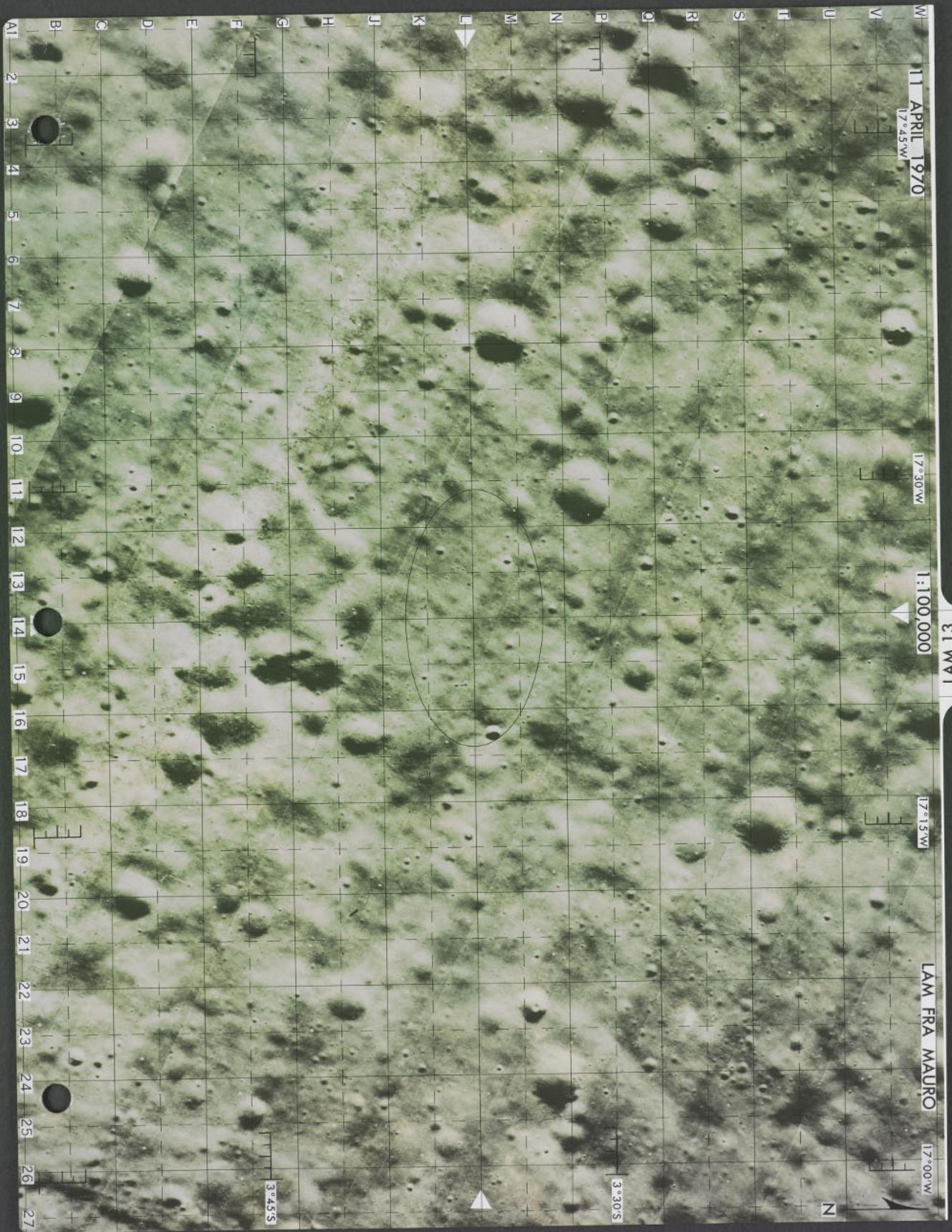
CLUSTER

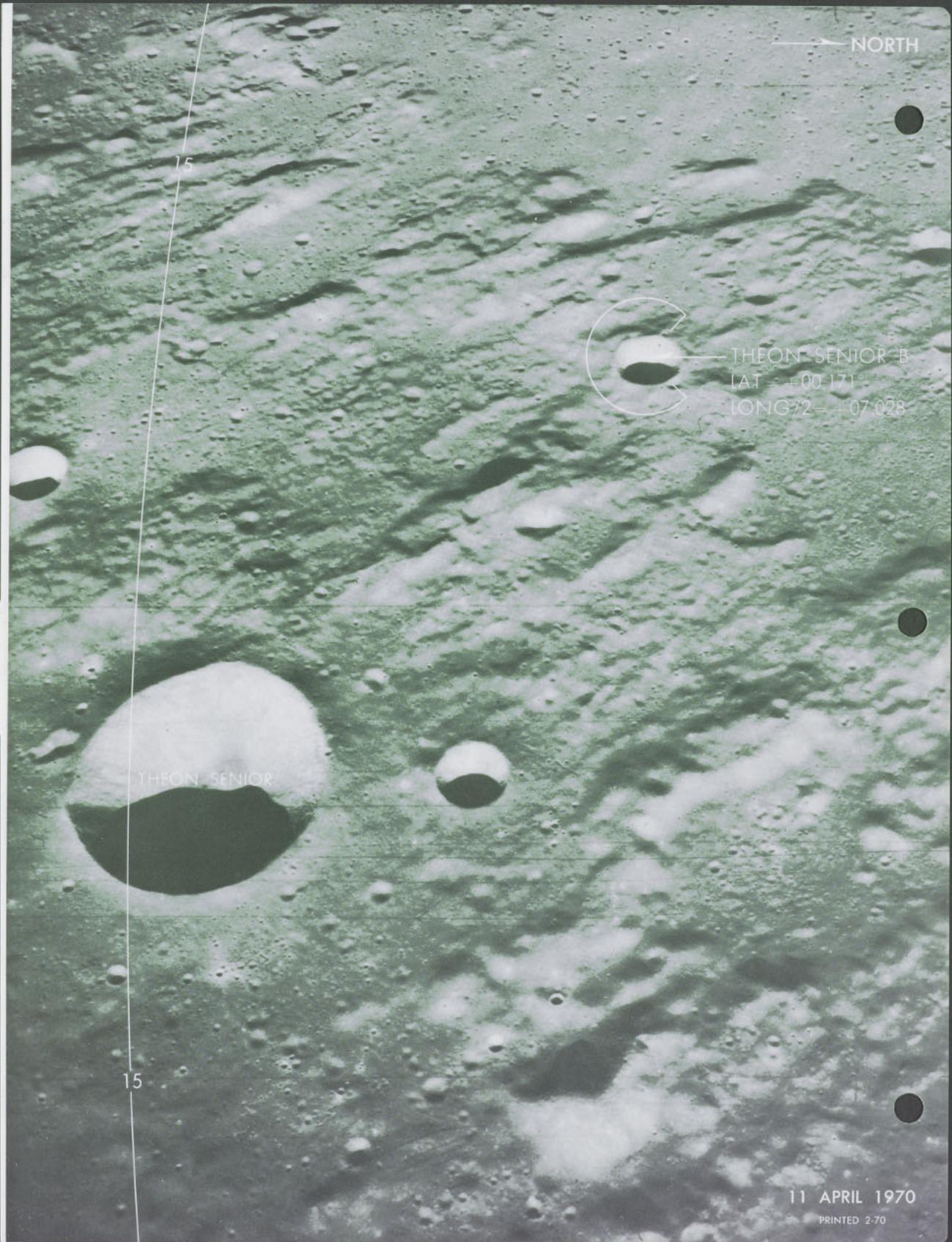
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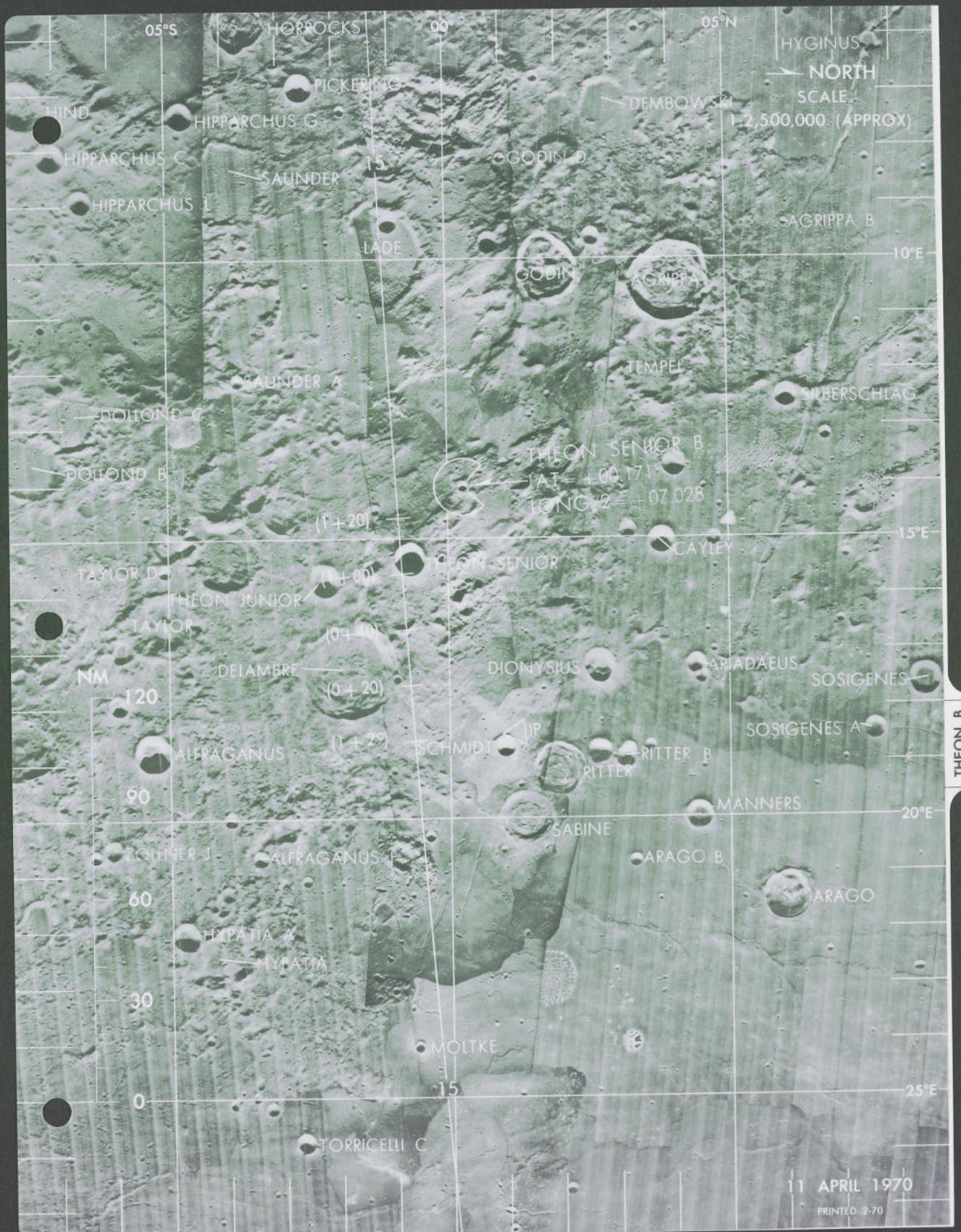
DUMBBELL

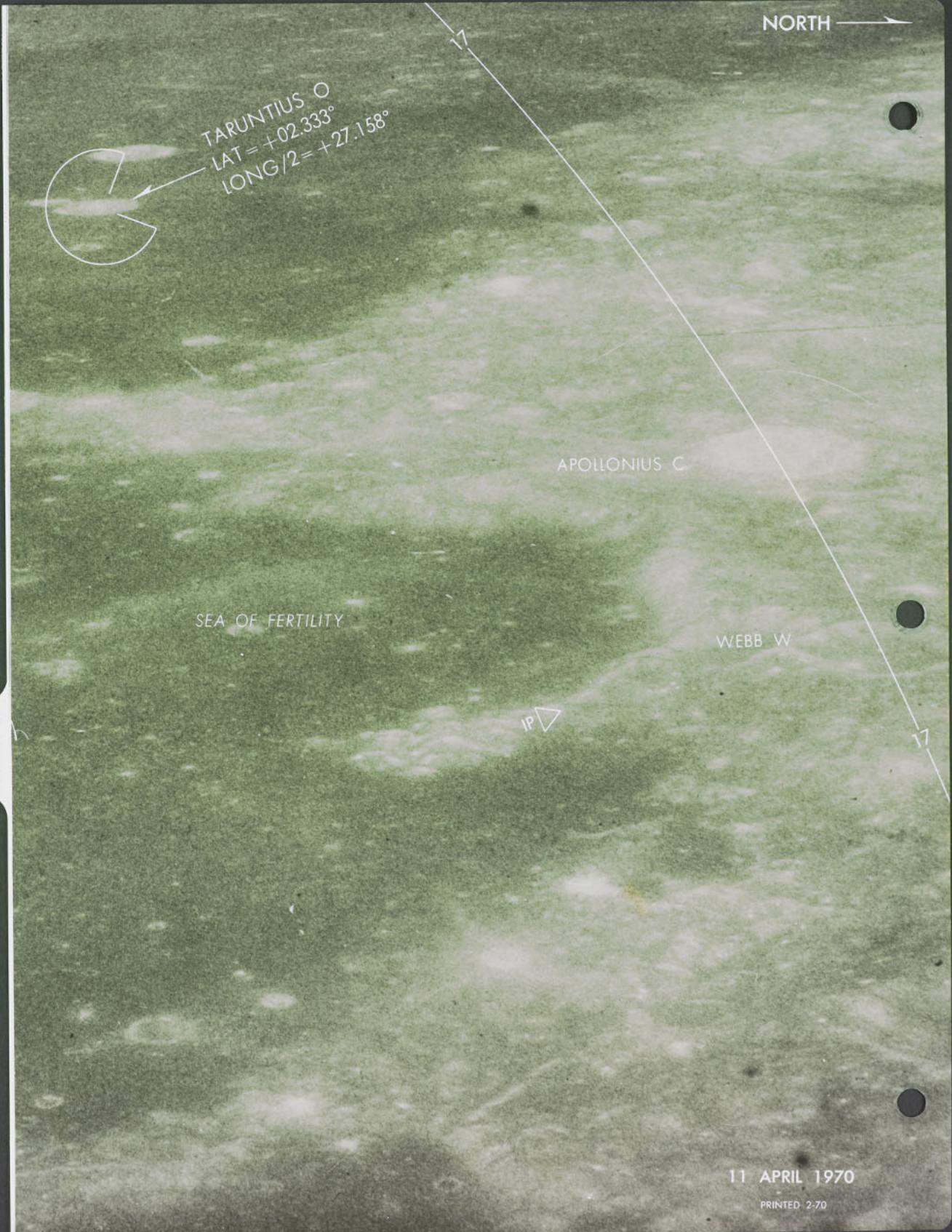
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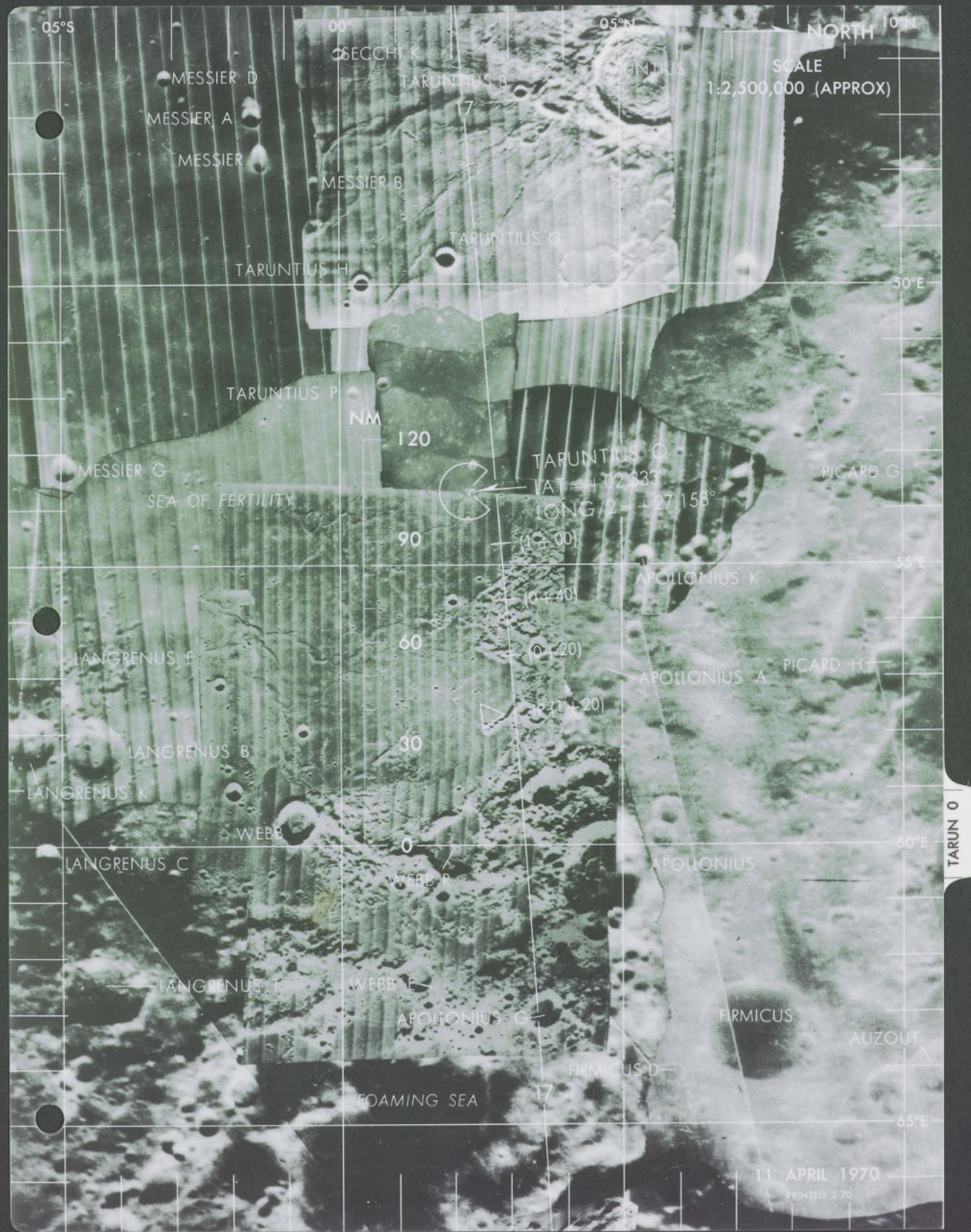




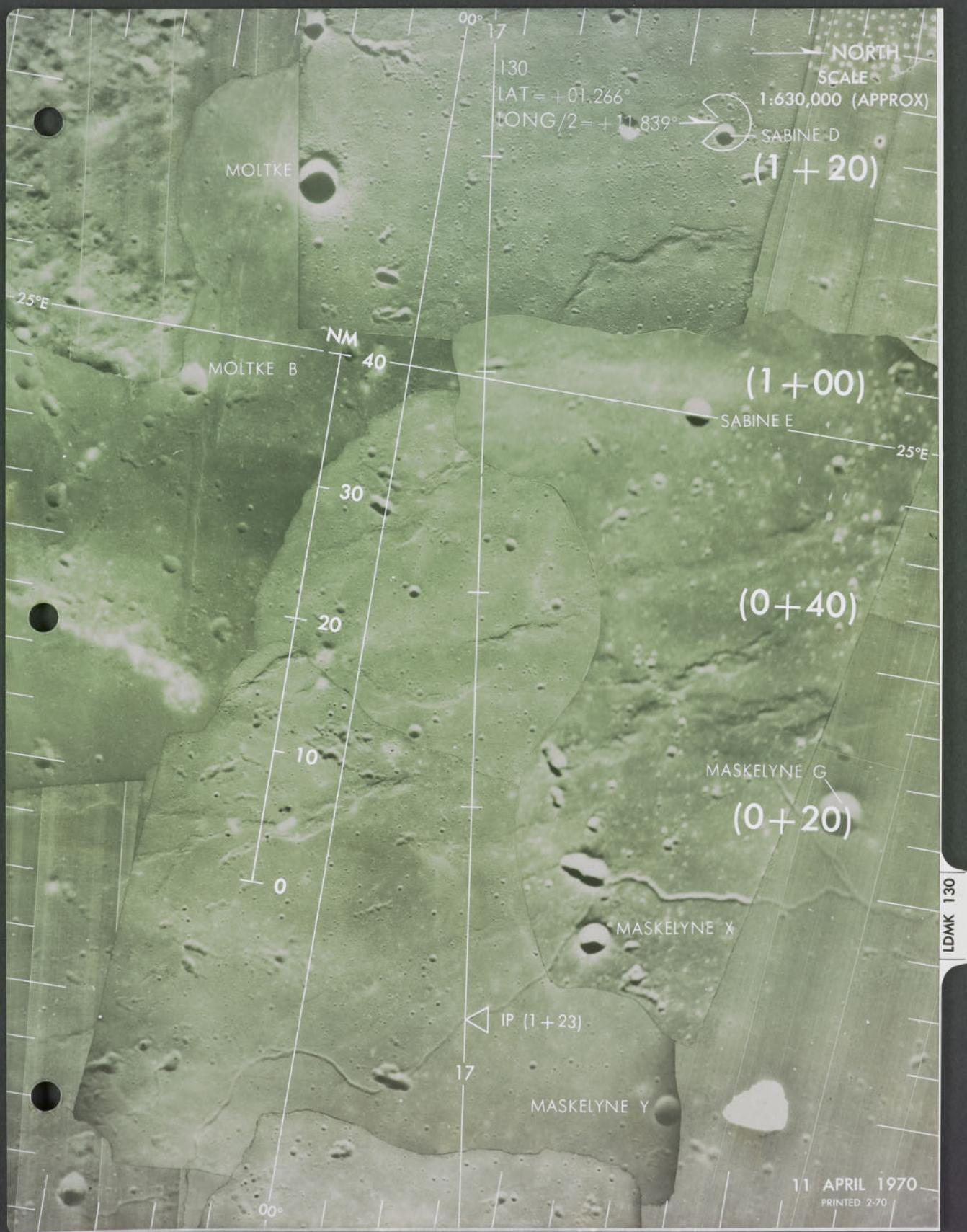


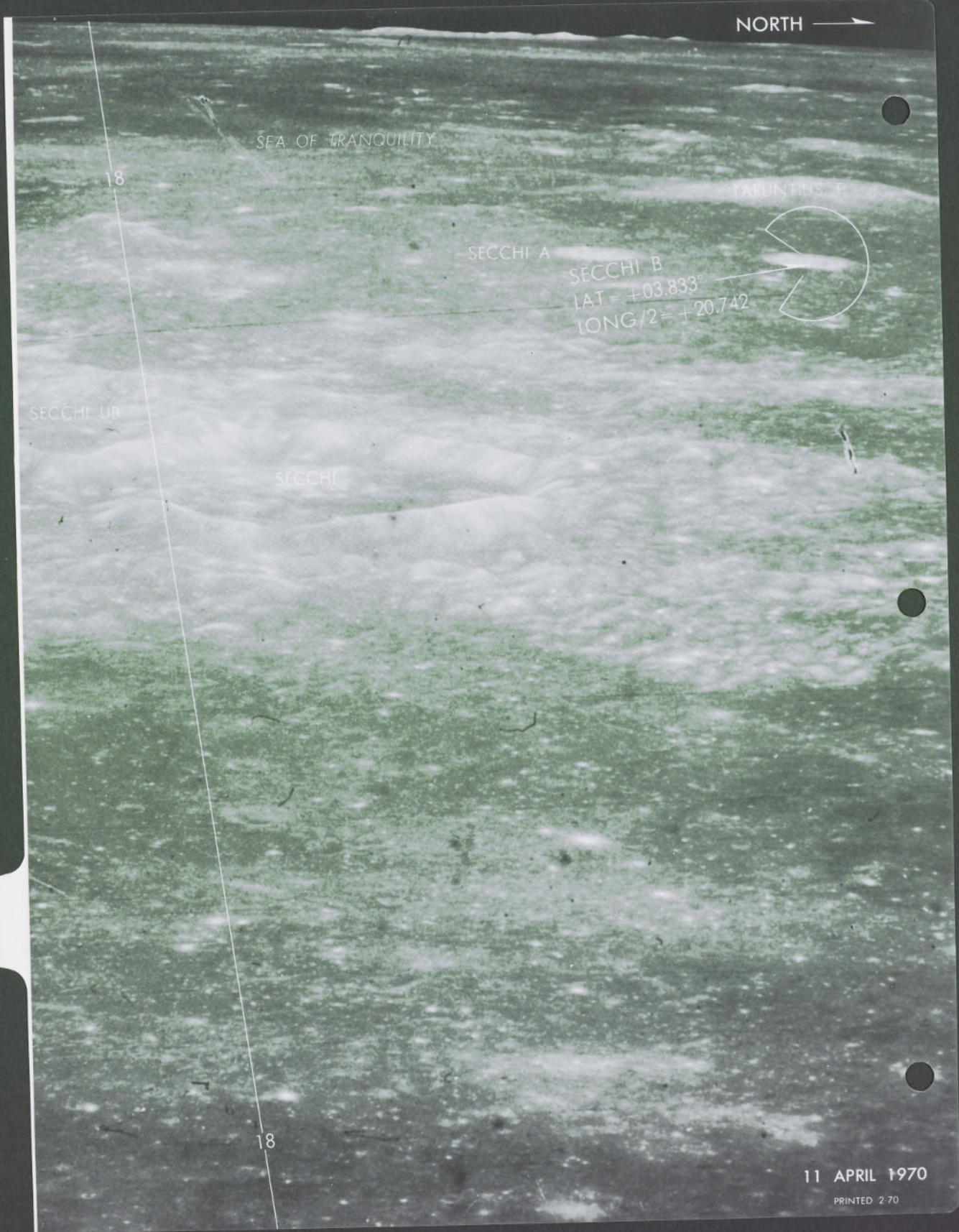


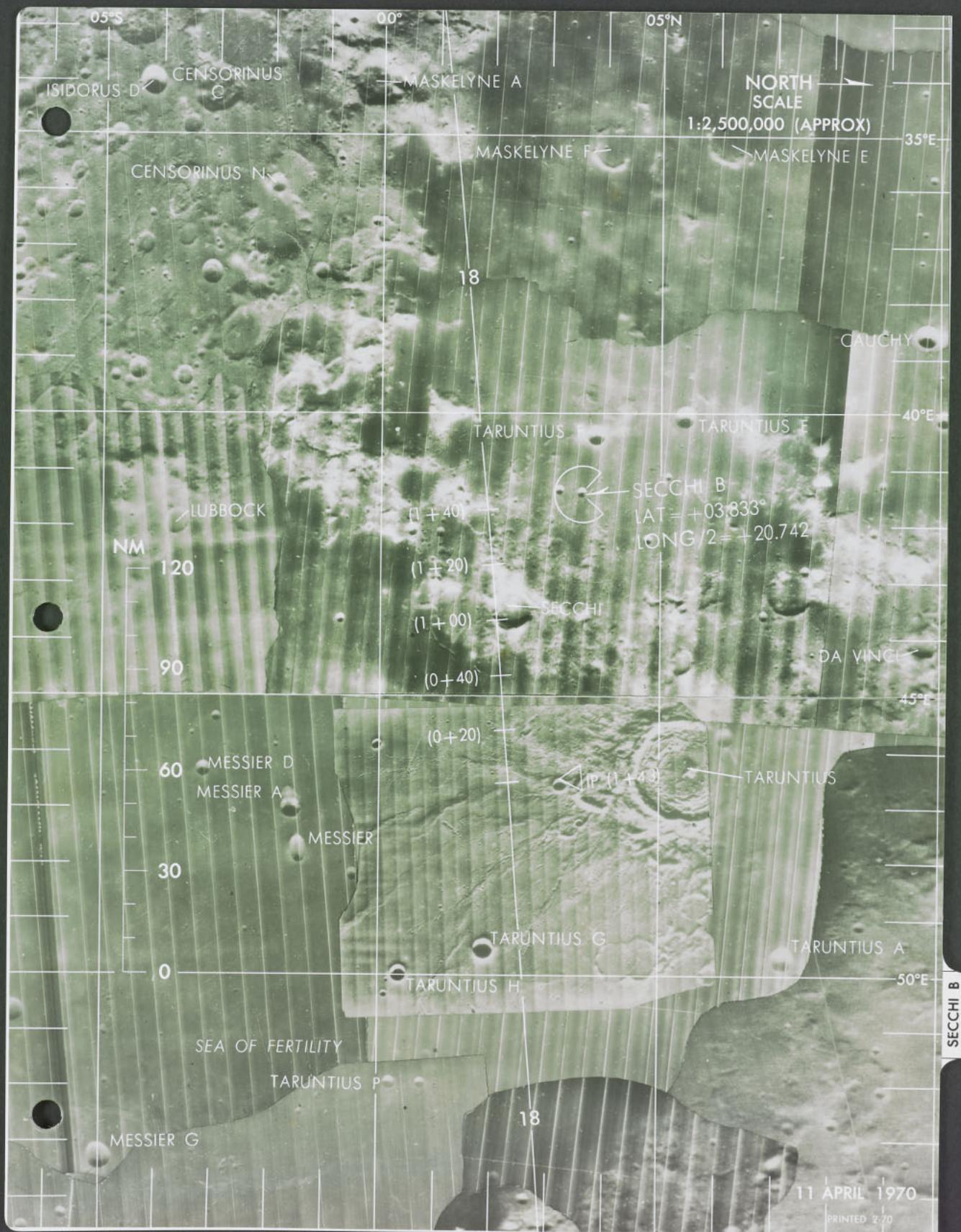


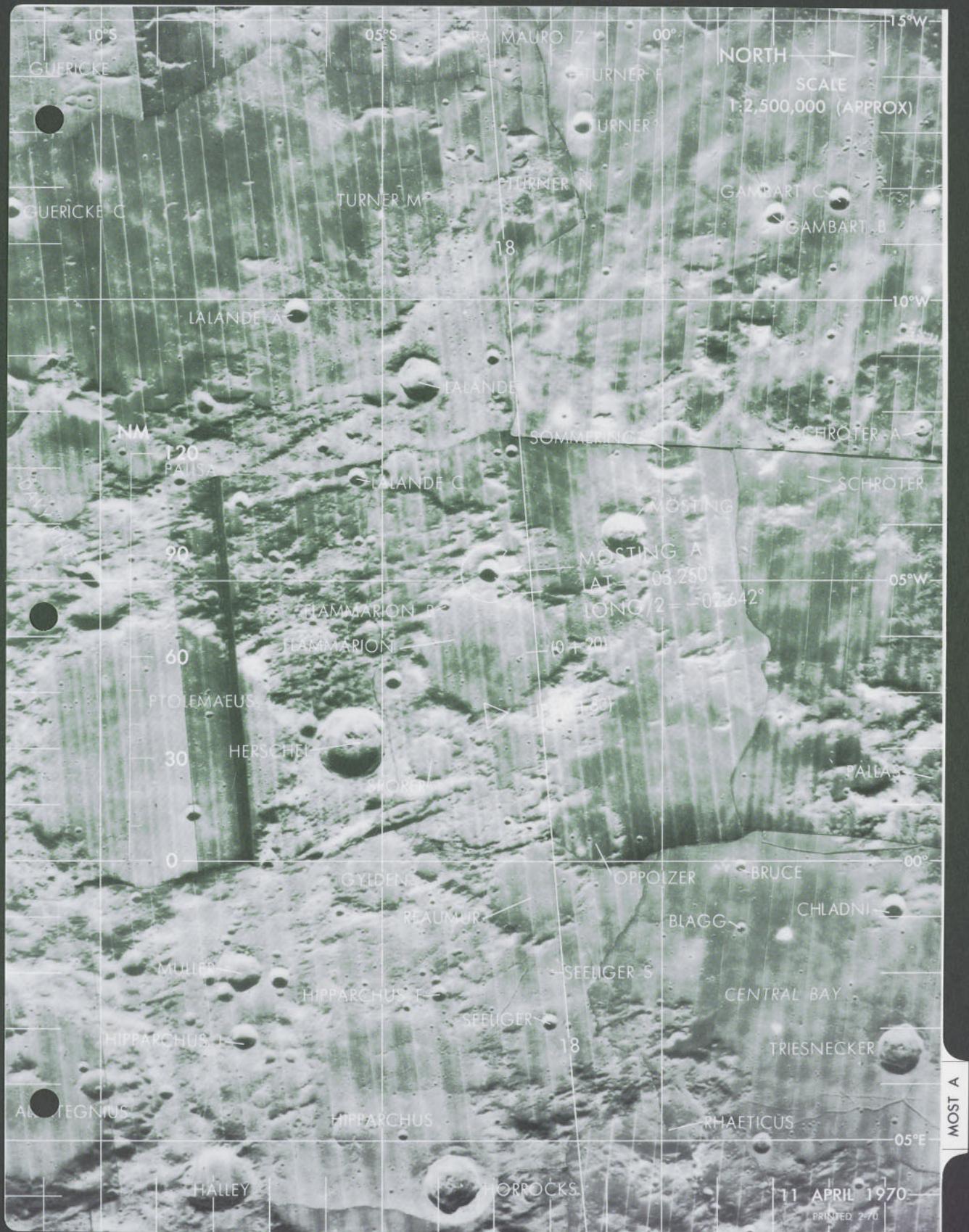


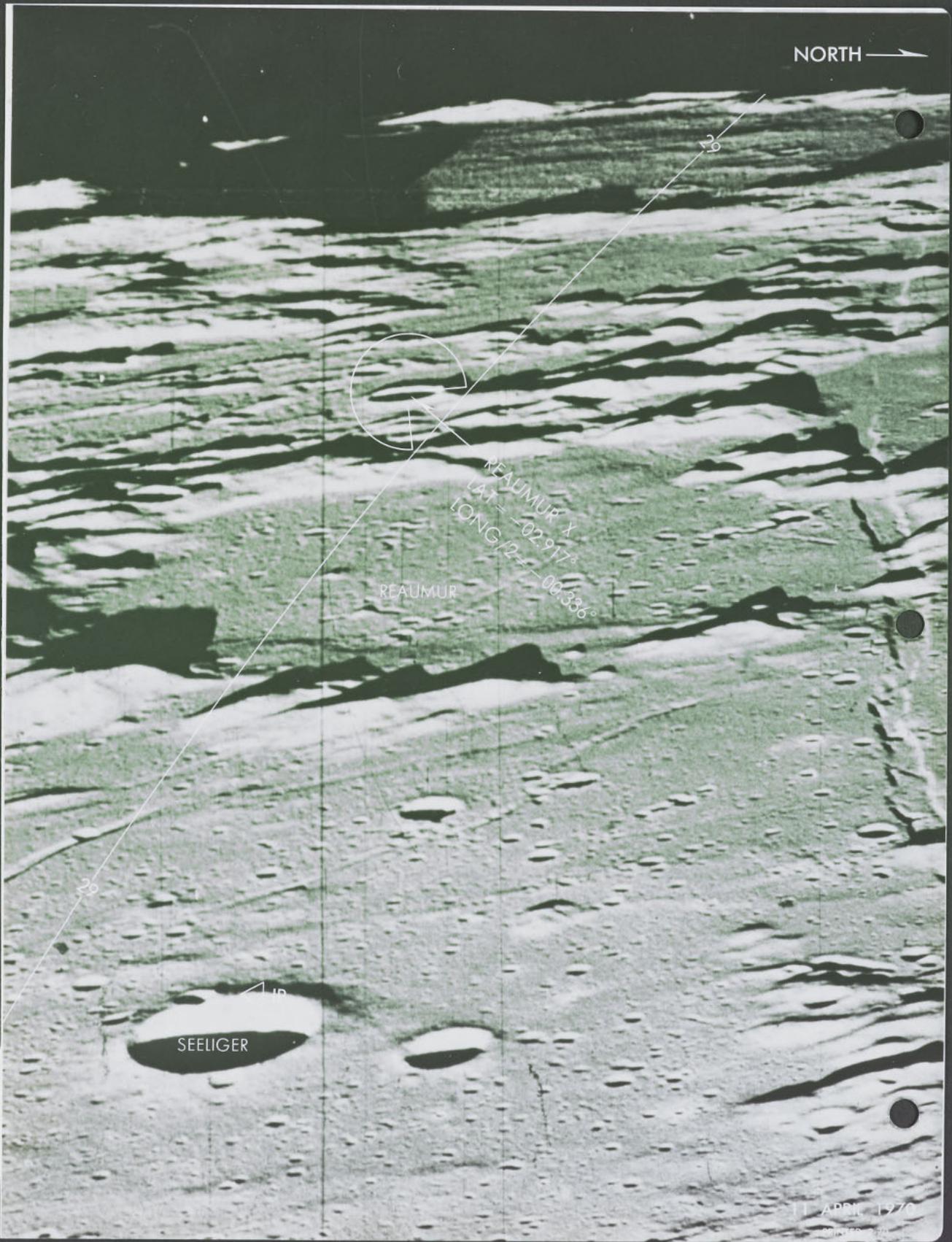


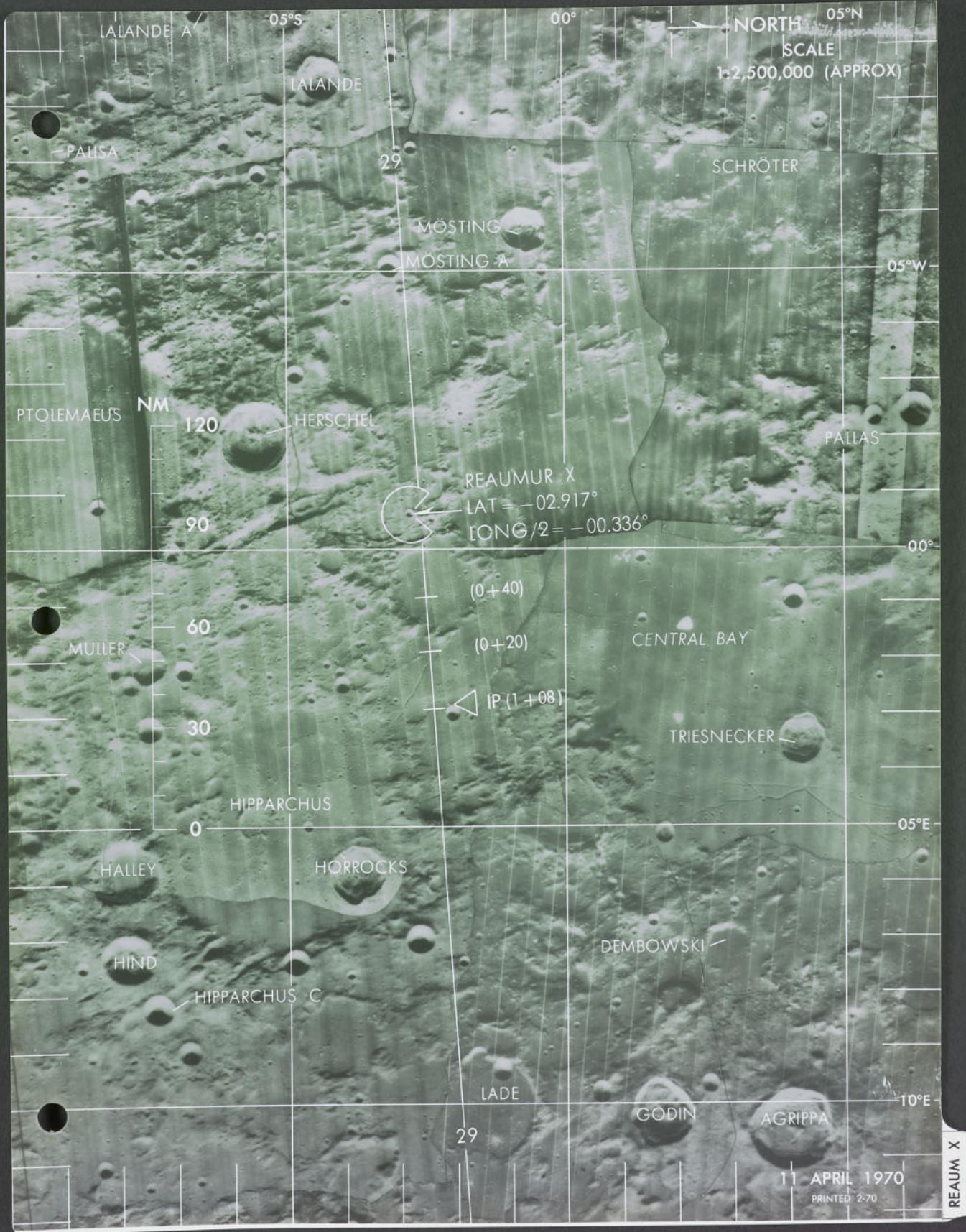


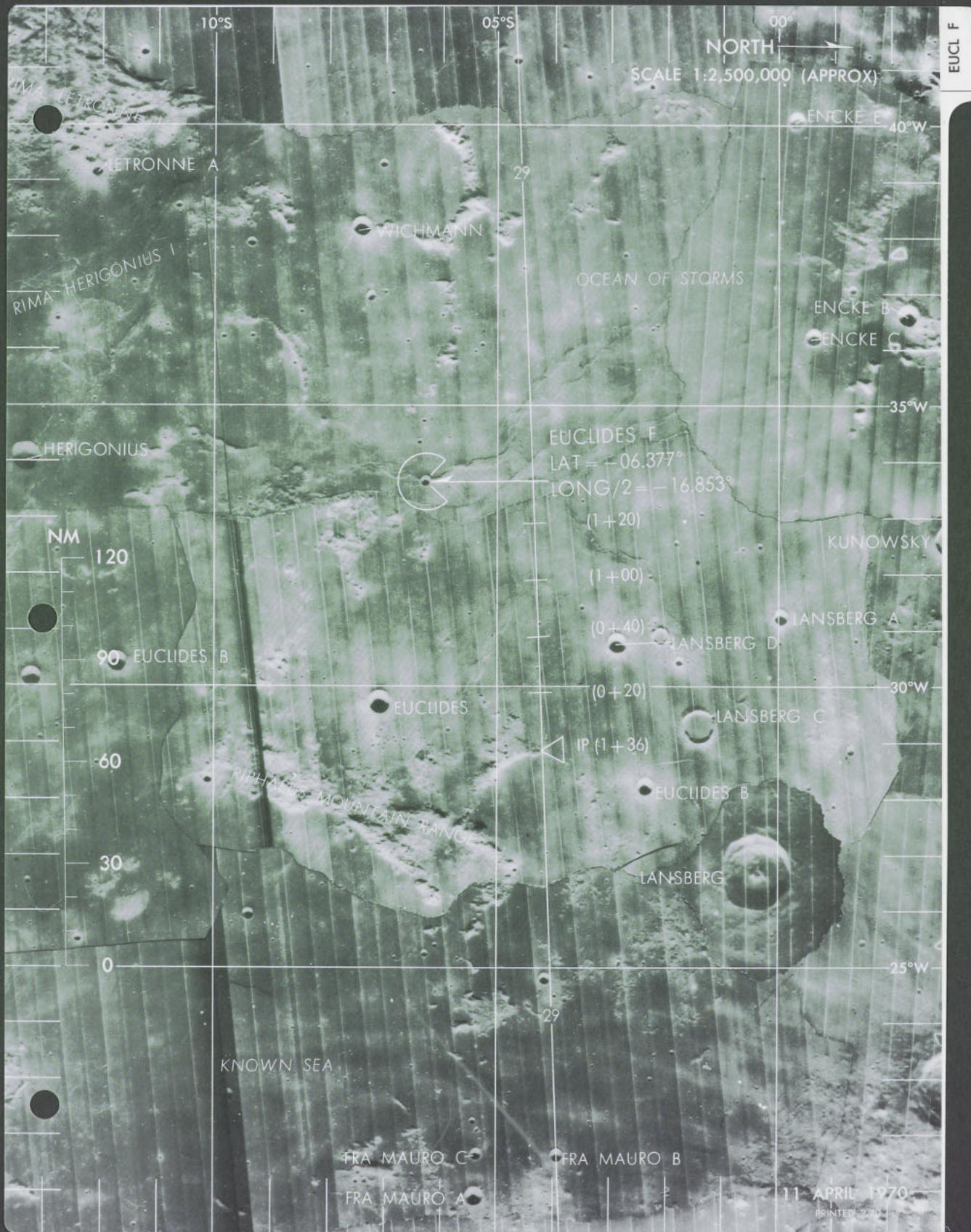


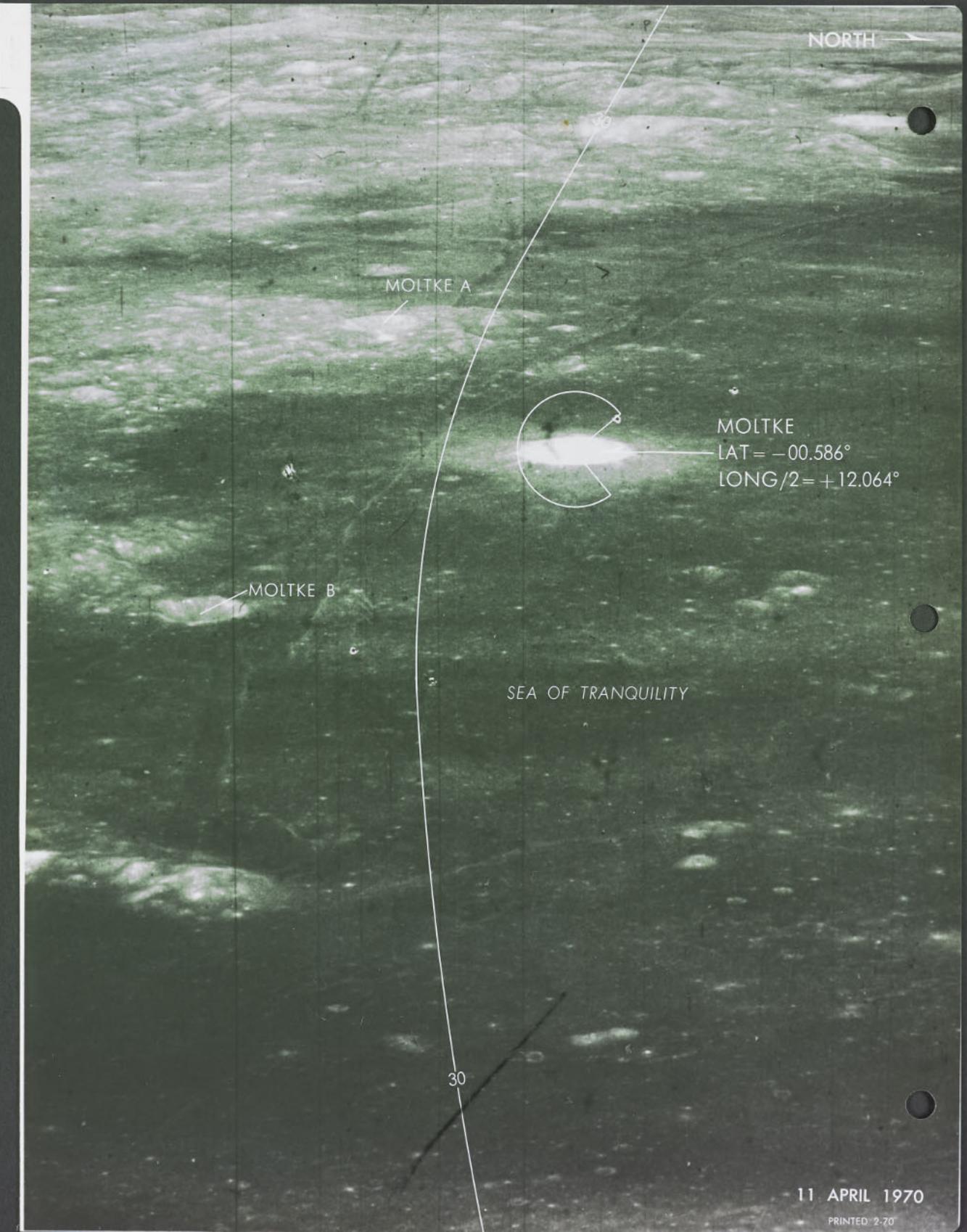


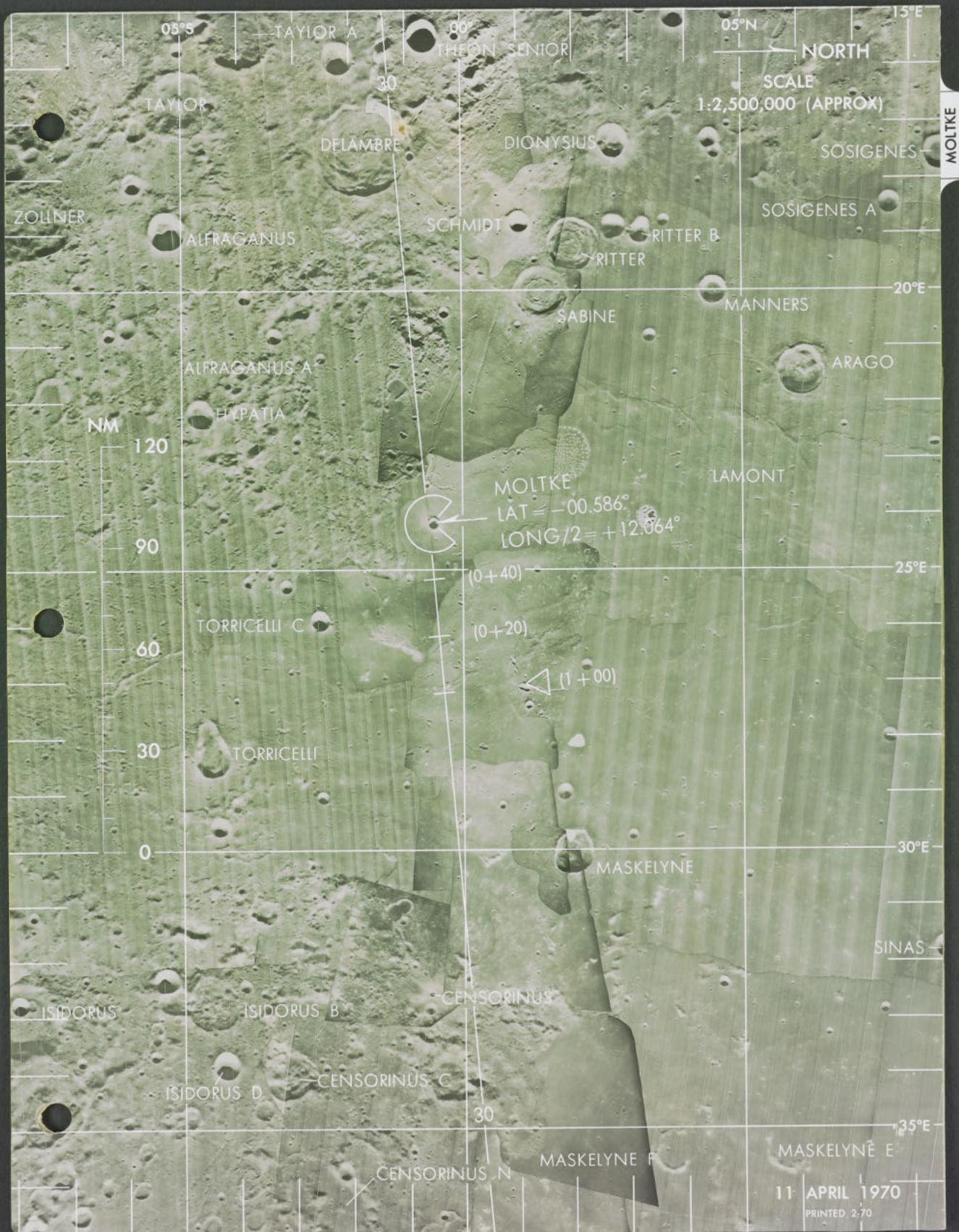


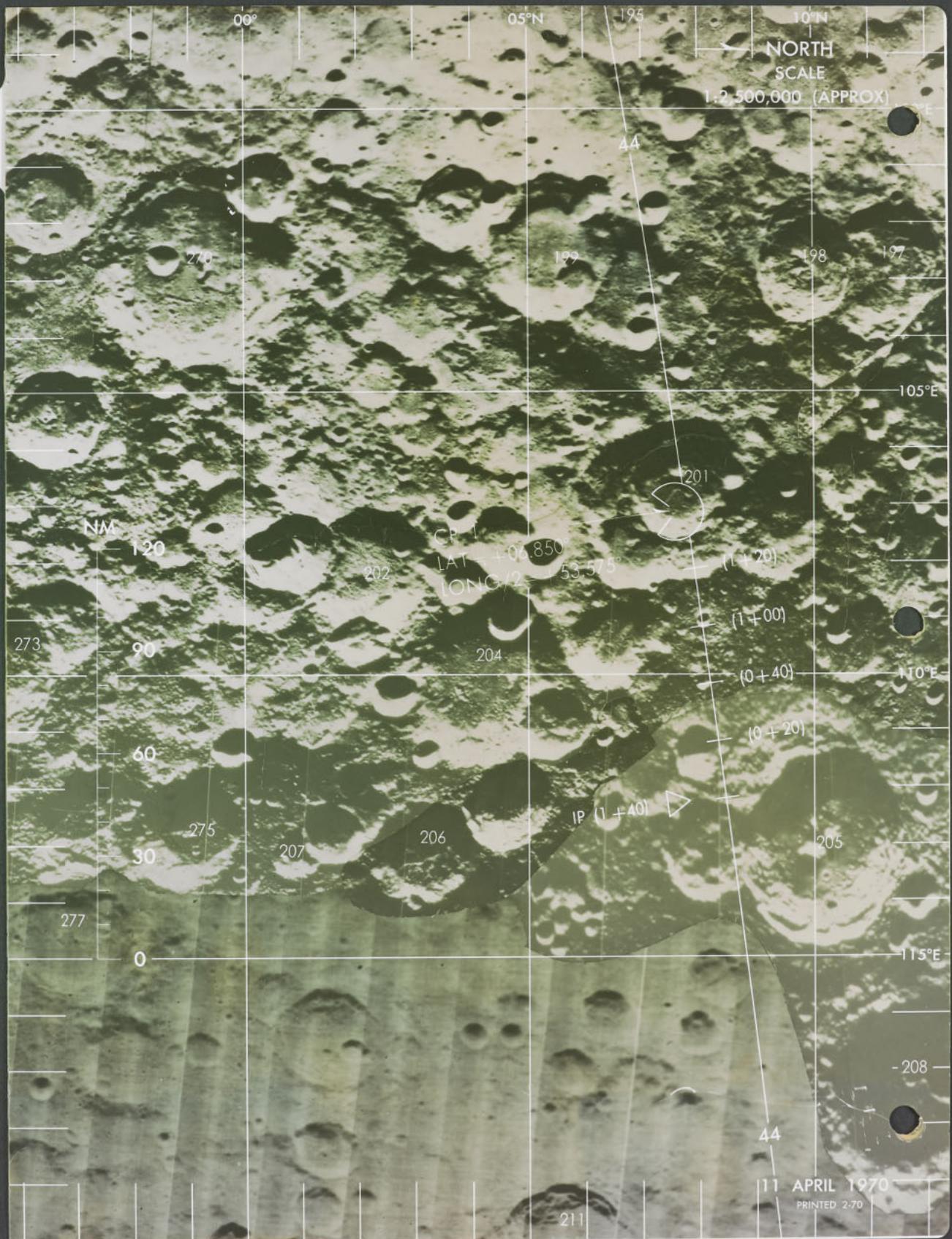


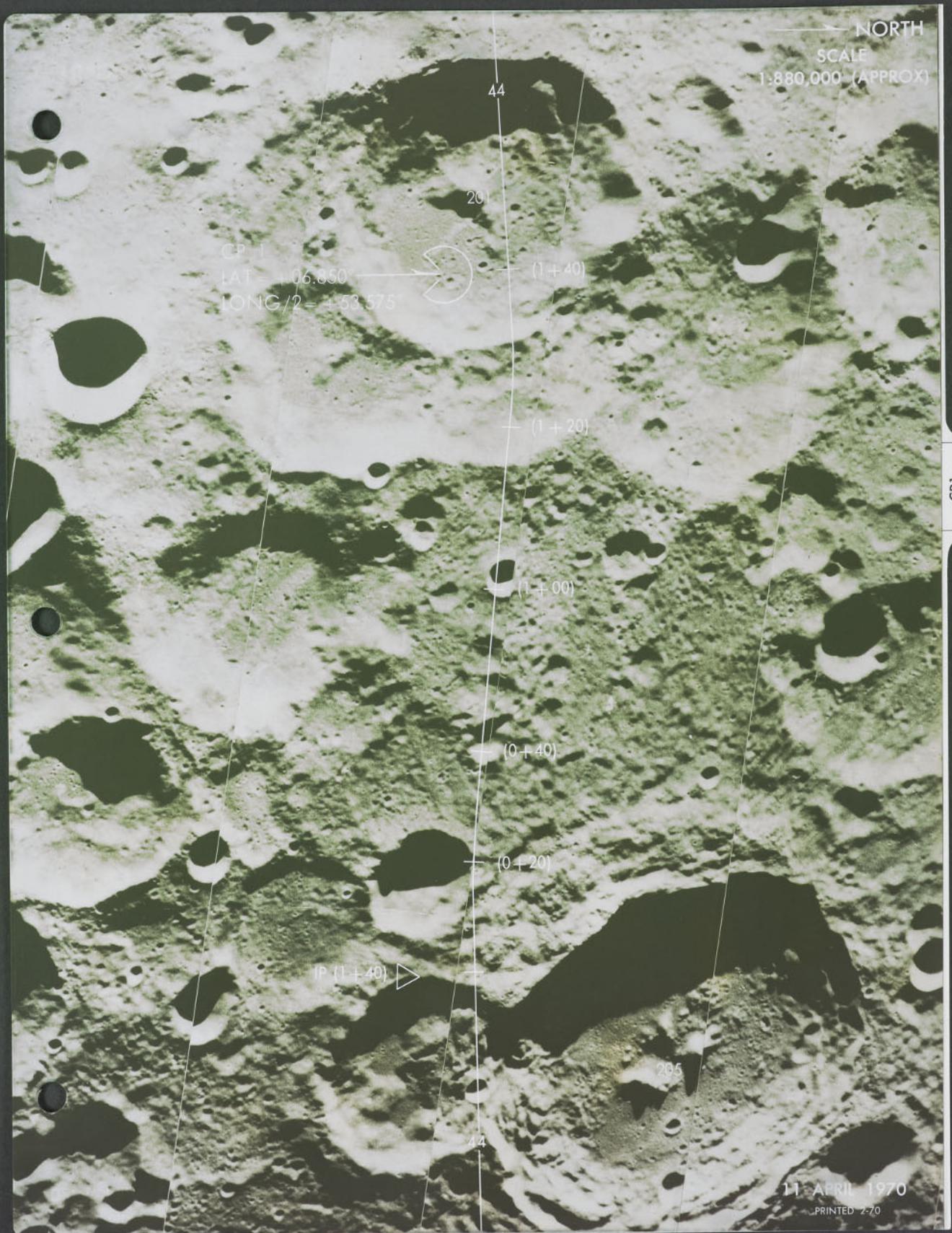












NORTH

MACLAURIN C

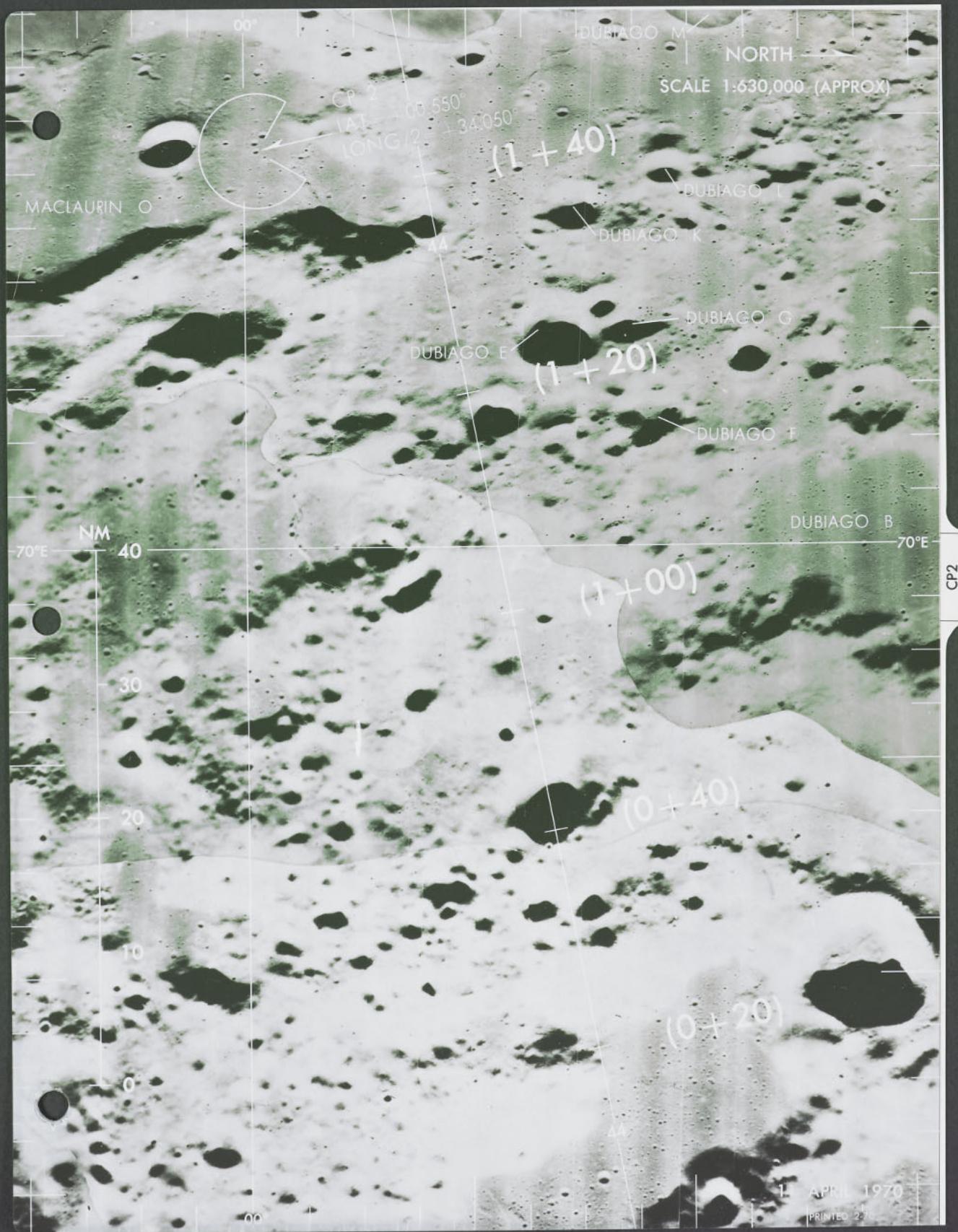
CP 21  
LT 0550°  
LONG 14050'

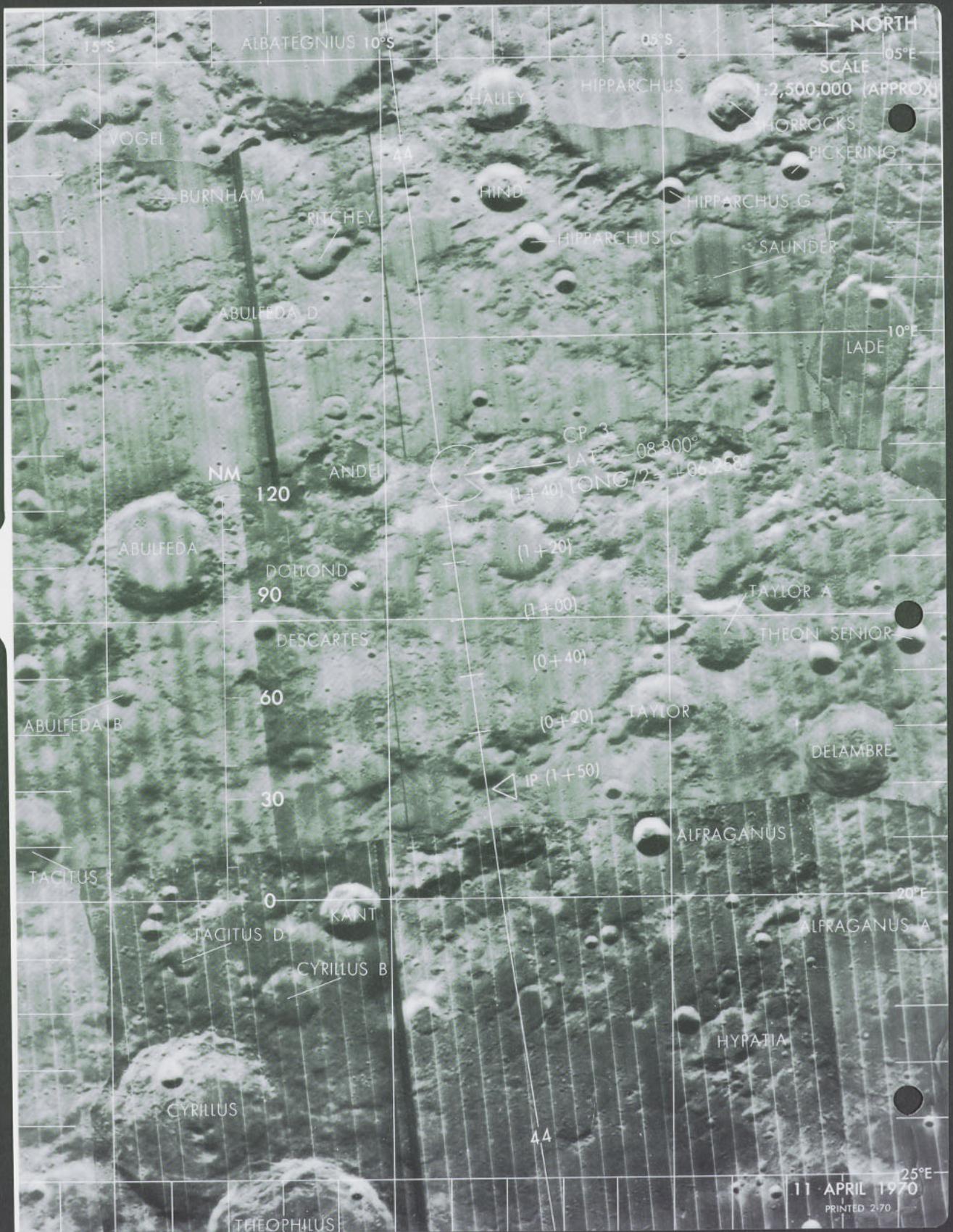
DUBIAGO C

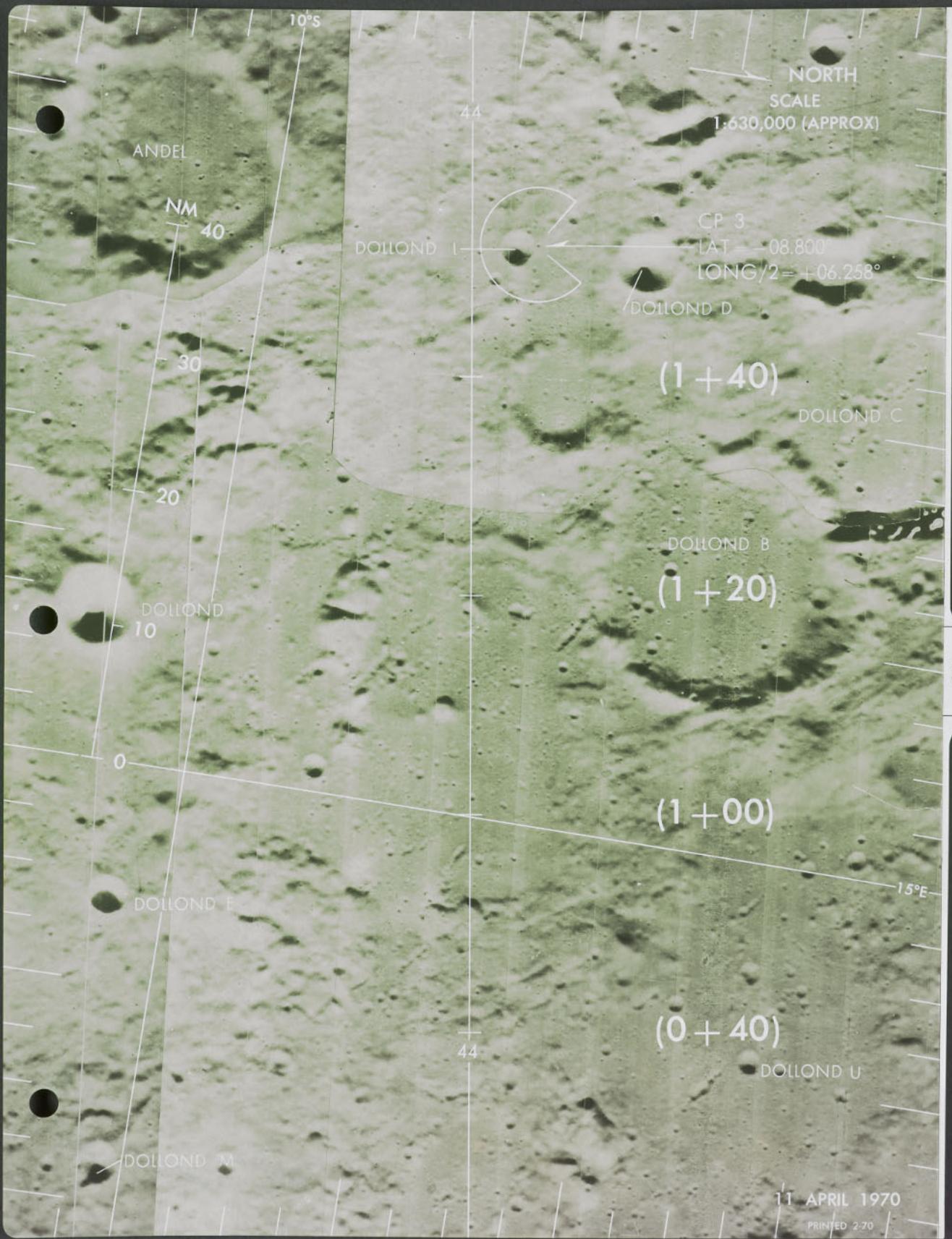
IP(1+45) V

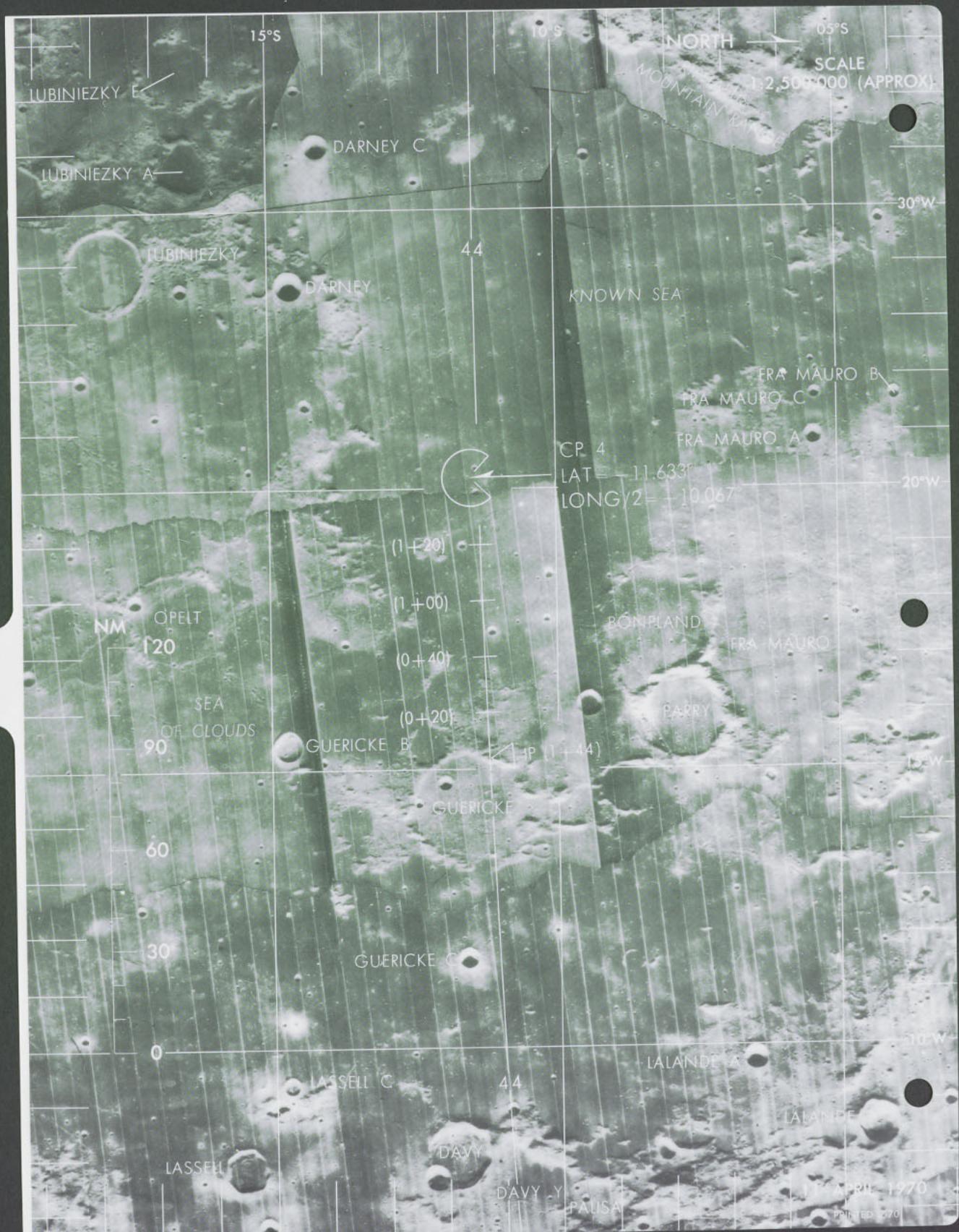
11 APRIL 1970

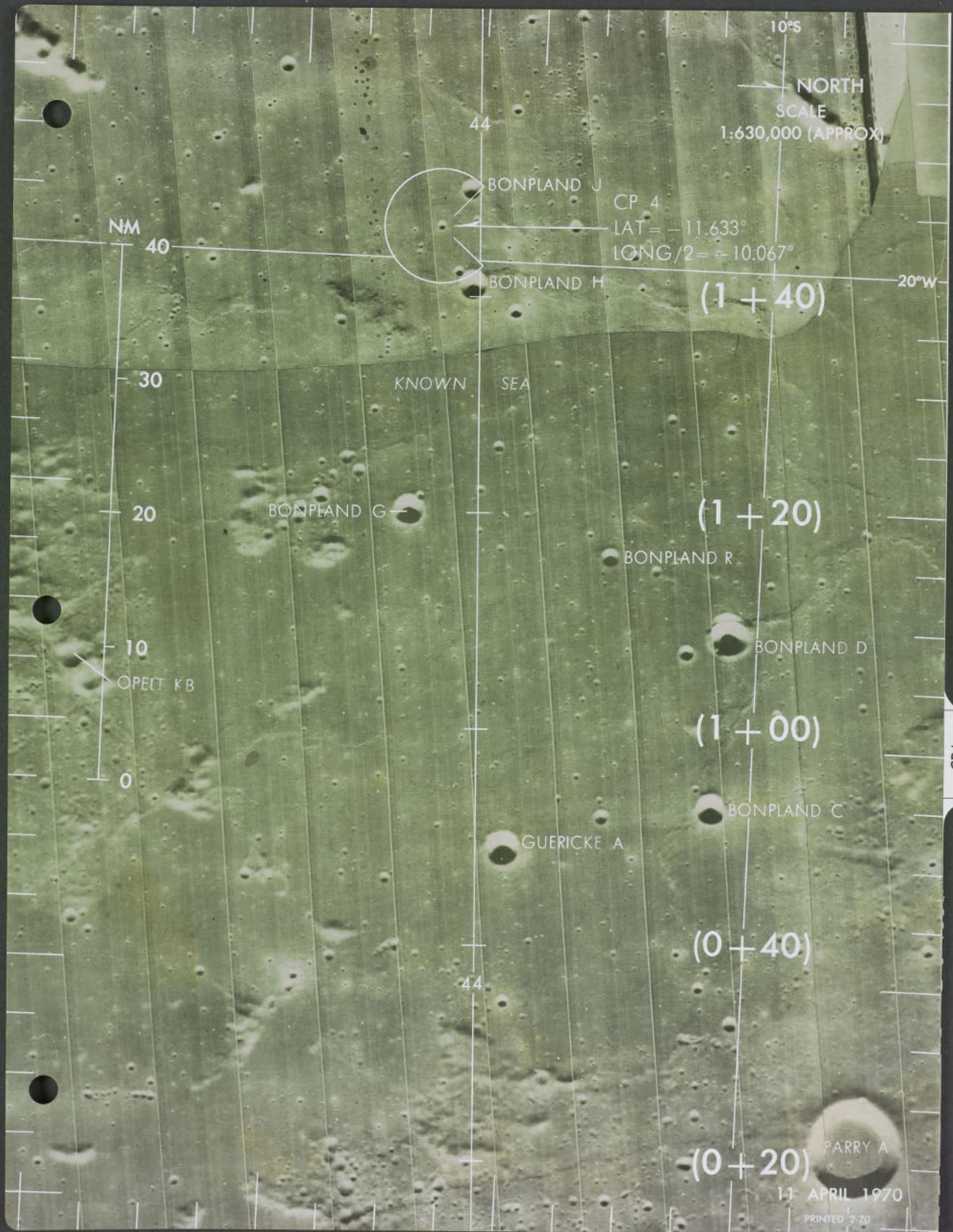
PRINTED 2-70

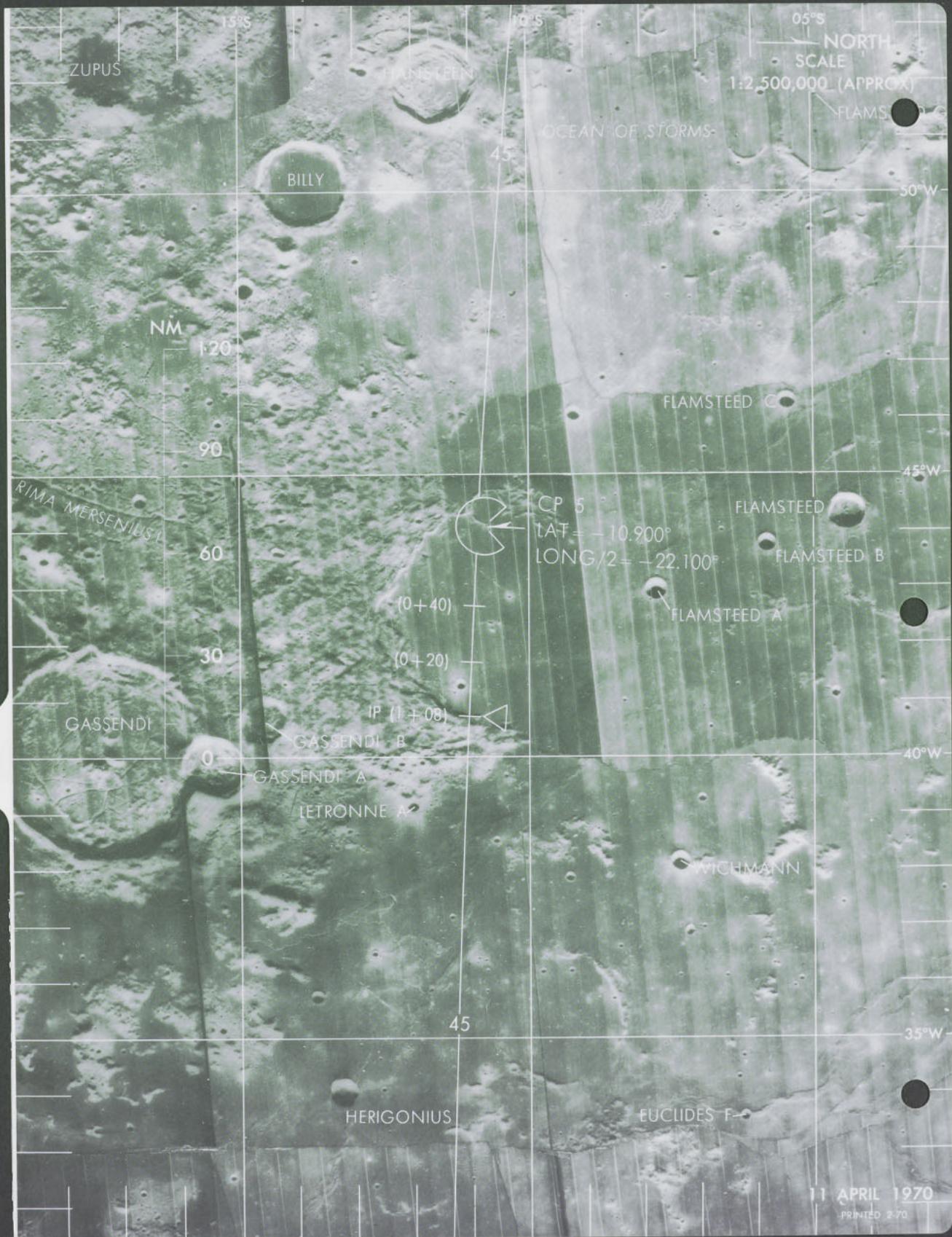


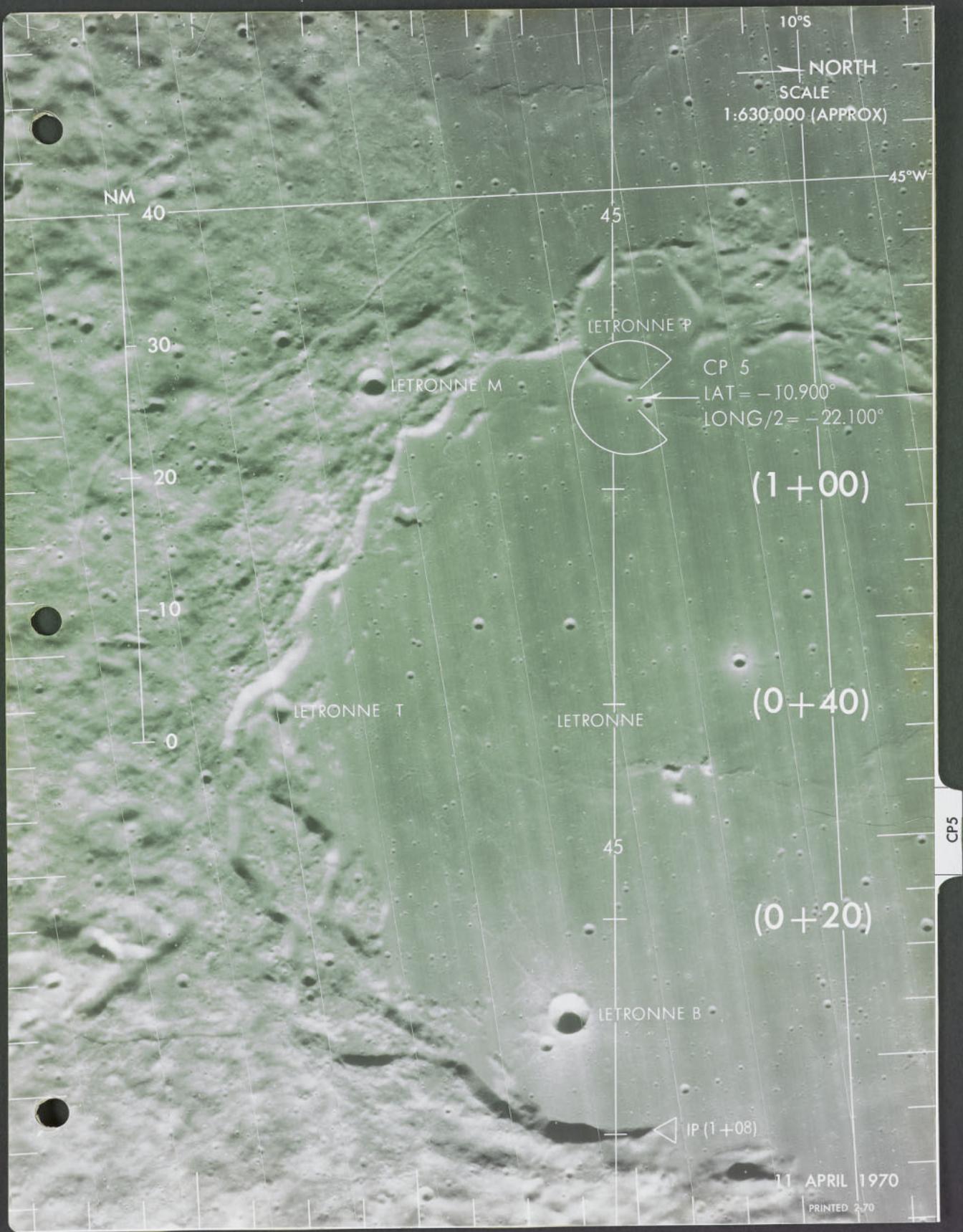












NORTH

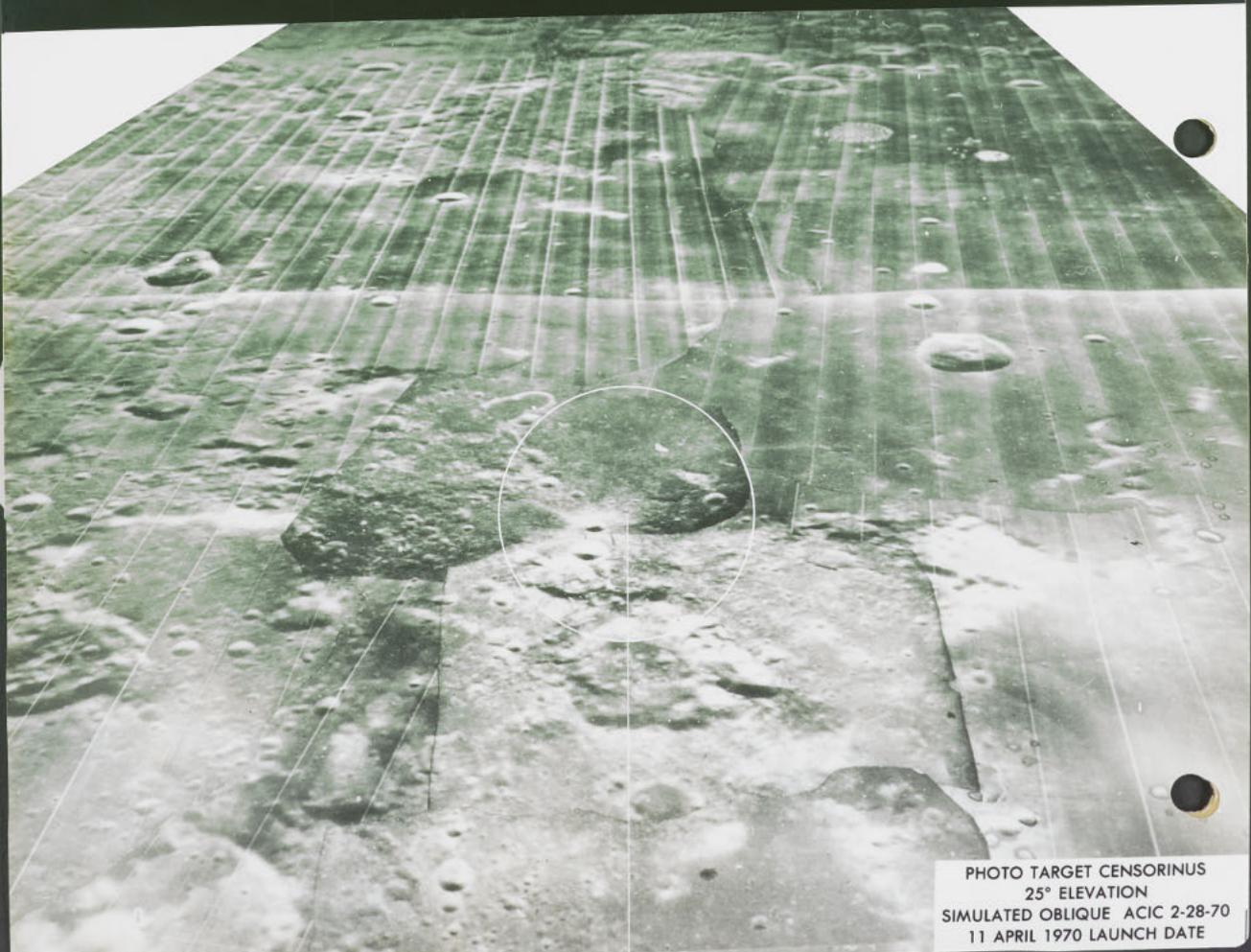


PHOTO TARGET CENSORINUS  
25° ELEVATION  
SIMULATED OBLIQUE ACIC 2-28-70  
11 APRIL 1970 LAUNCH DATE

NORTH →

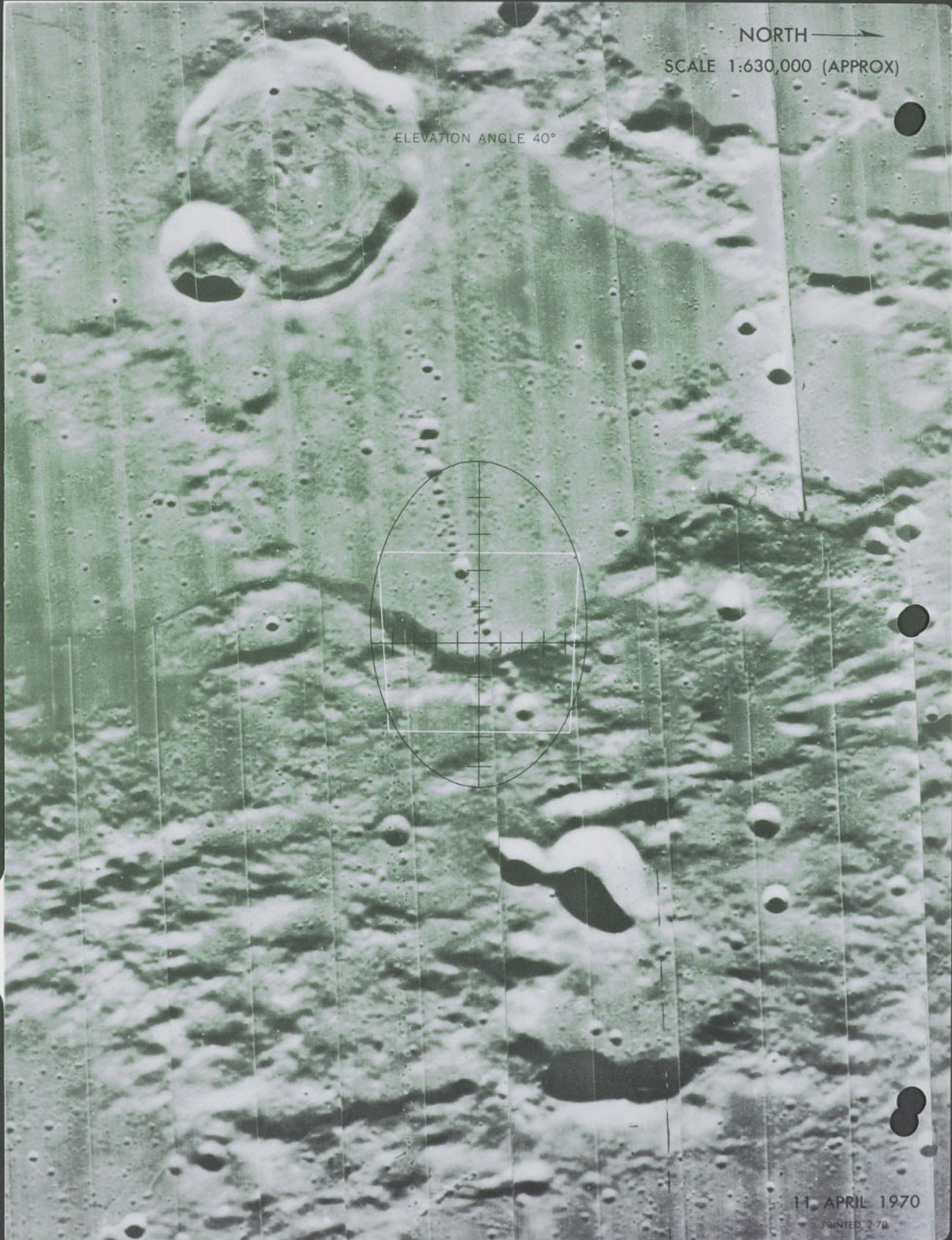
SCALE 1:630,000 (APPROX)

ELEVATION ANGLE 40°

CENS COAS

11 APRIL 1970

PRINTED 2/70



ELEVATION ANGLE 40°

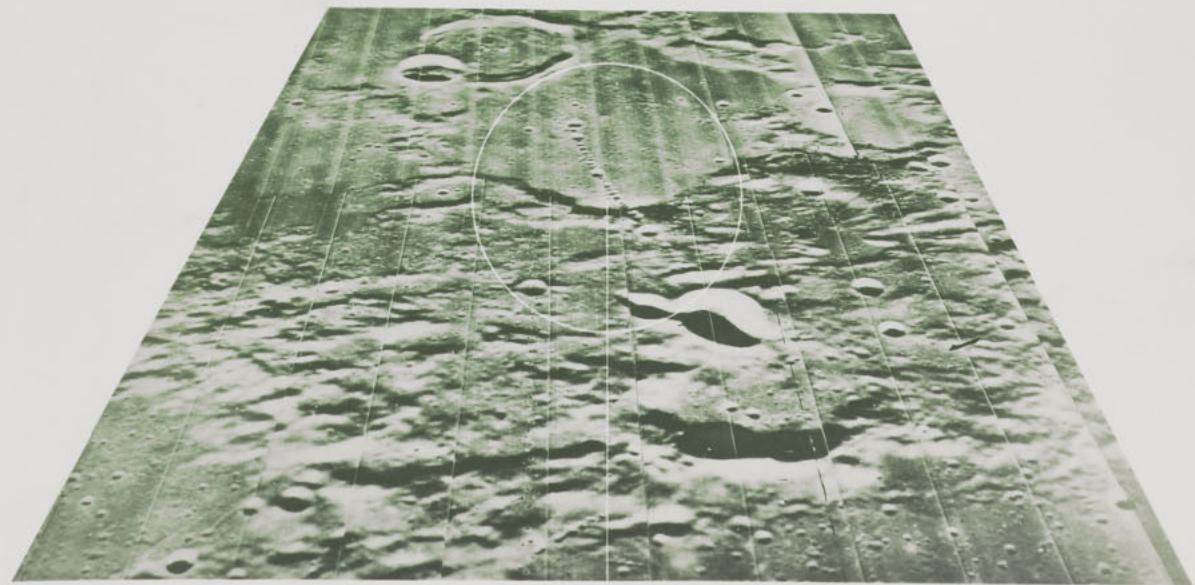
NORTH →

SCALE 1:630,000 (APPROX)

11 APRIL 1970

PRINTED 2-70

NORTH



DAVY RILLE  
(25°)

PHOTO TARGET DAVY RILLE  
25° ELEVATION  
SIMULATED OBLIQUE ACIC 2-28-70  
11 APRIL 1970 LAUNCH DATE

NORTH →

DESCARTES  
(25°)

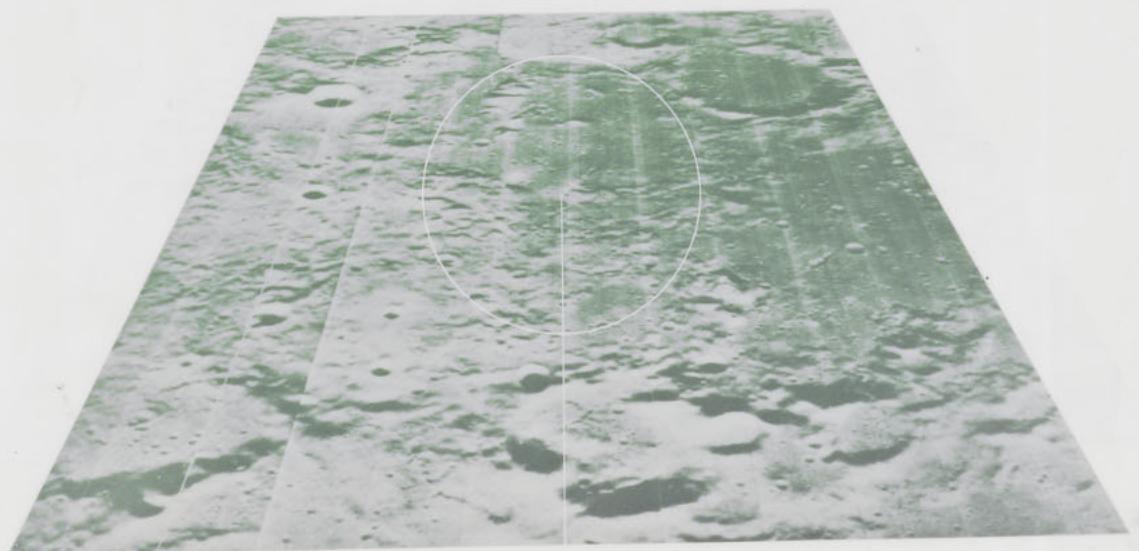
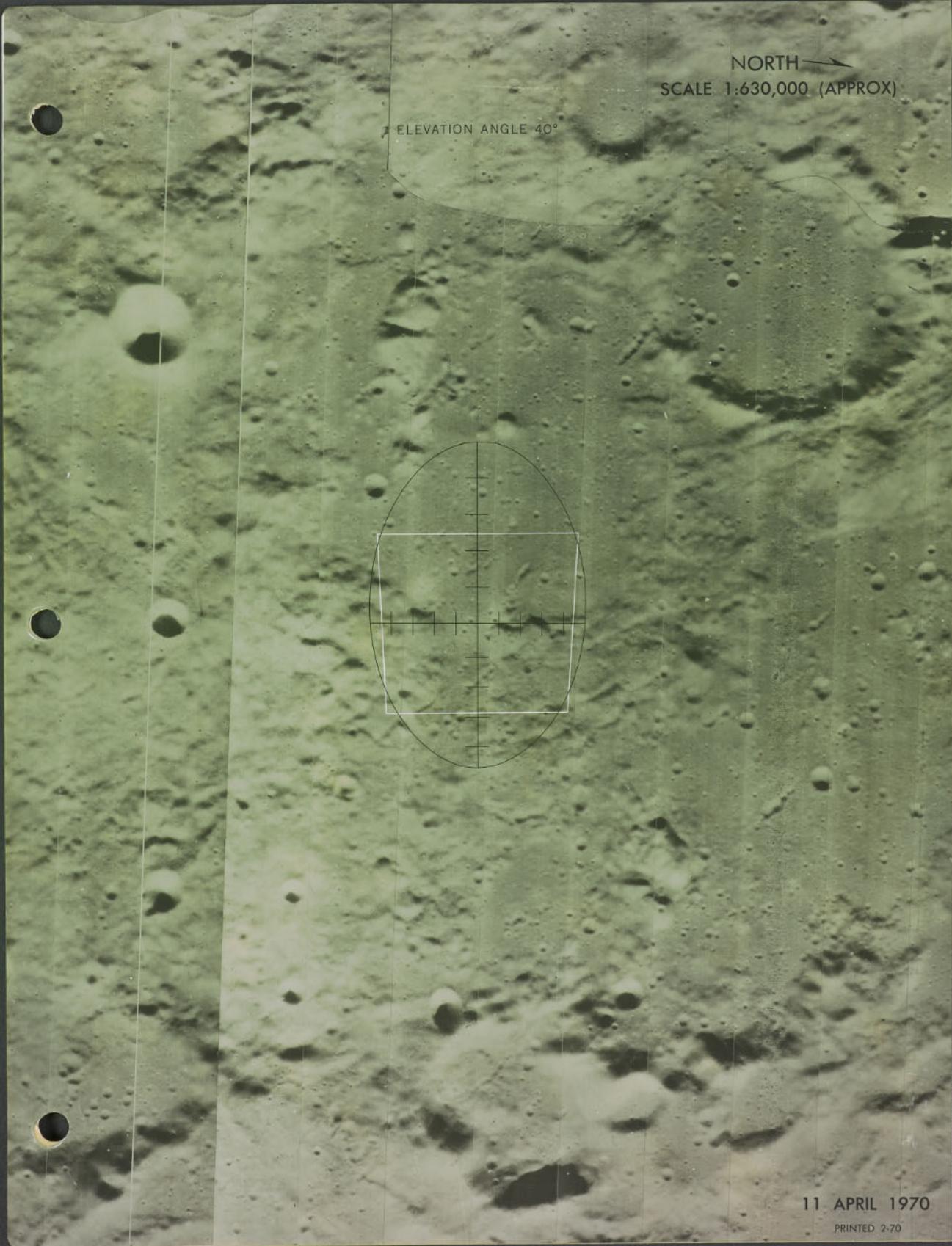
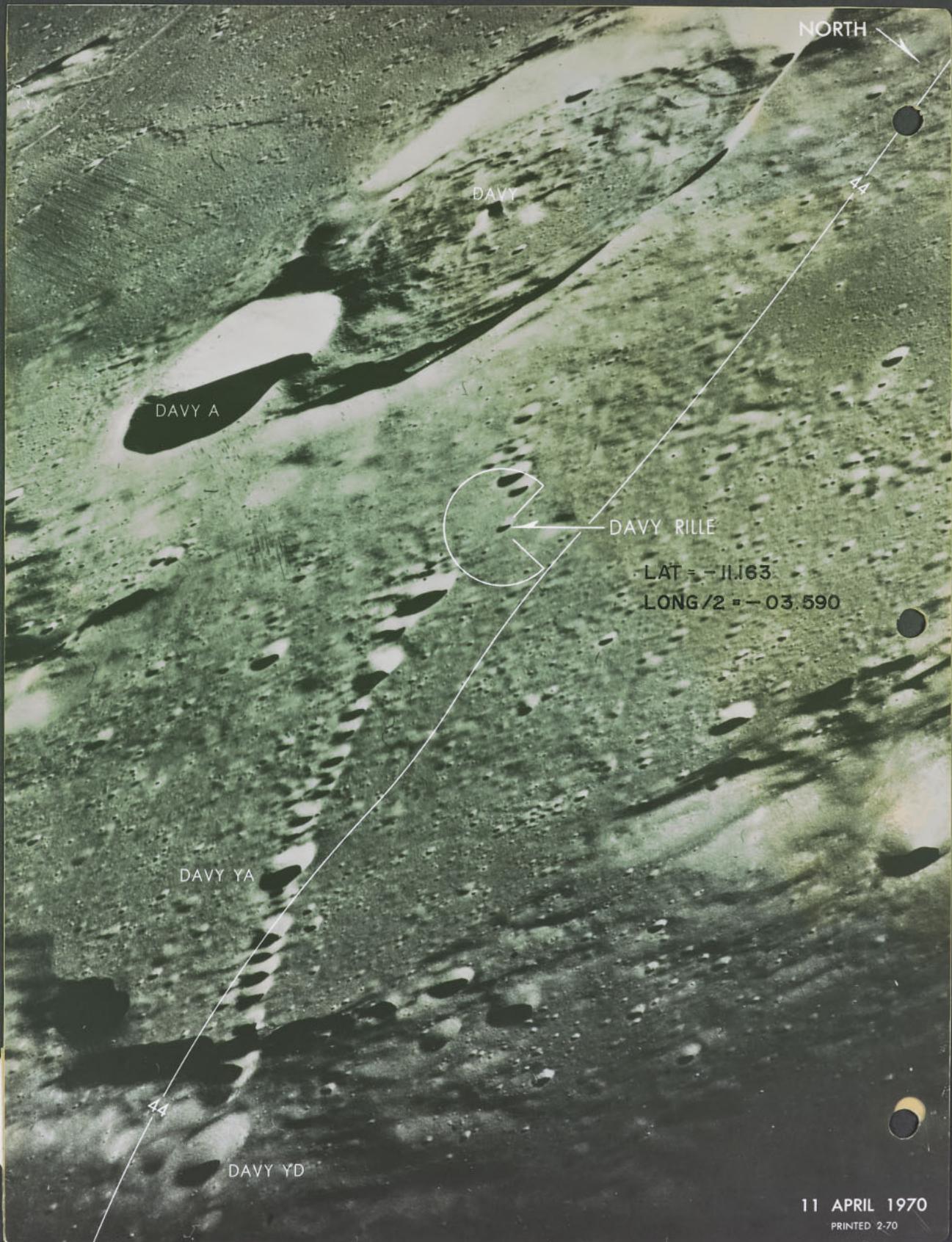
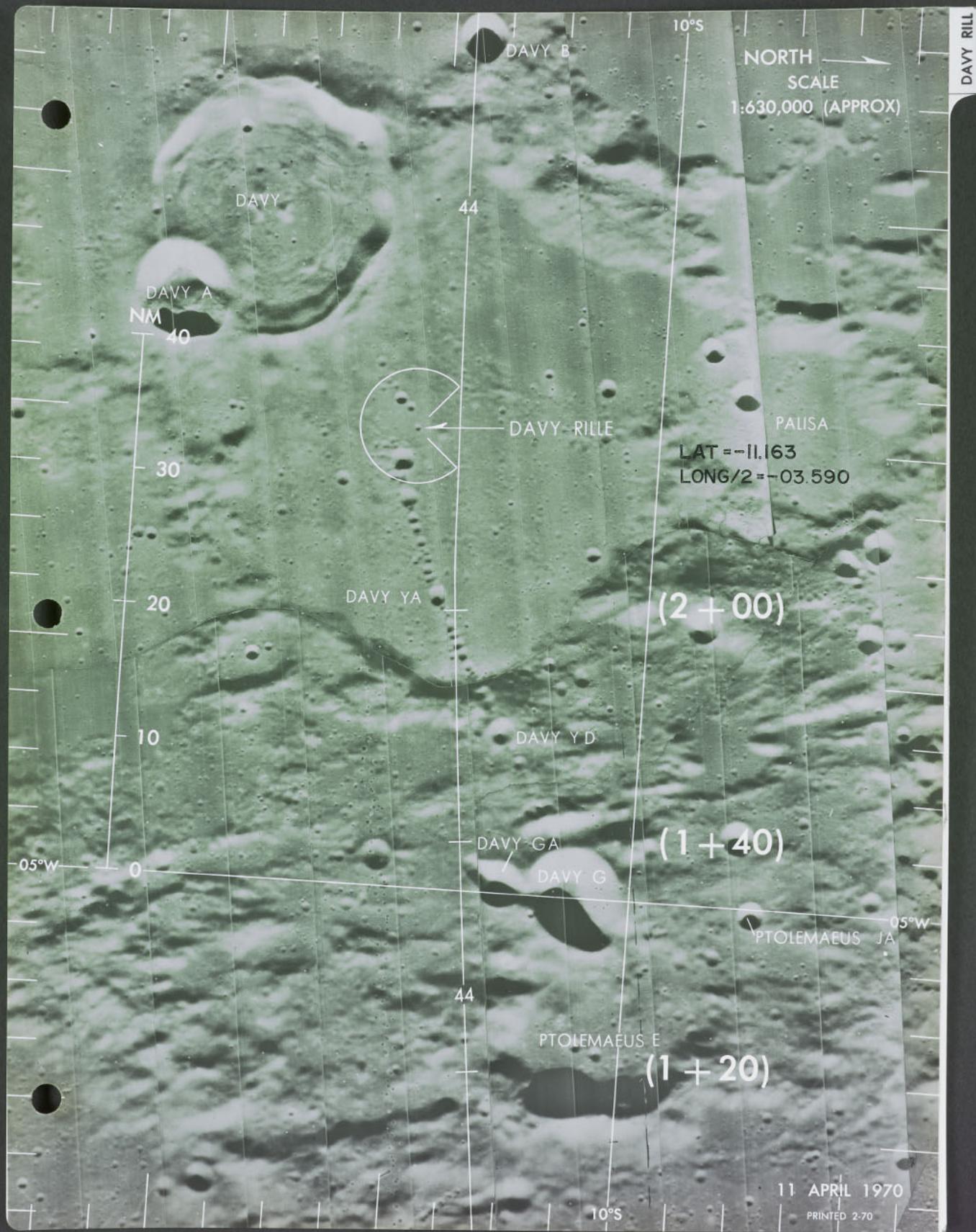


PHOTO TARGET DESCARTES  
25° ELEVATION  
SIMULATED OBLIQUE ACIC 2-28-70  
11 APRIL 1970 LAUNCH DATE



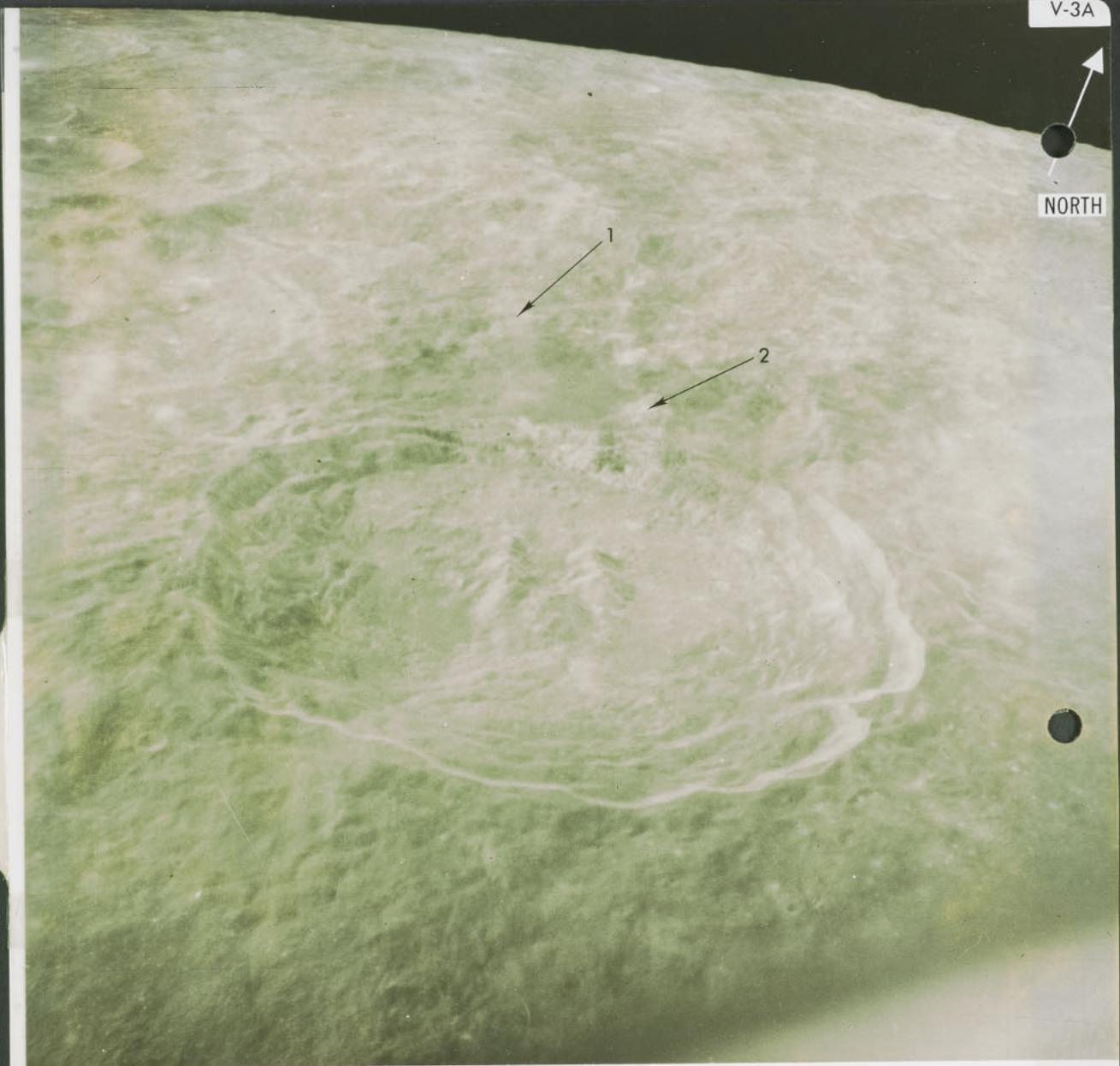


11 APRIL 1970  
PRINTED 2-70



## VISUAL TARGETS

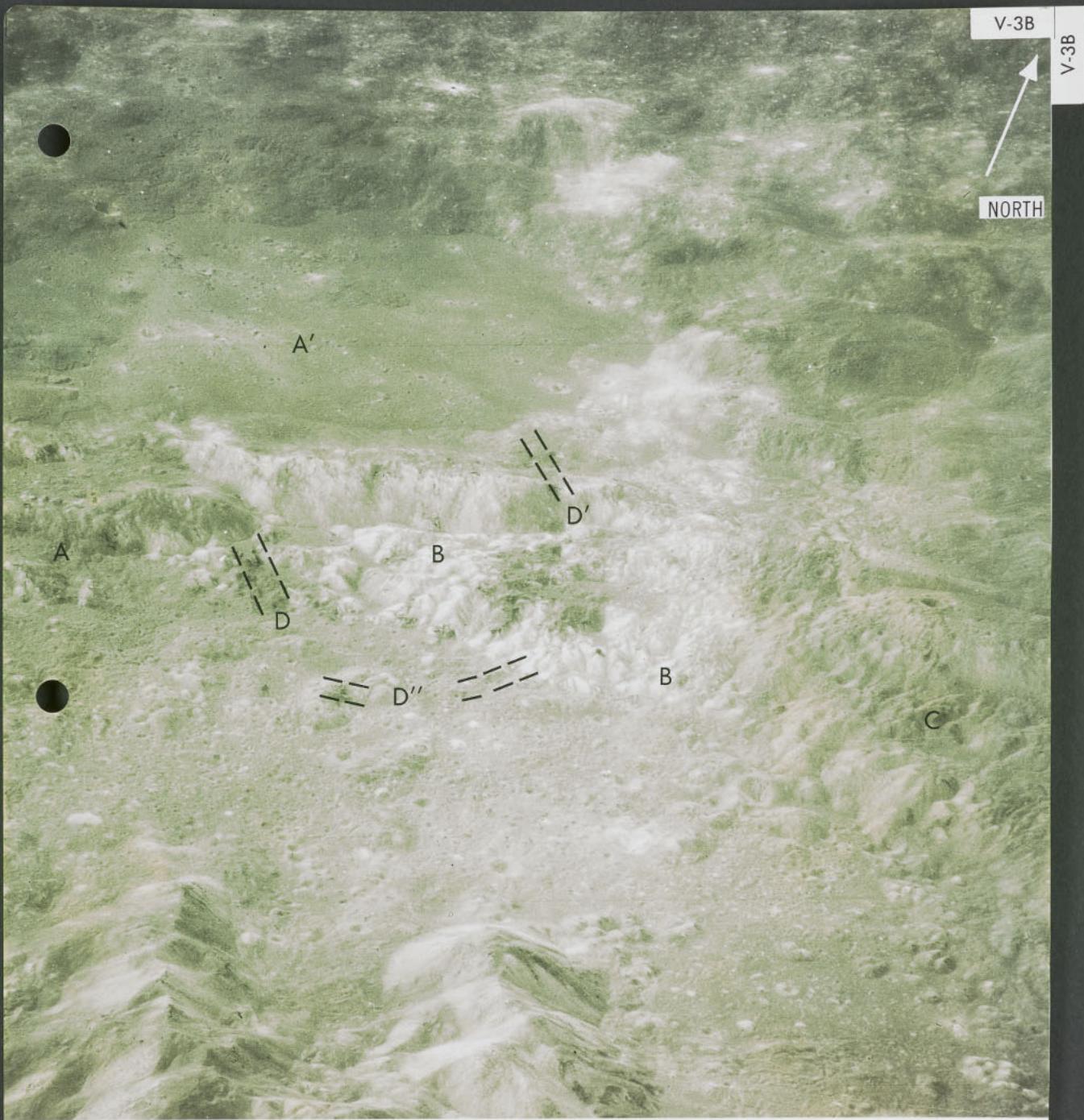
Solo Phase	V-3 (A&B)	Crater 211
	V-5	Neper
	V-1	Farside Highlands
	V-17	Renier γ
	V-9	Censorinus
Not Nominally Scheduled	V-15	Flamsteed
	V-16	Crater Gassendi
	V-4	Goddard
	V-7	TEI View
	V-8	Eastern Maria
Not Nominally Scheduled	V-2	Basin IX
	V-6	Crater Proculus
	V-10	Decartes
	V-11	Crater Alphonsus
	V-12	Davy Chain
	V-13	Fra Mauro
	V-14	Riphaeus Mountains
	V-18	Humorum/Descartes
	V-19	Eastern Sea
	V-20	Surface topography



V-3A CRATER 211 (120°E 5°N)

Make and record observations of the following:

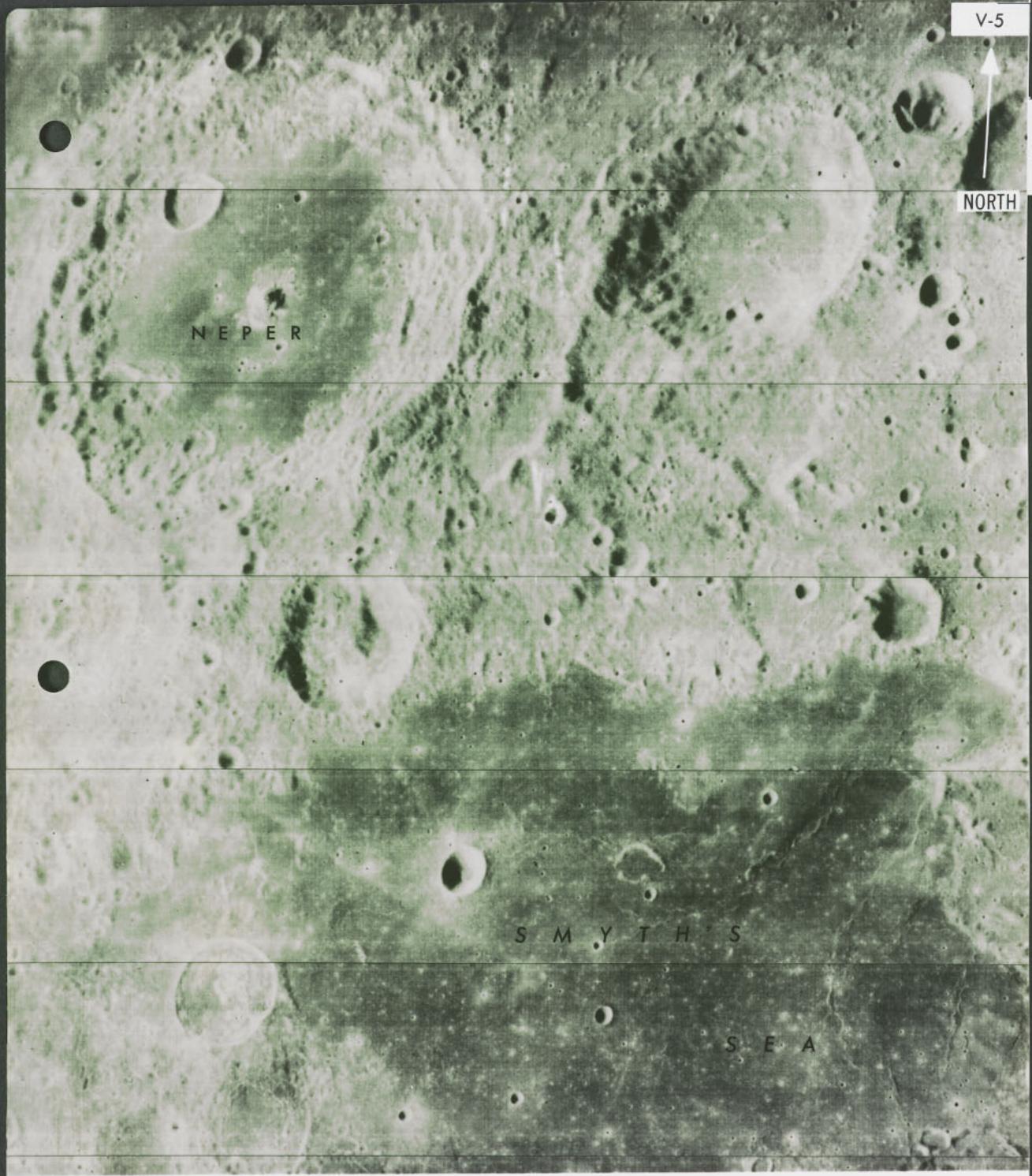
- A. Extent of dark mantling materials north of the rim crest.
- B. Differences and similarities between the two high albedo areas 1 and 2.
- C. Relationships, if any, between 1 and 2 and rays from the crater Bruno.
- D. Relationships, if any, between 1 and 2 and the Central Peaks.
- E. Horizontal layering along walls, particularly in the western segment.



V-3B CRATER 211 (120°E 5°N)

Use the photograph to locate the following areas of interest:

- A. Mantling material on crater wall (A) and pool material (A').
- B. Bright segment of crater wall (B); note structures.
- C. Eastern portion of crater wall (C); describe the terraces.
- D. Wall-like, dark tabular bodies (D, D' and D'').
- E. Dark streaks on central peaks.
- F. Domical structures on crater wall.



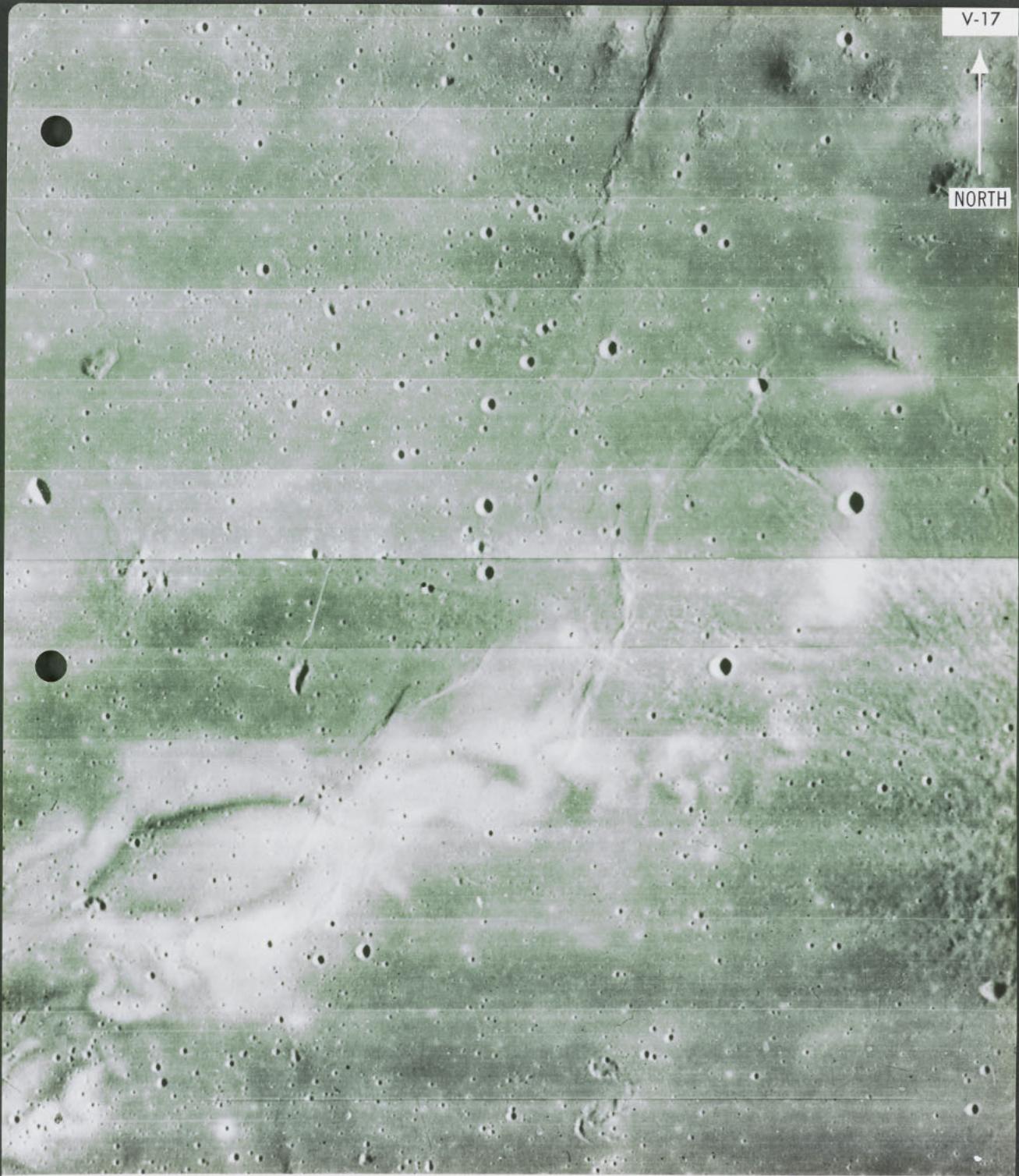
V-5 NEPER AREA ( $90^{\circ}$ - $80^{\circ}$ E  $0$ - $7^{\circ}$ N).

Use color chart to describe the subtle tone differences on the surface units of Smyth's Sea. Compare the appearance and tone of these to that of the crater Neper fill.

## V-1 FAR SIDE HIGHLANDS (165°-130°E 0-5°S)

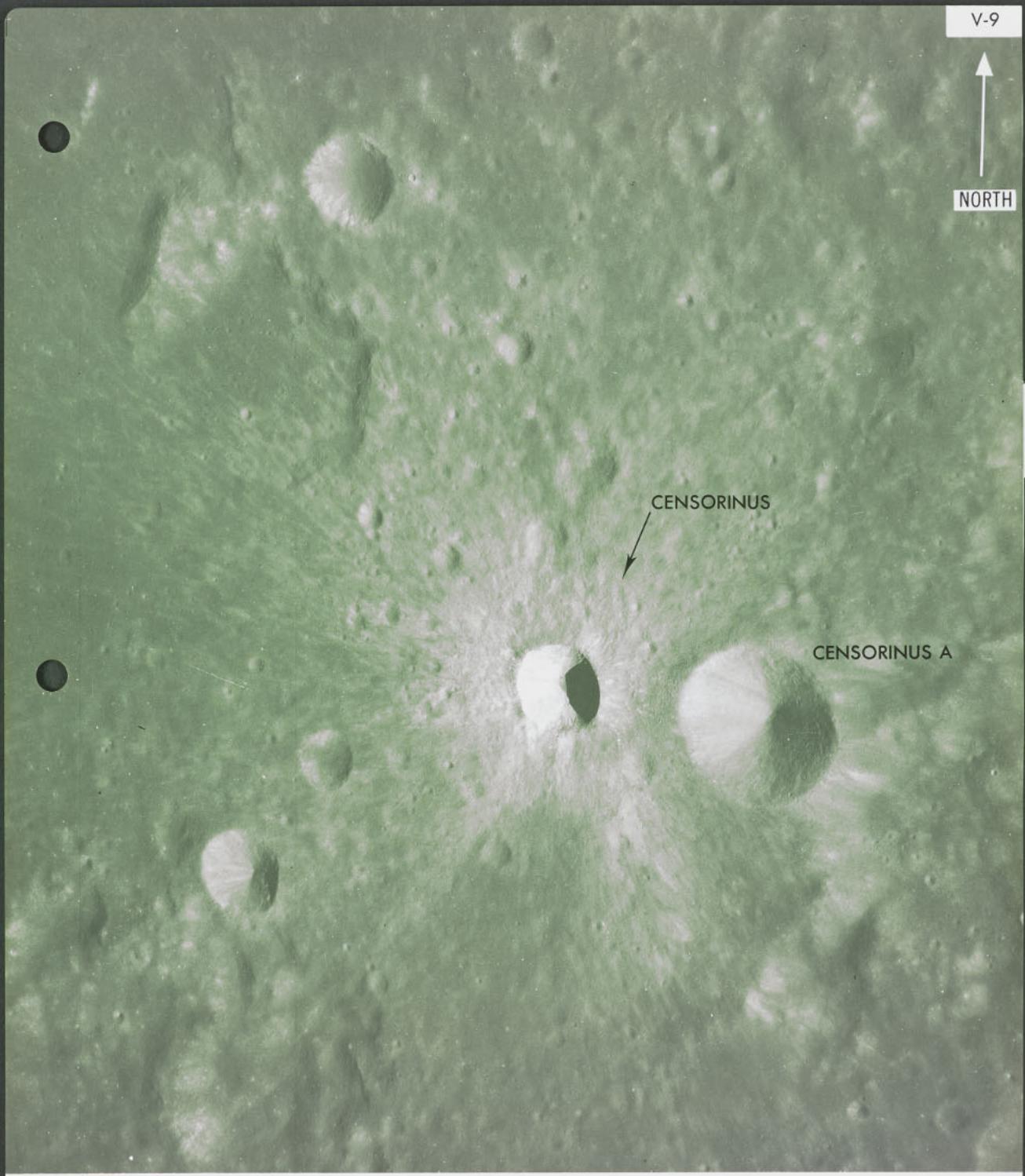
Record descriptions of the terrain with special emphasis on:

- A. The general appearance of this segment of the highlands as compared to the nearside highlands (crater density, sharpness of features, number of blocks, etc.).
- B. The variety of flow scarps and their extent (mark flow boundaries on Orbital Science Chart).
- C. At high sun angles, note the characteristics of asymmetric ray-patterns around craters and the possible causes for asymmetry.



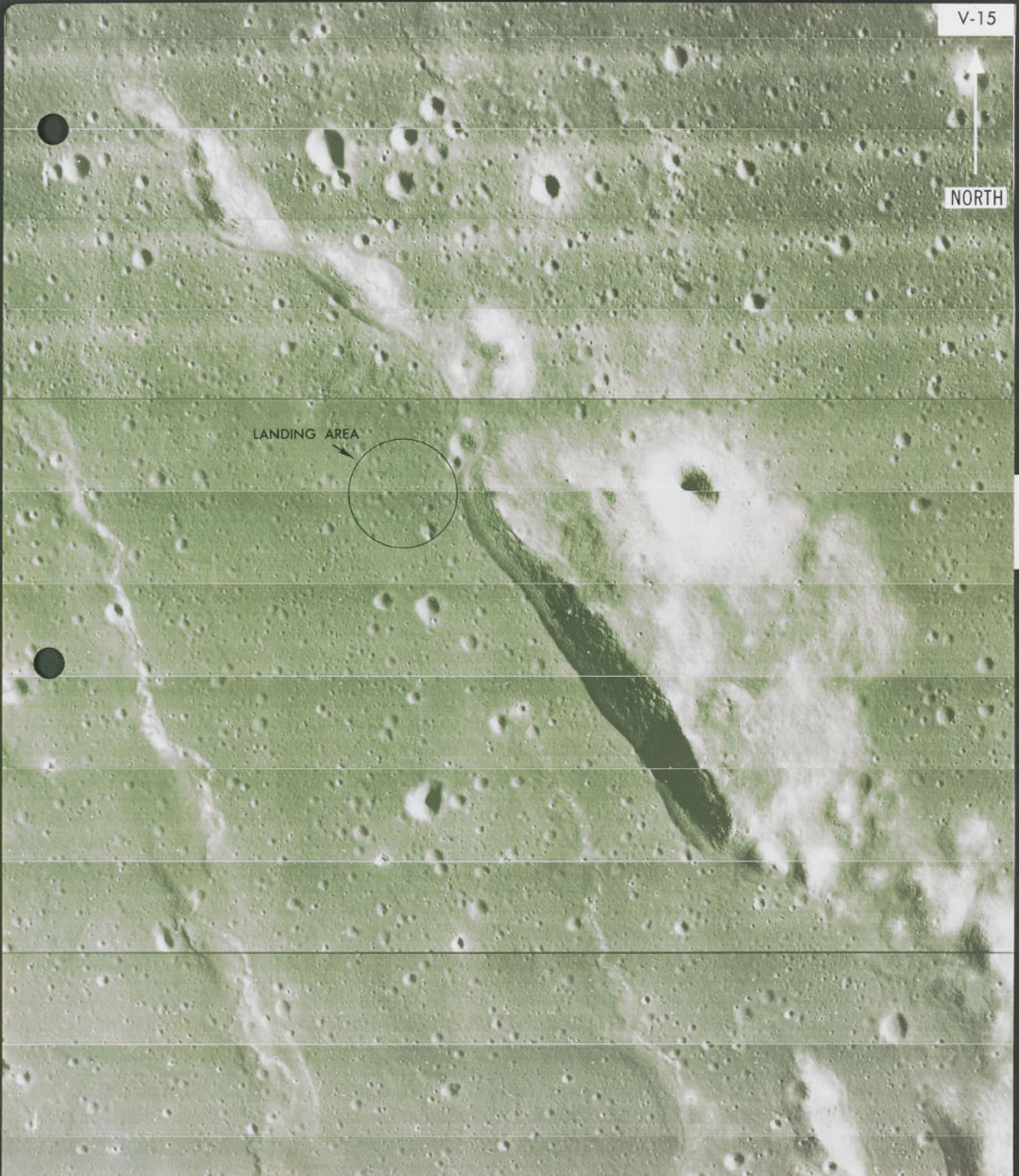
V-17 REINER  $\gamma$  STRUCTURE ( $60^{\circ}$ W  $2^{\circ}$ N)

Examine high albedo surface materials (in earth shine); compare with the swirls of the Goddard area (Refer to V-4).



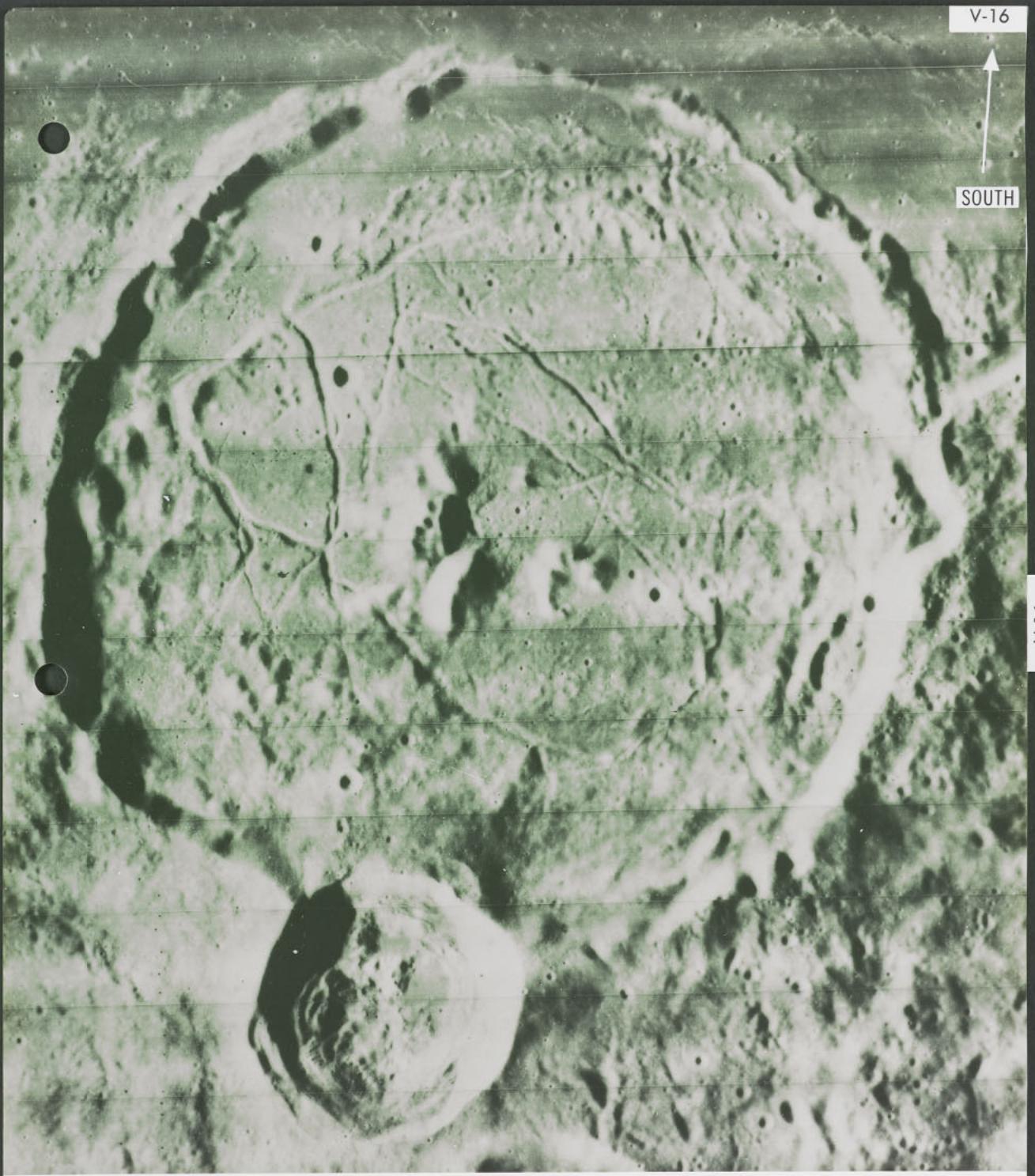
V-9 CENSORINUS AREA ( $32^{\circ}\text{E}$   $0^{\circ}\text{N}$ )

Use the monocular to study the block size distribution around the crater (particularly at about one crater diameter out).  
Use photo to mark zones.



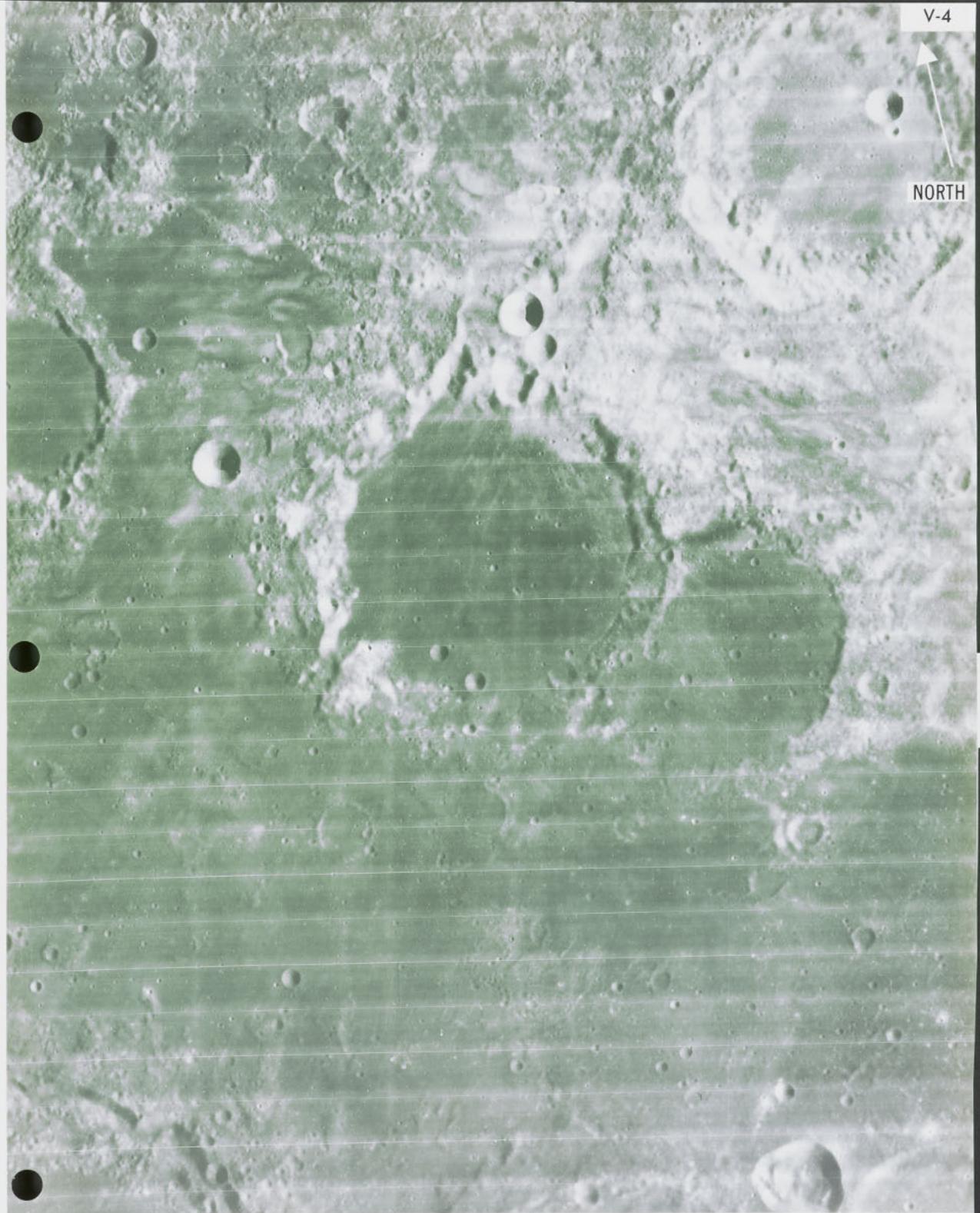
V-15 FLAMSTEED P ( $42^{\circ}\text{W}$   $3^{\circ}\text{S}$ )

Examine the Flamsteed landing site (6R) with special emphasis on structures displayed along the ridge.



V-16 CRATER GASSENDI (40°W 17°S)

Transient event area. Use photo to delineate areas of possible activity (rilles, crater wall or central peaks).



V-4 GODDARD AREA ( $90^{\circ}$ - $85^{\circ}$ E  $13^{\circ}$ N).

Examine swirls of bright materials. Look for topographic expressions and/or relationships to nearby features.

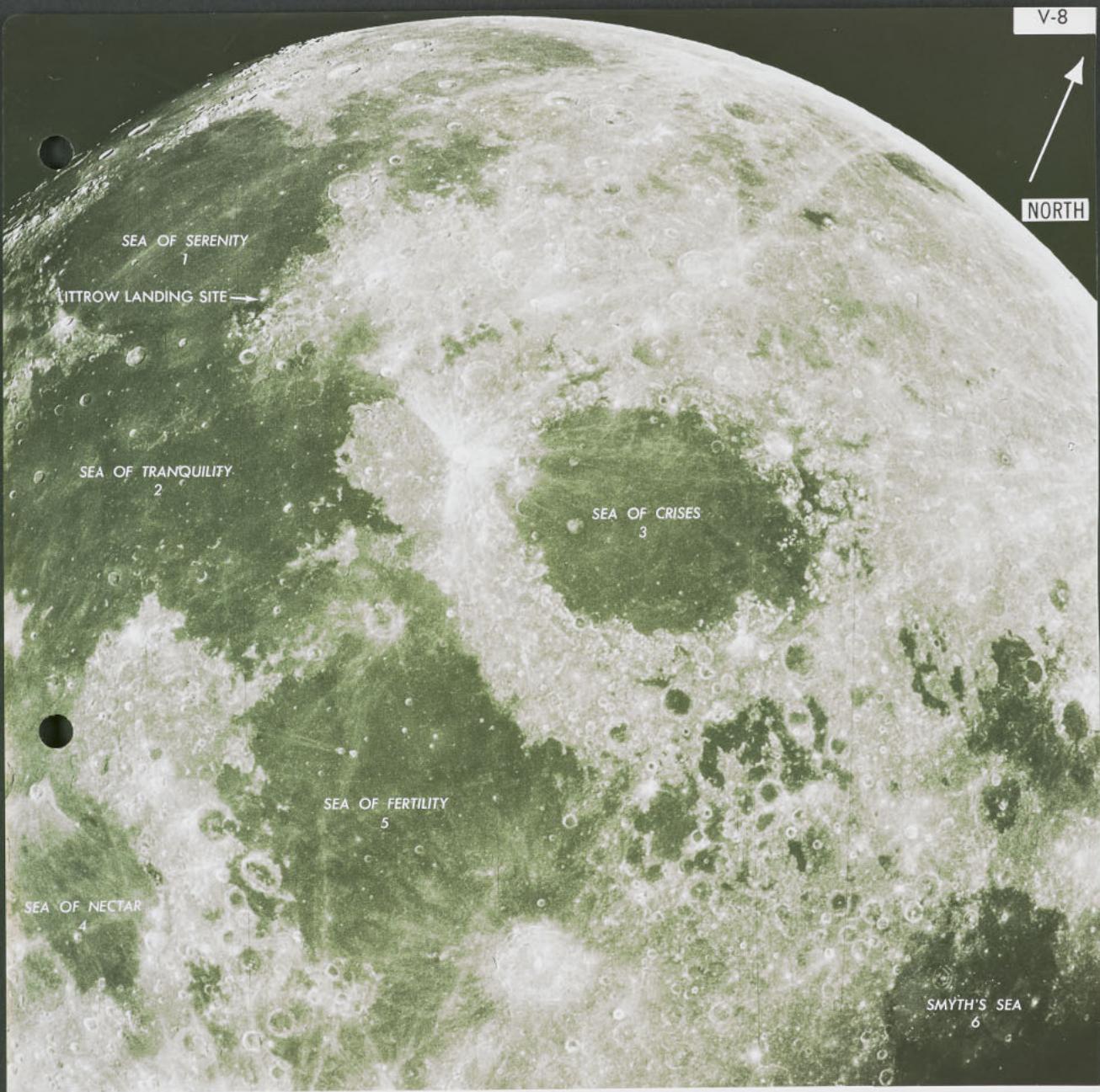
V-7



V-7

V-7 TEI VIEW

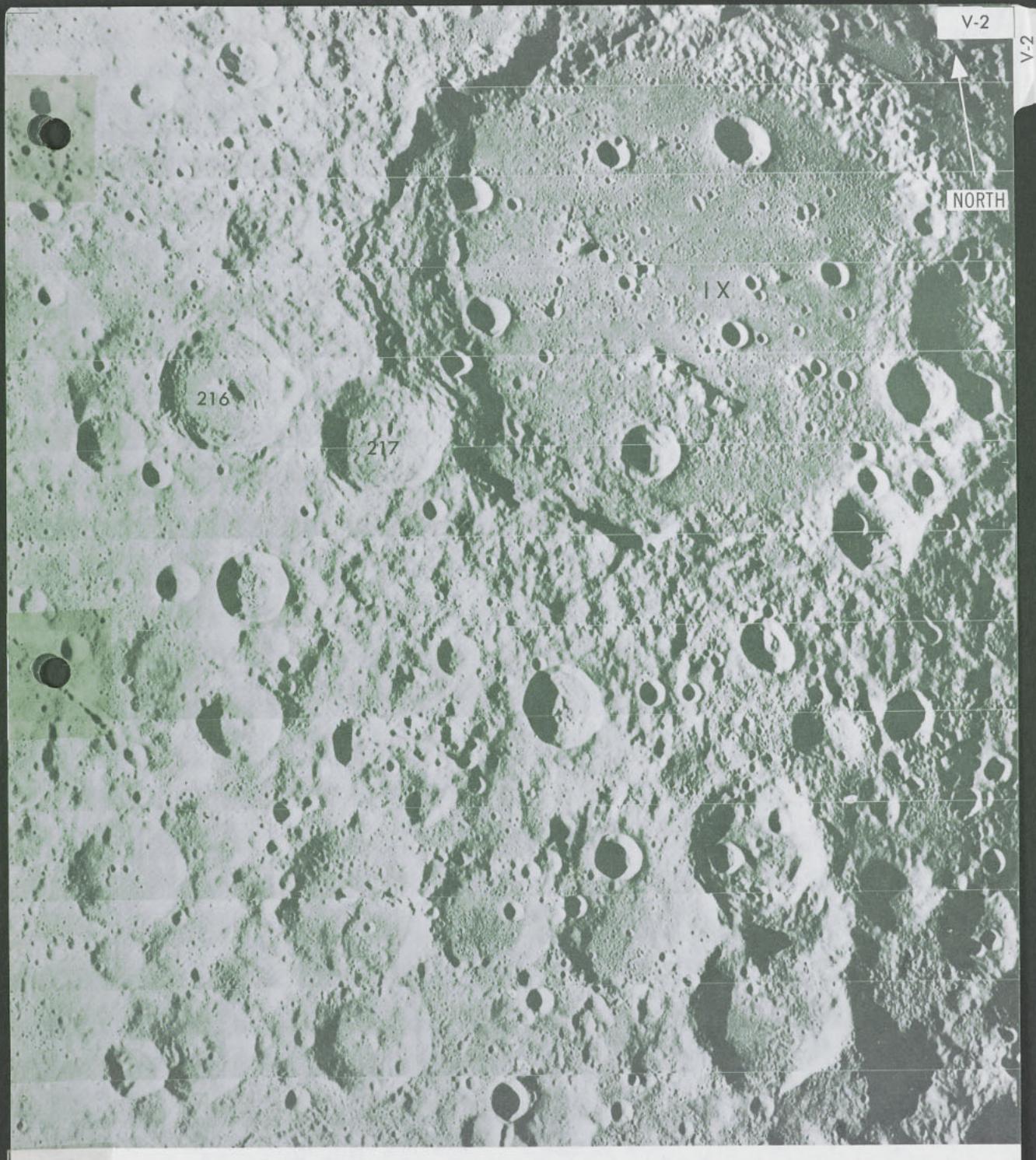
Use photograph to identify observable lunar surface features during post-TEI T.V. transmission.



V-8 EASTERN MARIA

Use color chart to:

- A. Compare and describe the color tones of the three seas Crises, Fertility, and Tranquility at varying sun angles.
- B. Describe the color tones at the border between the Sea of Serenity and the Sea of Tranquility. Note also the tone of the Litrow landing site area.
- C. List the maria in order of decreasing color tones (starting with the darkest) following TEI.

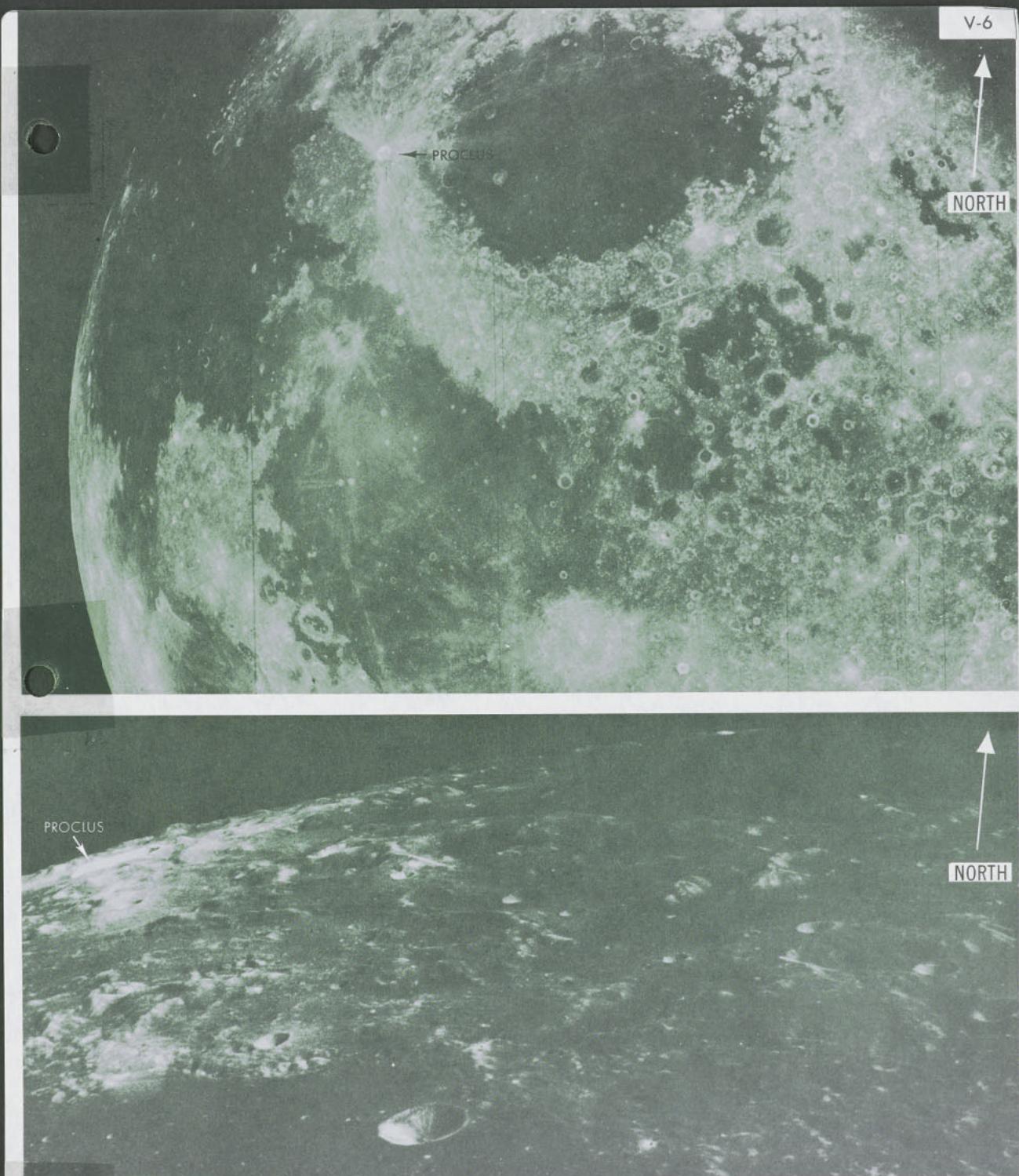


V-2 BASIN IX AND VICINITY ( $145^{\circ}$ - $135^{\circ}$ E  $5^{\circ}$ N)



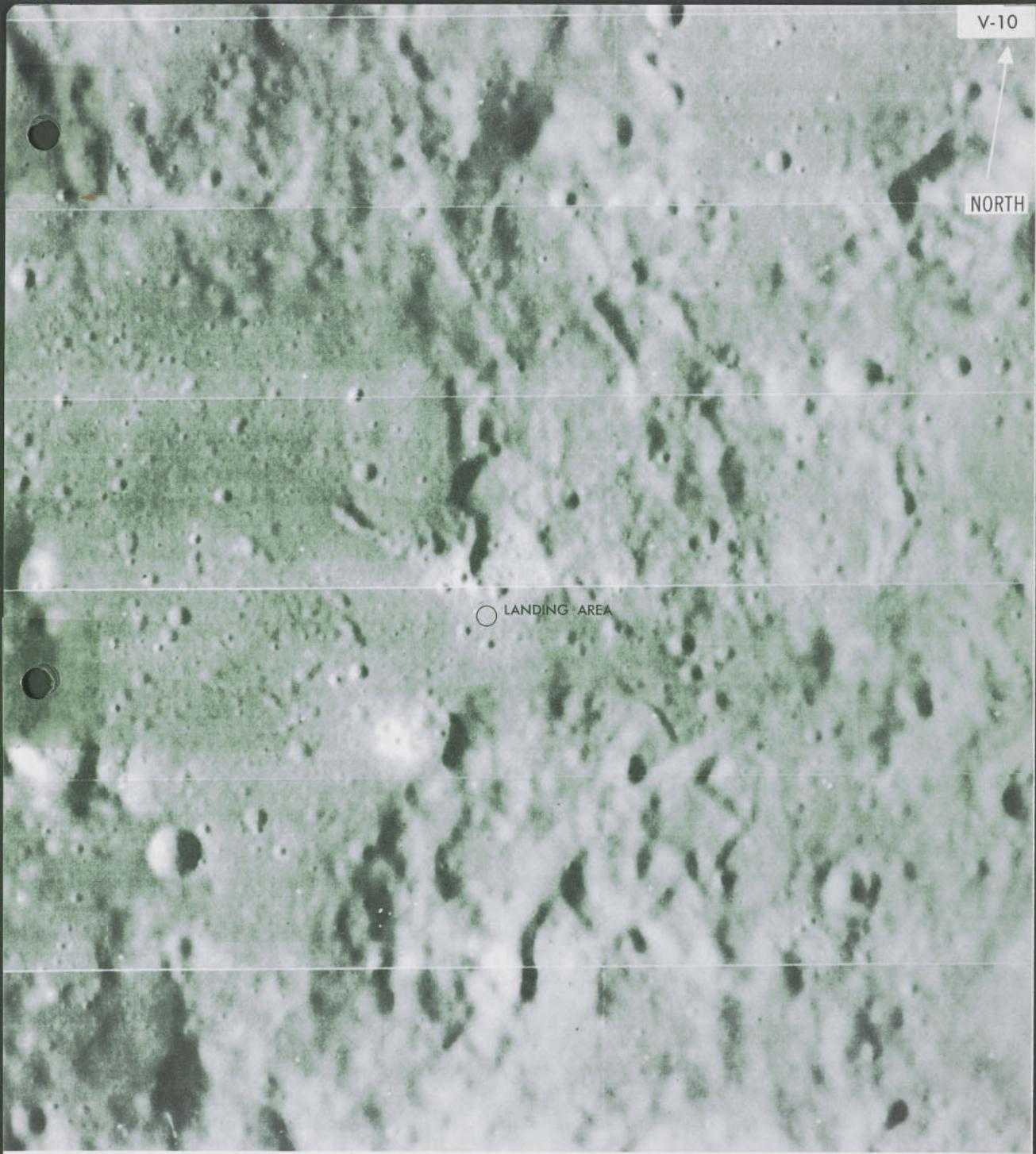
Make and record observations in the area of Basin IX.

- Describe crater chain in basin floor: Is it related to any structures? and can you distinguish rim deposits?
- Look for layering of dark rocks in craters 216 and 217.



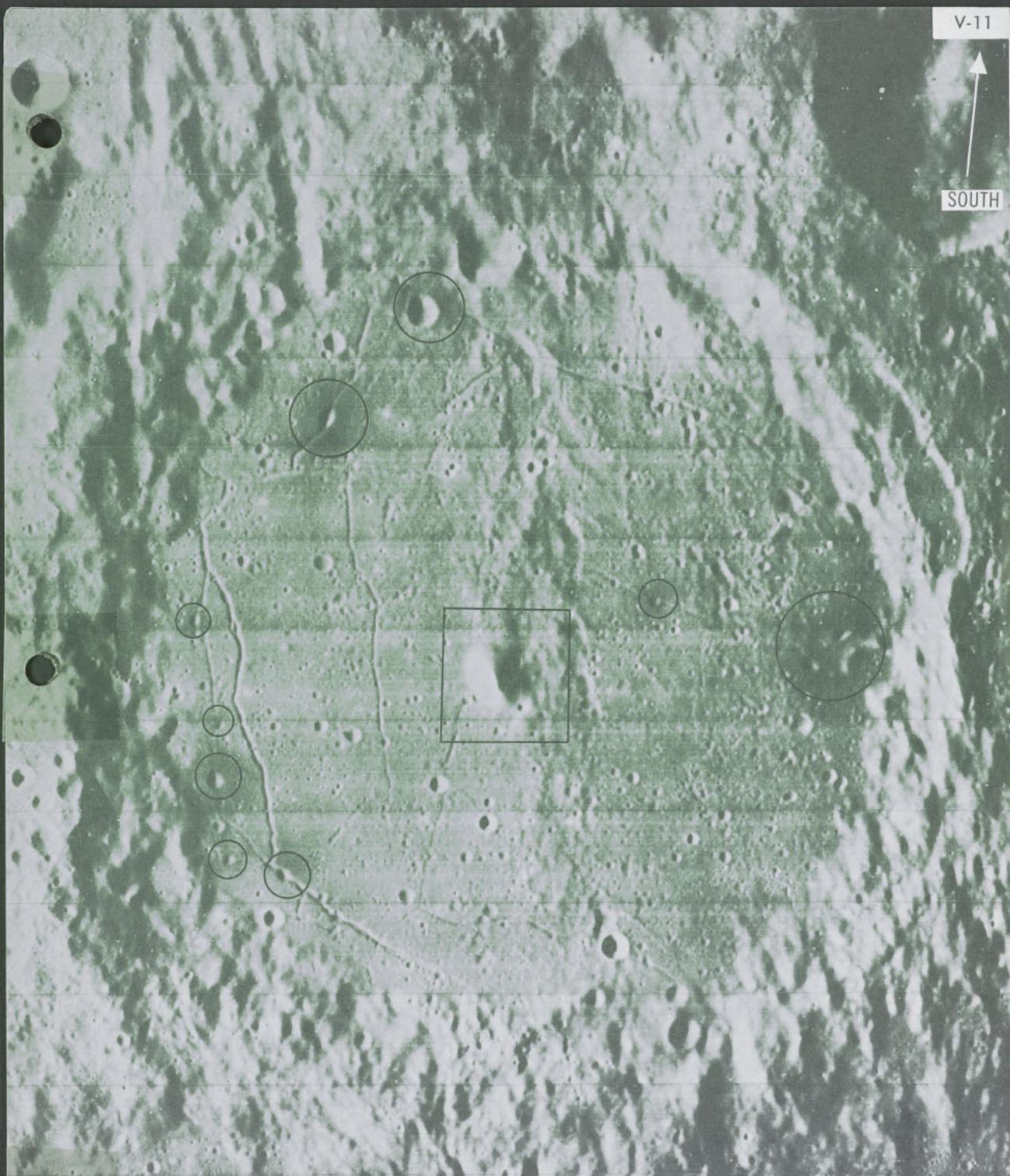
V-6 CRATER PROCLUS ( $47^{\circ}\text{E}$   $15^{\circ}\text{N}$ )

Use the monocular to study the rim deposits of the crater Proclus. Look for topographic feature directly west of the rim crest which may be responsible for the asymmetry of the crater's ray system.



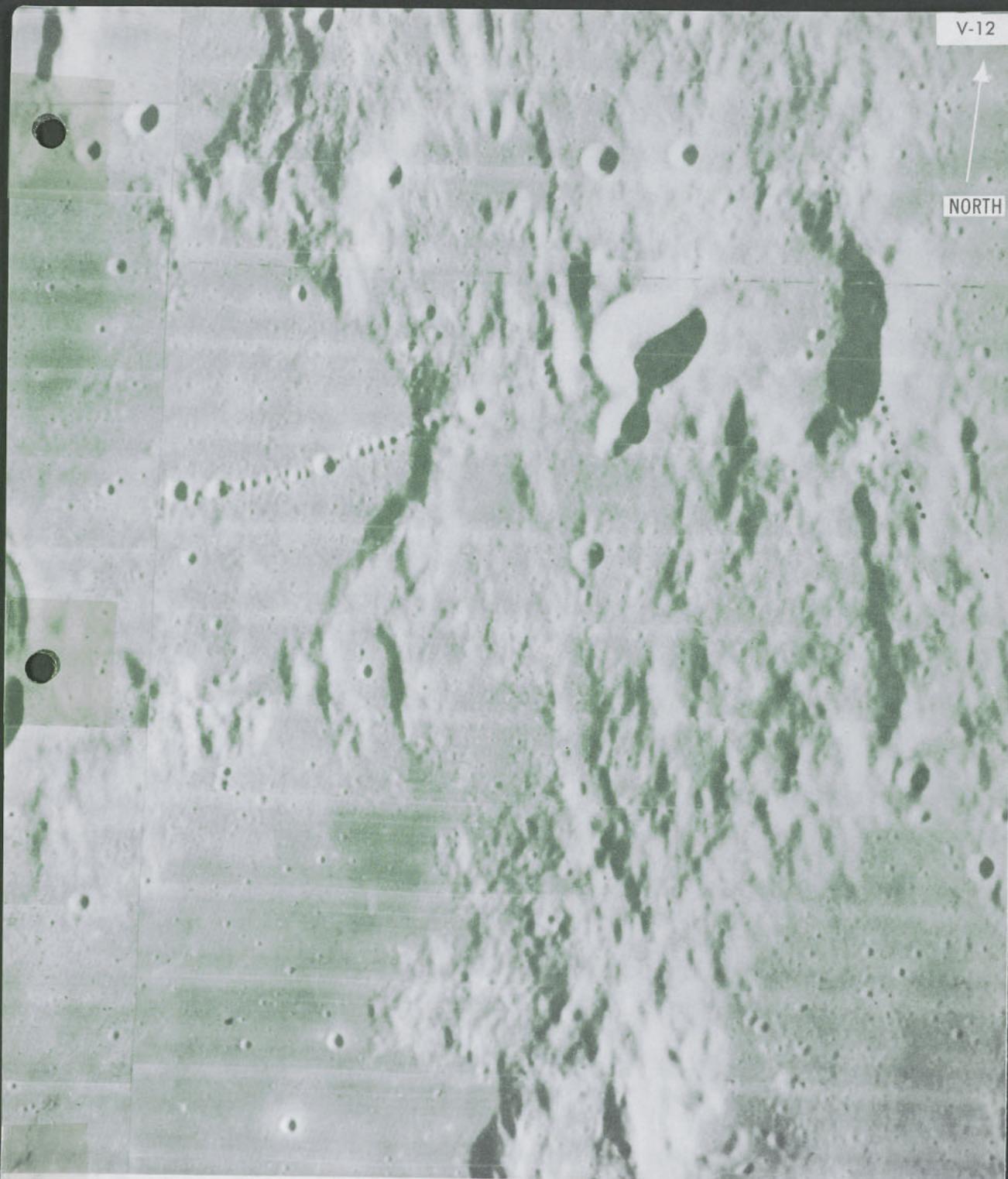
V-10 DESCARTES LANDING AREA ( $14^{\circ}$ - $16^{\circ}$ E  $8^{\circ}$ - $10^{\circ}$ S)

Examine the Descartes landing area and record differences and/or similarities in appearance between:  
A. The furrowed terra to the east.  
B. The plain unit to the west.  
C. Dark deposits in the plains unit.



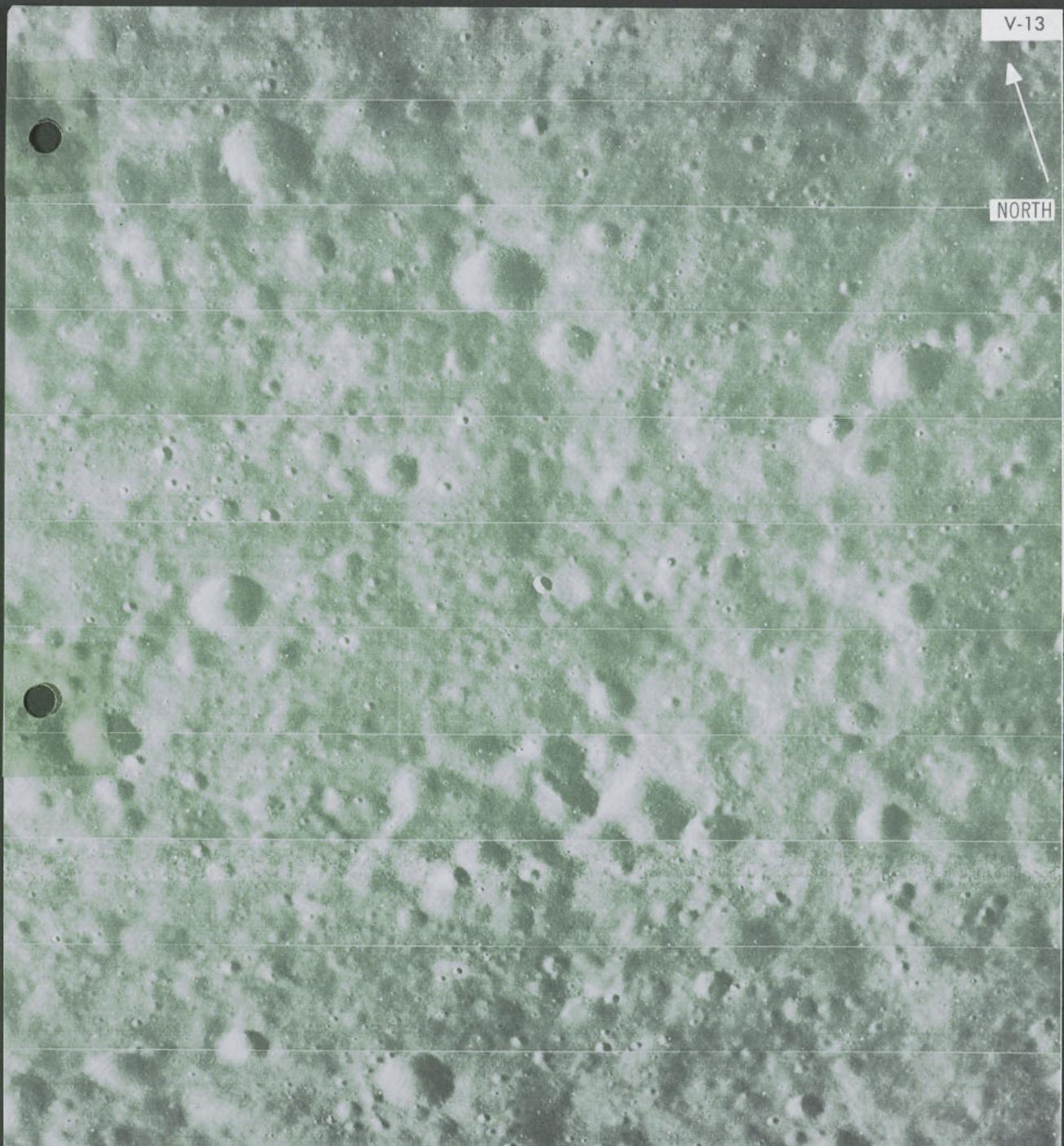
V-11 CRATER ALPHONSUS ( $3^{\circ}\text{W}$   $14^{\circ}\text{S}$ )

Transient event area. Use photo to delineate areas of possible activity; dark halo craters (circled) and central peak.



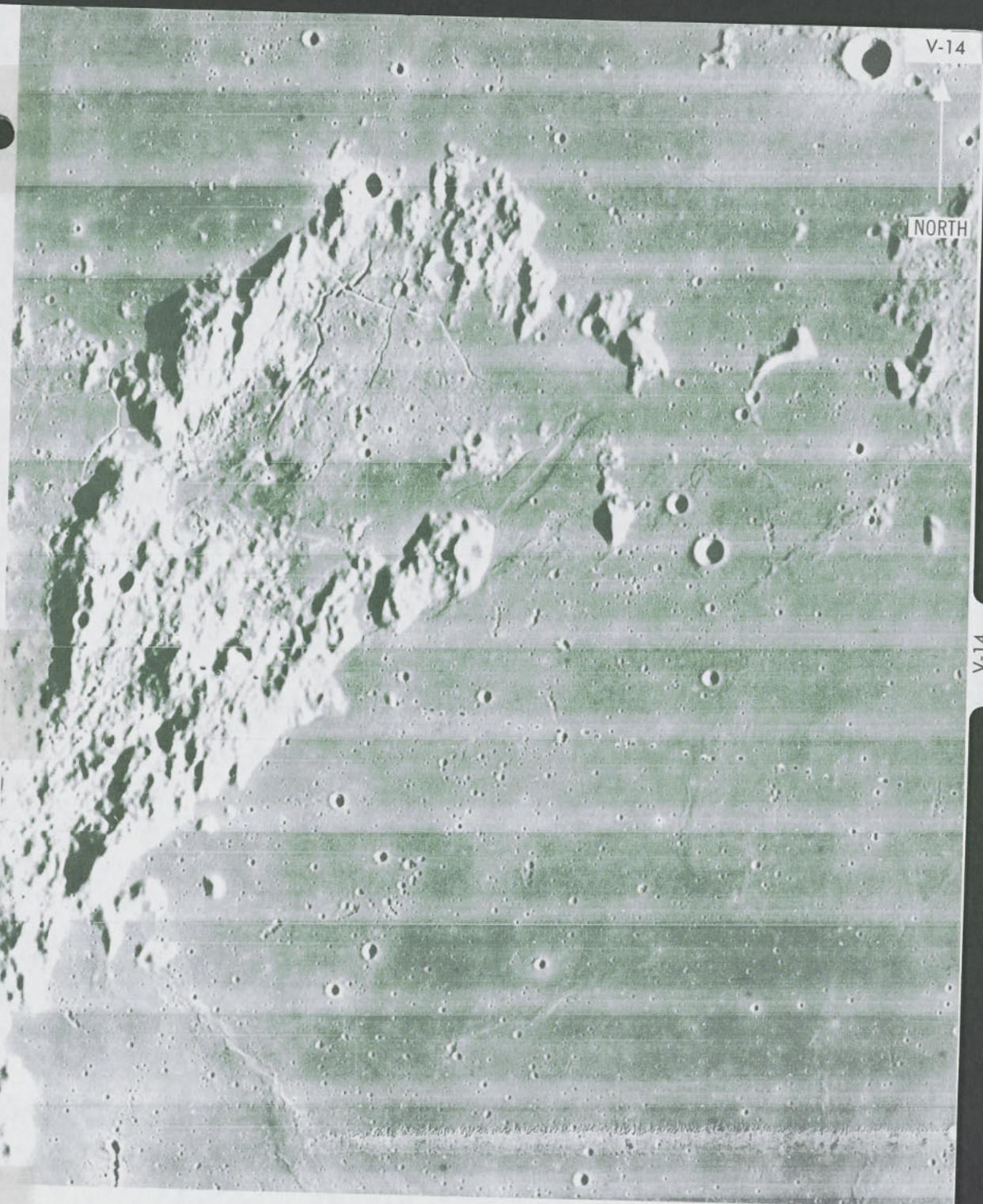
V-12 DAVY CRATER CHAIN ( $4^{\circ}$ - $7^{\circ}$ W  $3.5^{\circ}$ S)

Use the monocular to examine the ejecta surrounding the individual craters. Mark craters with the most extensive rim deposits.



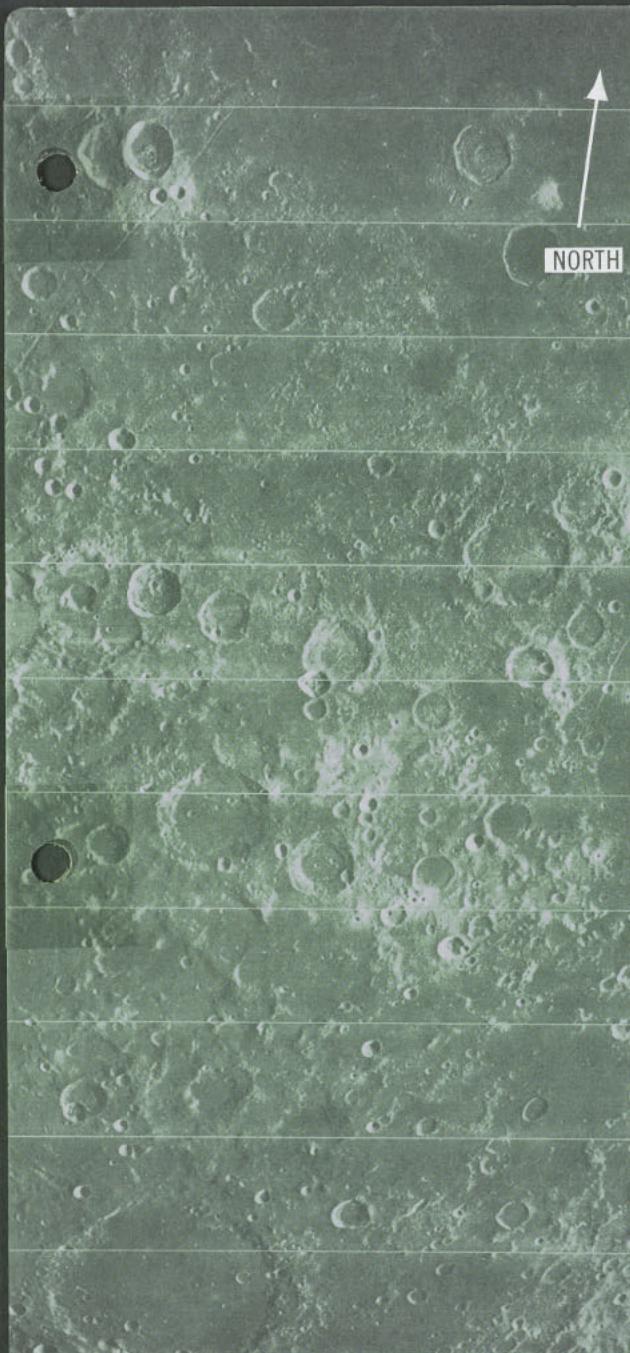
V-13 FRA MAURO FORMATION (17.5°W 3.5°S)

Following location of the landed LM record differences and/or similarities in appearance between the landing area and the rest of the Formation.

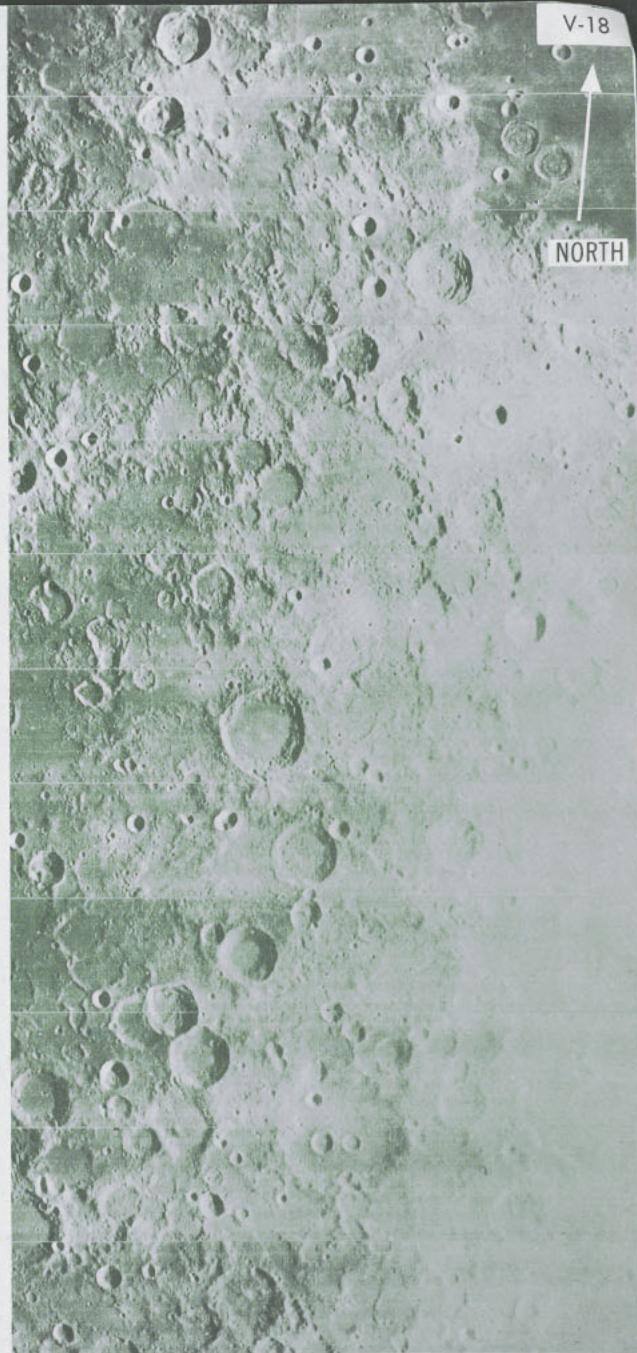


V-14 RIPHAEUS MOUNTAINS ( $25^{\circ}$ - $28^{\circ}$ W  $12^{\circ}$ S)

- A. Examine the scarps and note either layering or mass wasting characteristics.
- B. Examine linear depressions and flow scarps in the surrounding mare material.



WEST OF HUMORUM

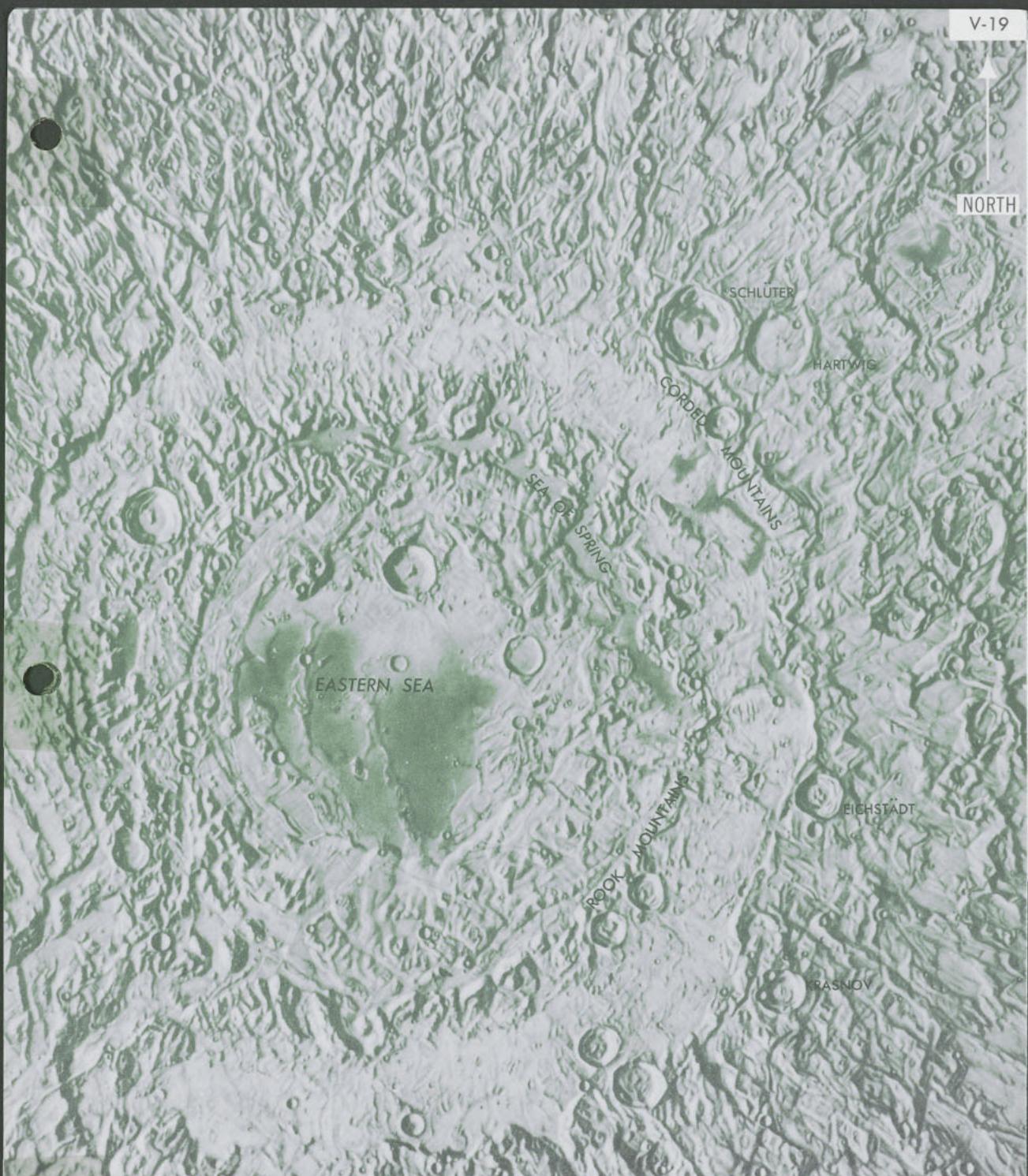


DESCARTES AREA

V-18

V-18 WEST OF HUMORUM ( $45^{\circ}$ - $60^{\circ}$ W  $20^{\circ}$ S) — DESCARTES AREA ( $20^{\circ}$ - $5^{\circ}$ E  $10^{\circ}$ S)

Examine the terrain and compare the furrowed terra in both regions.



V-19 EASTERN SEA (95°W 20°S)

Examine the features of the Eastern Sea (in earth shine). Of special significance is possible layering along the mountain scarps.  
Use photo for identification of features.

V-20

V-20 MARE SURFACE TOPOGRAPHY MEASUREMENTS

Measure altitude of CSM over a mare region with sextant and take spot meter readings along same line of measurements.

V-20