

## **B. Volcanism on Mars – Crater Size–Frequency Distributions and Images**

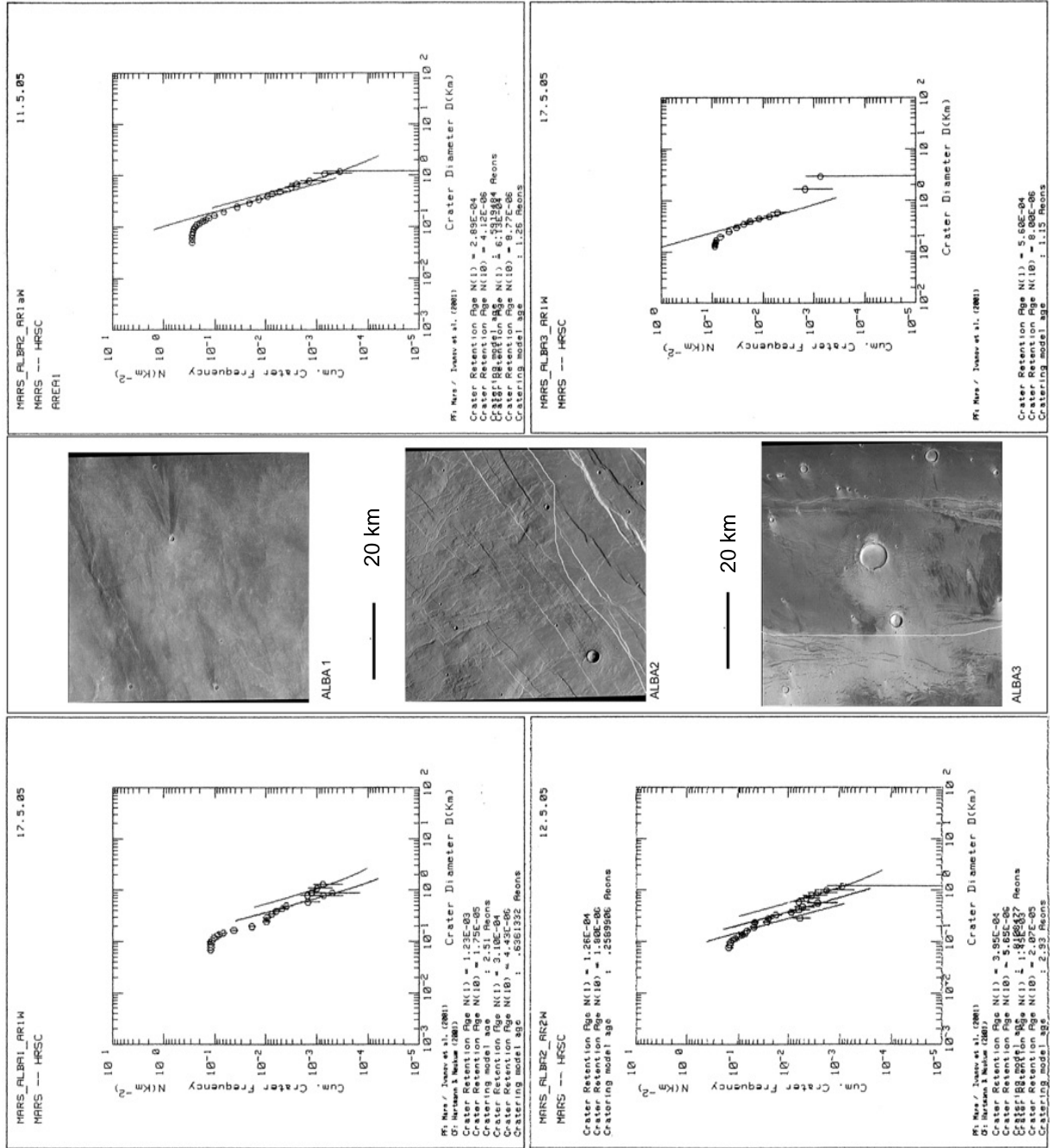


Figure B.1.: Resulting Crater Size–Frequency Distributions for Alba Patera flanks.

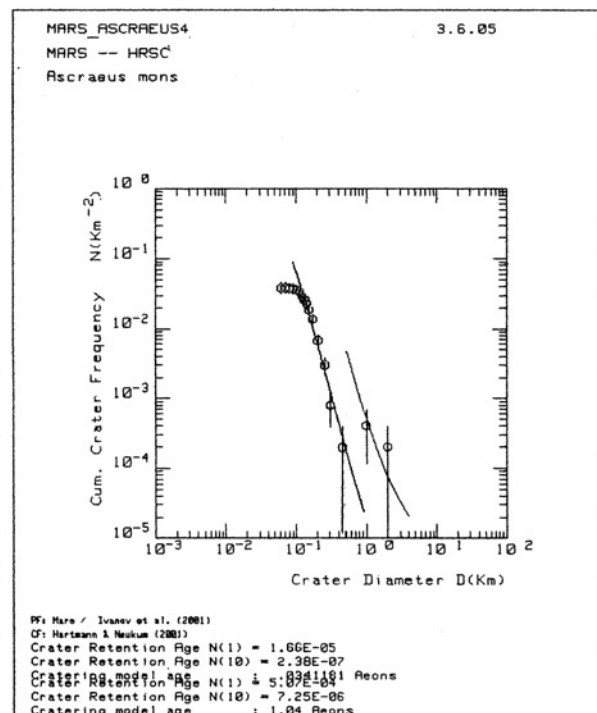
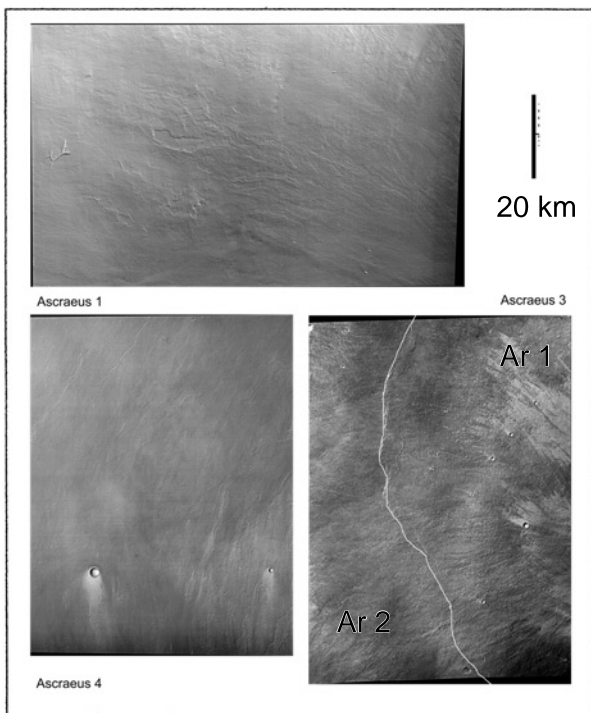
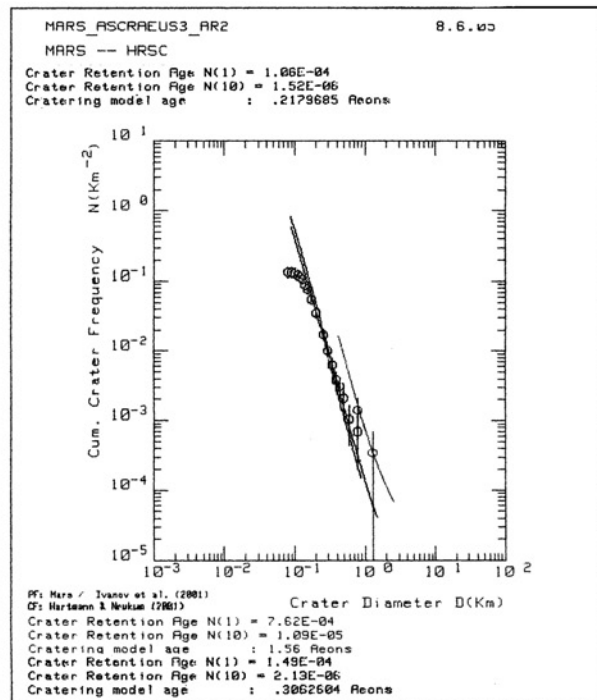
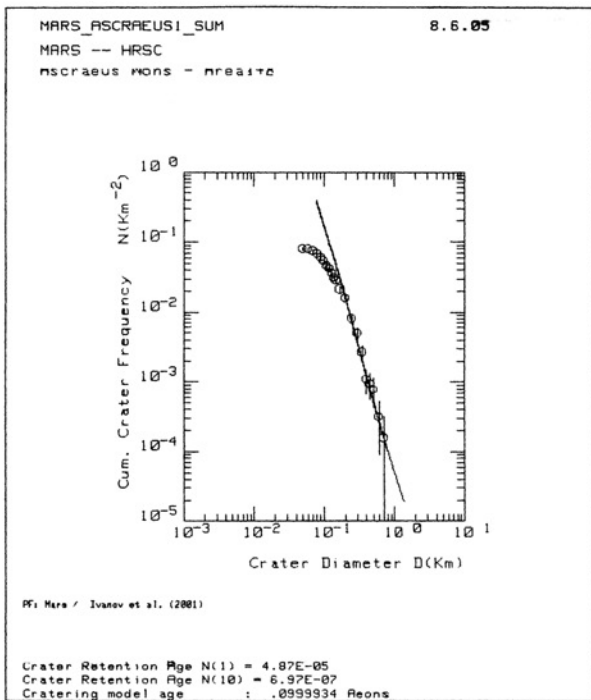


Figure B.2.: Resulting Crater Size-Frequency Distributions for Asraeus Mons flanks.

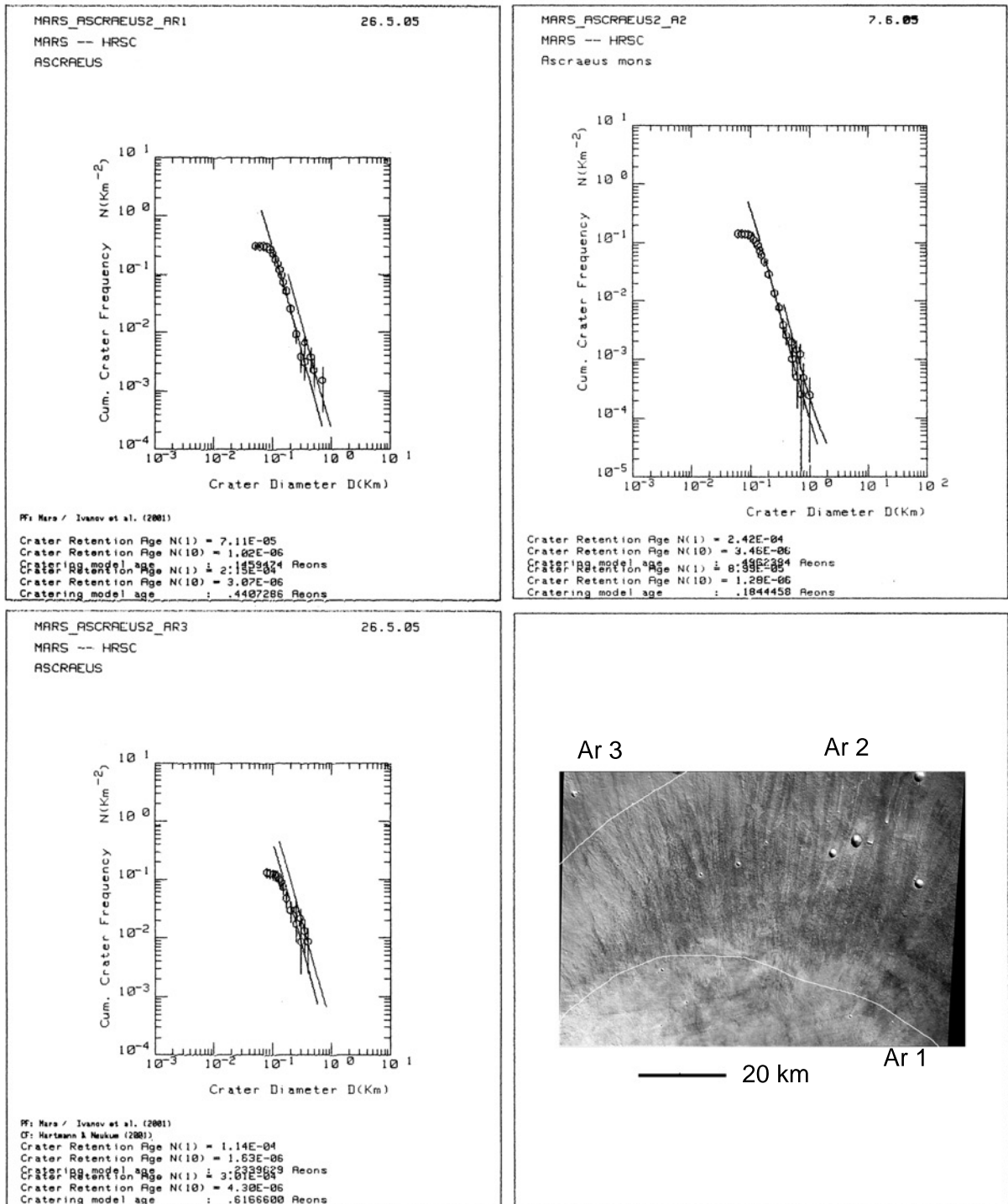


Figure B.3.: Resulting Crater Size–Frequency Distributions for Ascræus Mons flanks.

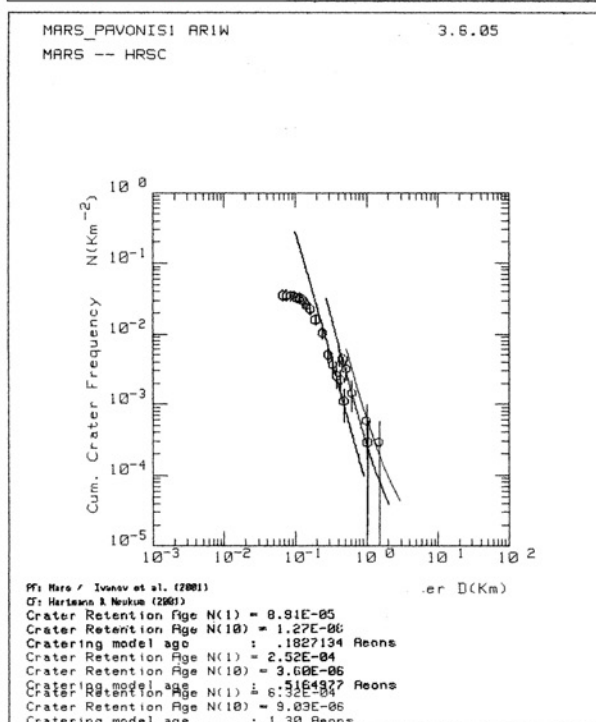
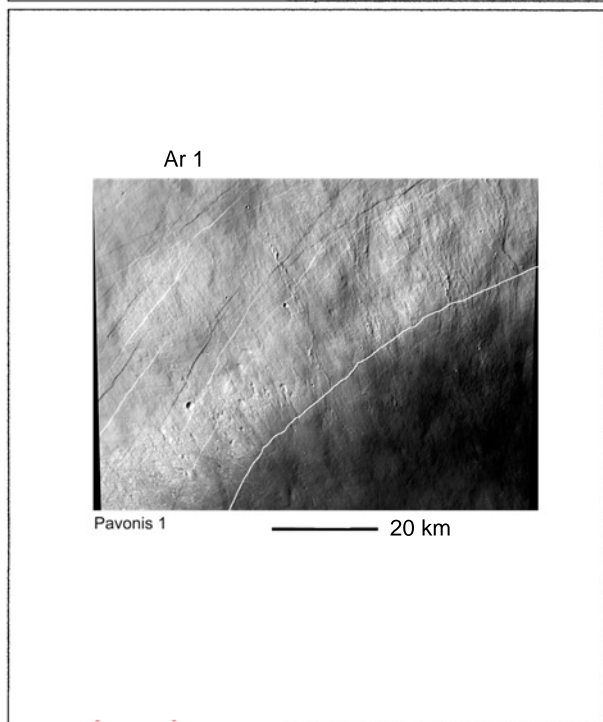
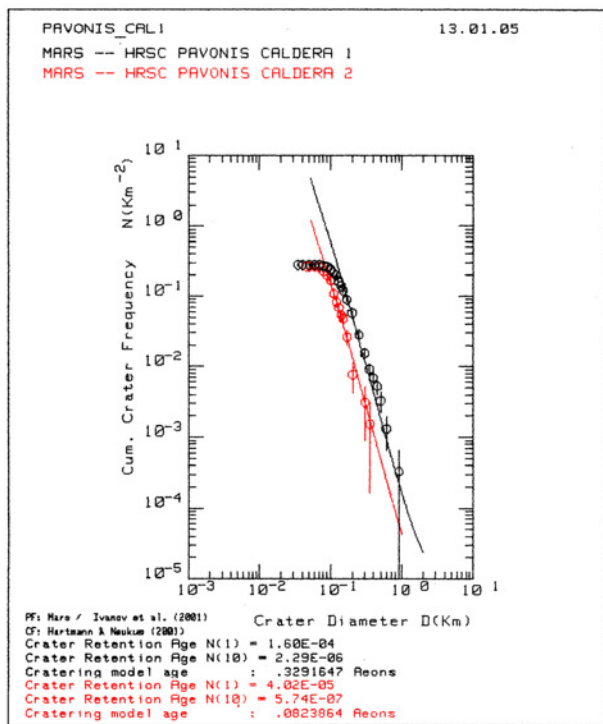


Figure B.4.: Resulting Crater Size-Frequency Distributions for Pavonis Mons flanks.

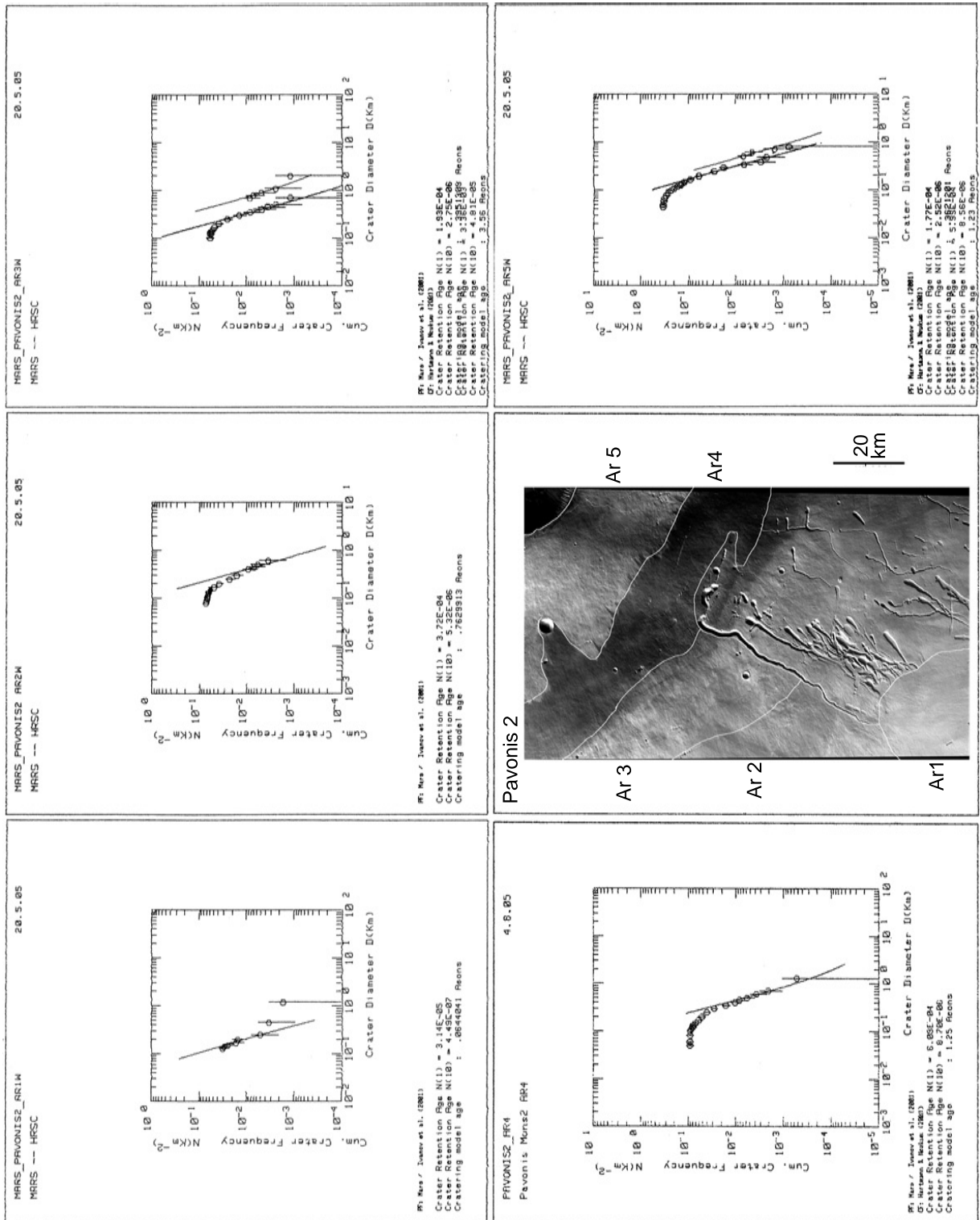


Figure B.5.: Resulting Crater Size–Frequency Distributions for Pavonis Mons flanks.

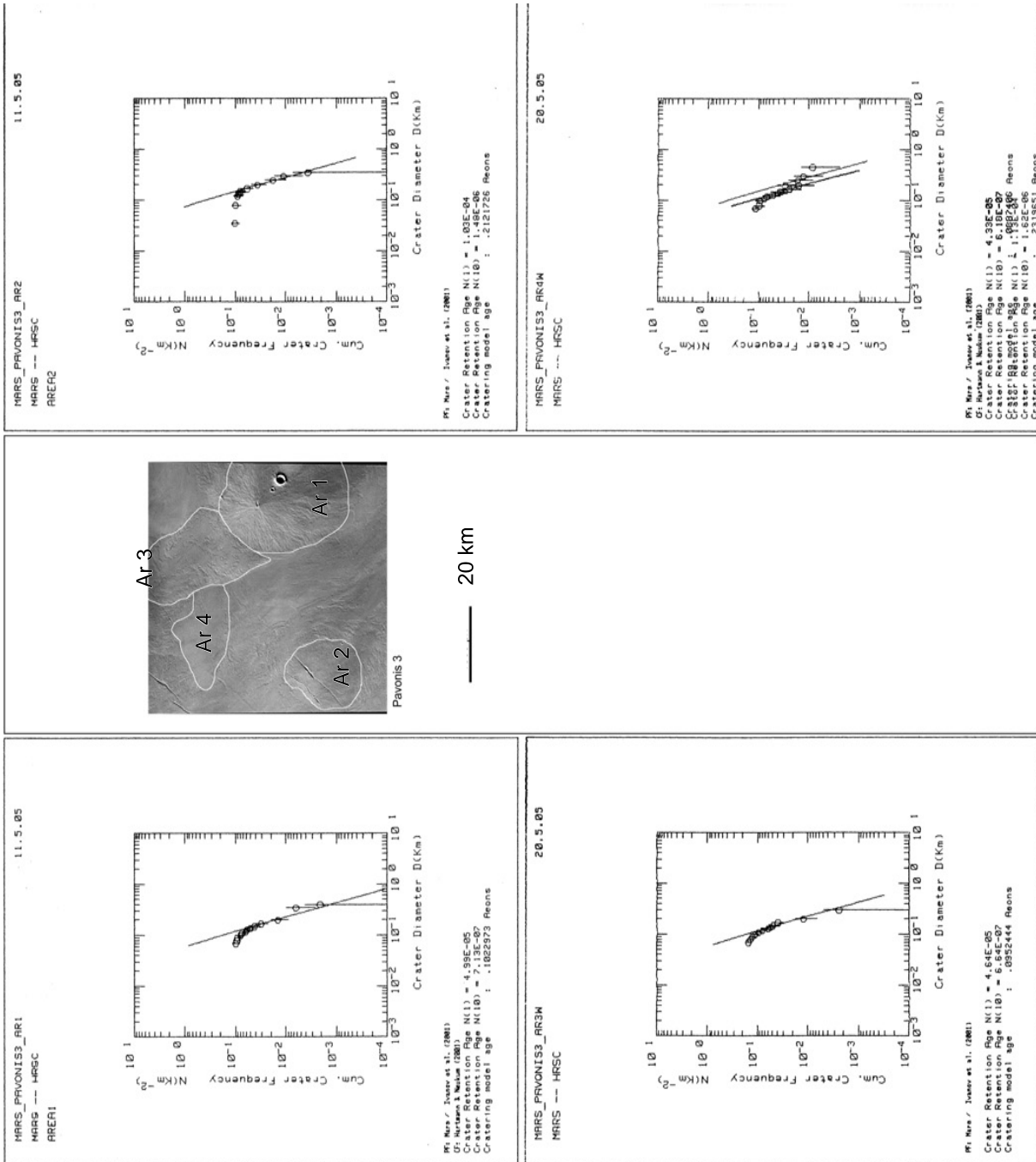


Figure B.6.: Resulting Crater Size-Frequency Distributions for Pavonis Mons flanks.

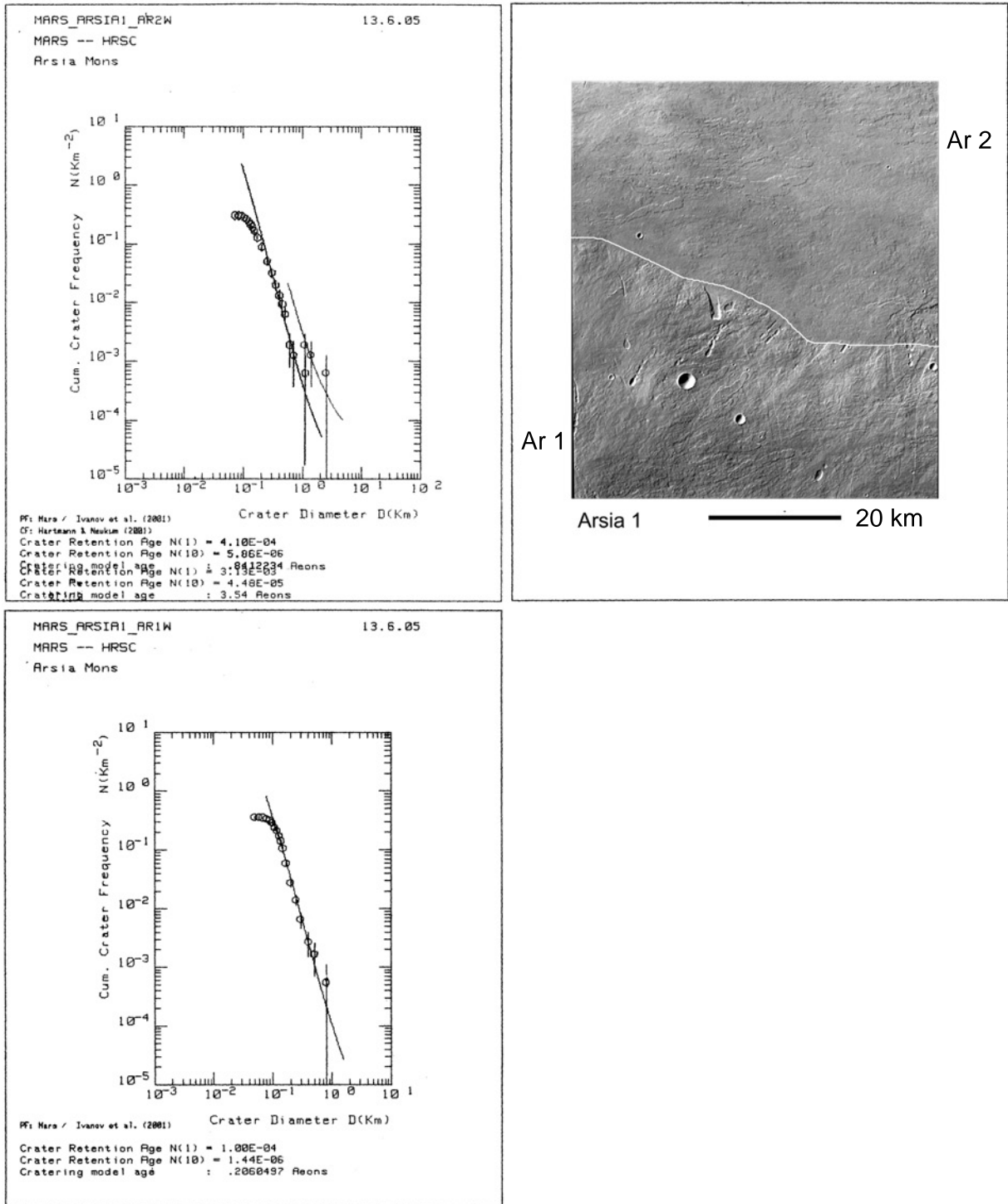


Figure B.7.: Resulting Crater Size–Frequency Distributions for Arsia Mons flanks.



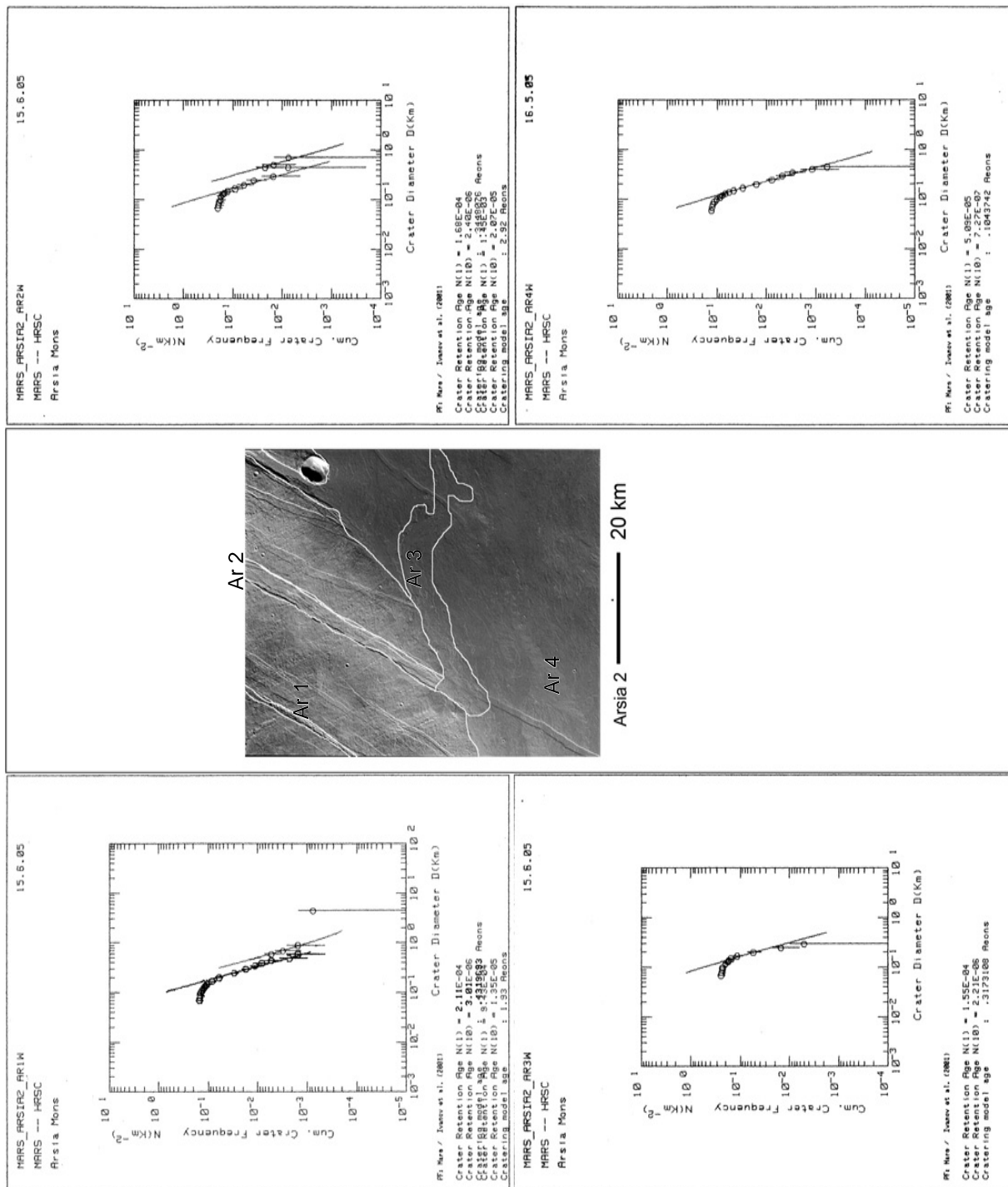


Figure B.8.: Resulting Crater Size-Frequency Distributions for Arsia Mons flanks.

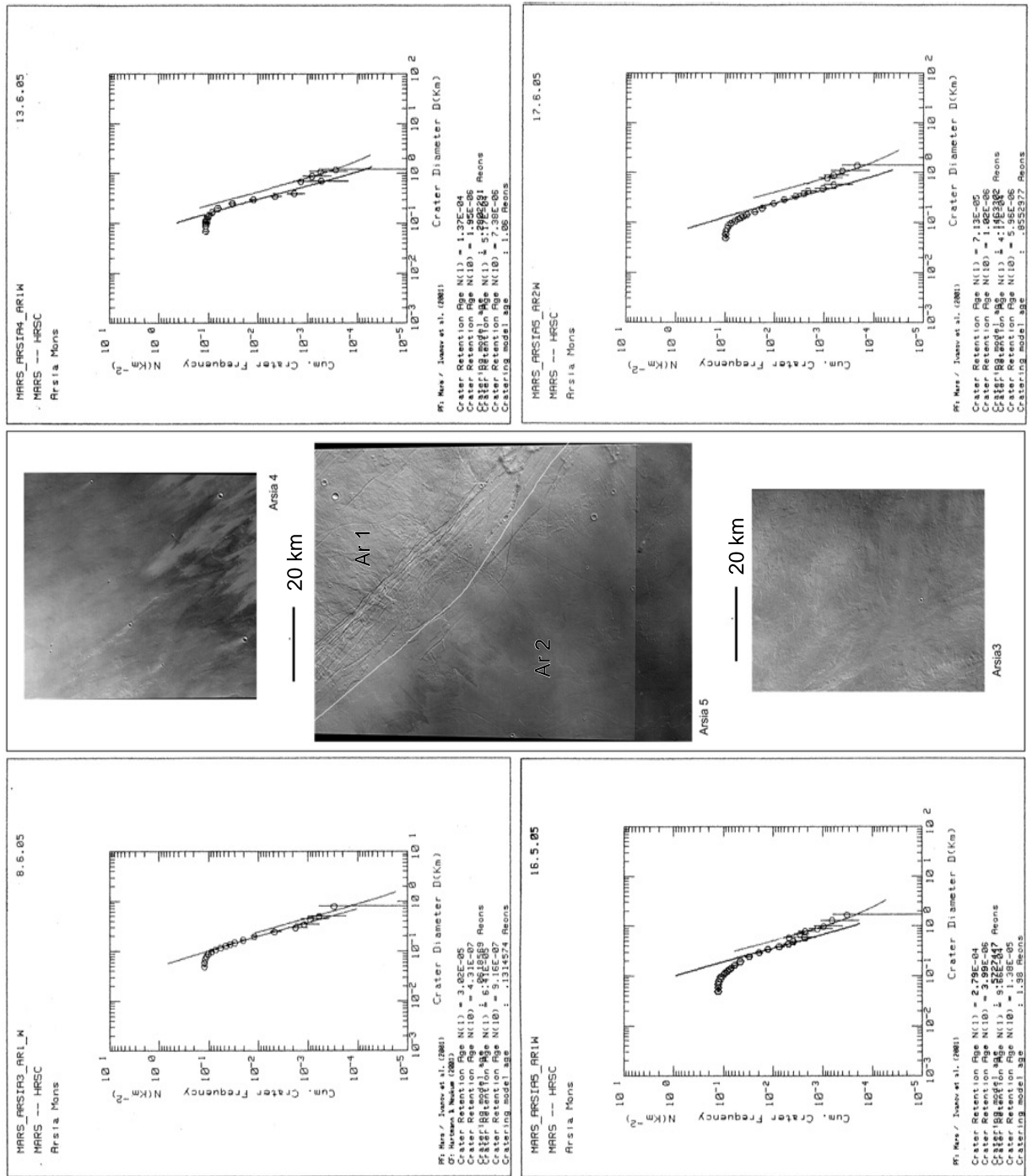


Figure B.9.: Resulting Crater Size–Frequency Distributions for Arsia Mons flanks.

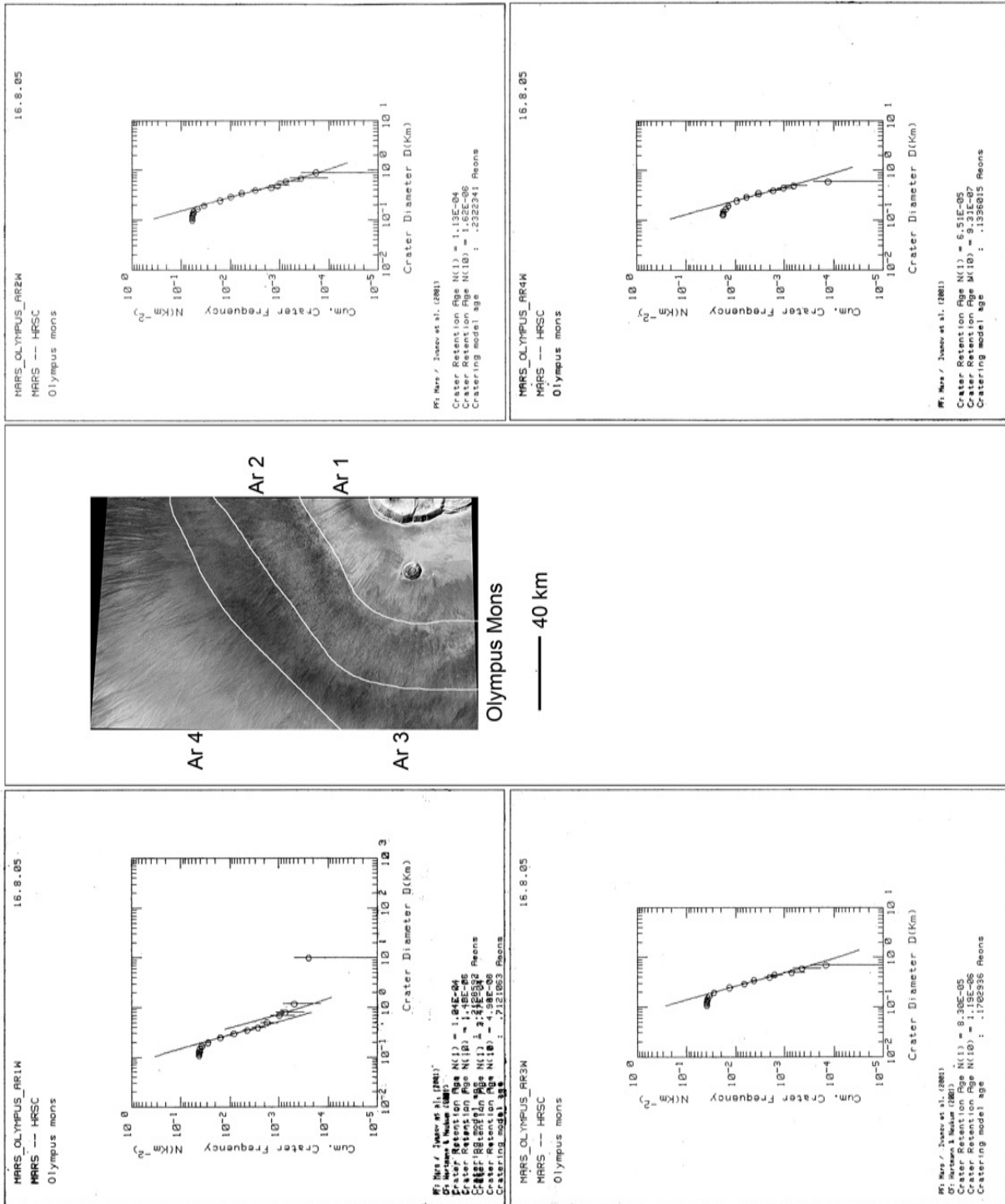
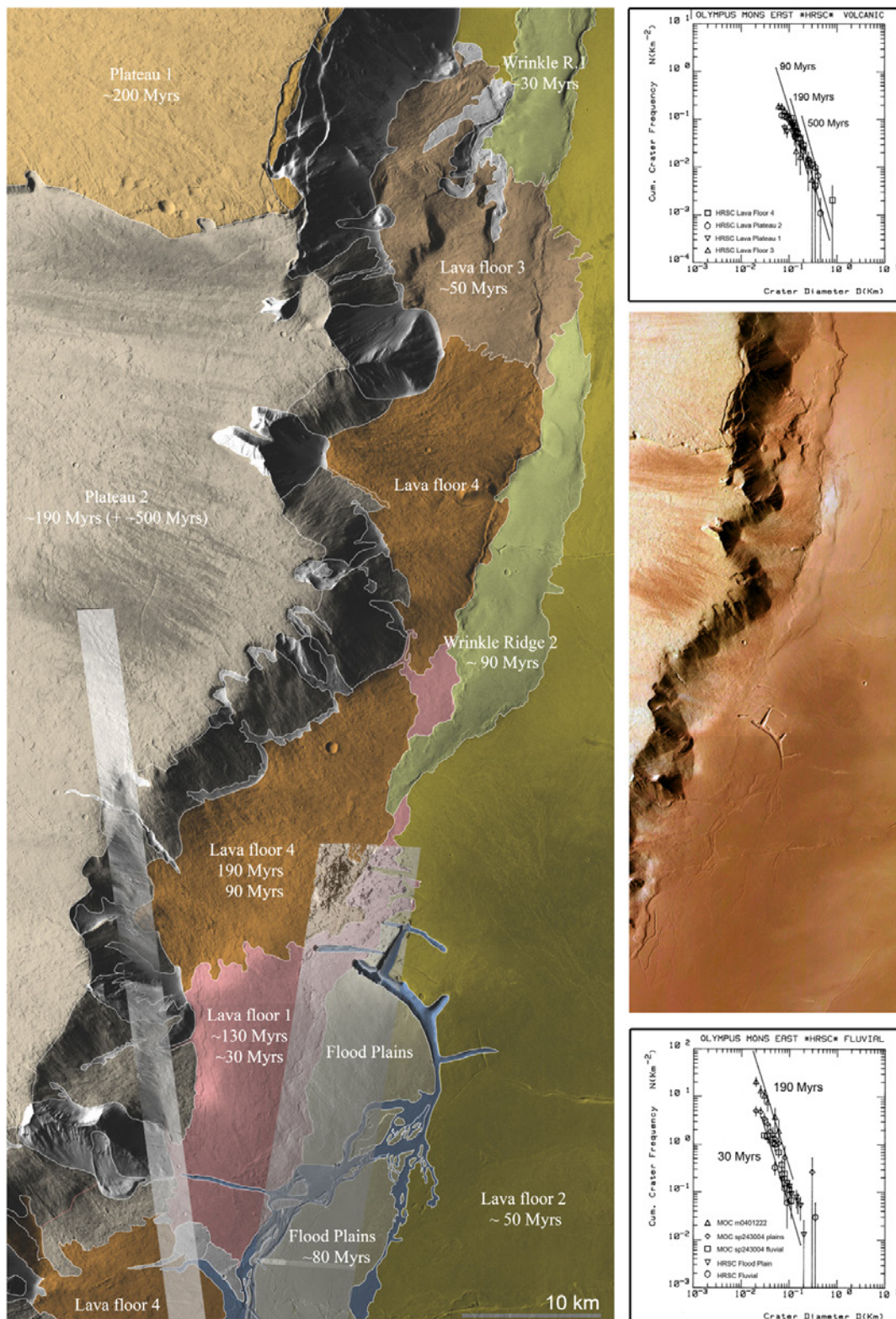


Figure B.10.: Resulting Crater Size-Frequency Distributions for Olympus Mons flanks.

## Results of the Crater Size Frequency Measurements of Olympus Mons

Geological Sub–Unit	$N_{cum}(1km)$	Age in Ga*	Comment
Olympus Mons Caldera Ages			
HRSC_o143_cal1	6.49e-5	0.133	
HRSC_o143_cal2	1.05e-4	0.215	
HRSC_o143_cal3	4.95e-5	0.101	
HRSC_o143_cal4	8.15e-5	0.167	
HRSC_o143_cal5	9.77e-5	0.2	
Flank and Plateau Ages			
HRSC_o143_rem	1.31e-2/3.82e-4	3.83/0.783	
HRSC_o143_kipukas	2.00e-3	3.34	
HRSC_o143_pla1	2.59e-5	0.053	
HRSC_o143_pla2	3.95e-5/9.54e-6	0.081/0.0195	
HRSC_o143_pla1+2	3.21e-5	0.0658	
HRSC_o143_pla3	2.17e-4/9.42e-5	0.445/0.193	
HRSC_o143_pla4	5.24e-5	0.107	
HRSC_o143_pla3+4	2.01e-4/6.37e-5	0.413/0.130	
HRSC_o143_pla5	9.56e-5	0.196	
E04/01135_Ar2	1.92e-5/4.68e-6	0.039/0.009	in rem
E10/03602_Ar2	7.53e-5	0.155	in rem and plat3+4 (resurfacing)
E10/03602_Ar1	4.82e-5	0.1	in pla5
E12/01820_Ar2	5.94e-5	0.122	
HRSC_o143_lava1	1.25e-5	0.025	
HRSC_o143_lava2	5.62e-5	0.115	
E10/00828_Ar1	1.67e-5/1.18e-6	0.034/0.0024	in lava1
Possible Ice Cap Ages			
E11/02748_Ar1	1.10e-4/9.81e-6	0.225/0.020	
_Ar2	3.32e-5	0.068	
_Ar1+2	1.00e-4/1.29e-5	0.205/0.026	
E10/02389_Ar1	1.06e-5	0.022	
_Ar2	1.65e-5	0.034	
_Ar3	1.31e-5	0.027	
_Ar1-3	1.08e-5	0.022	
Surfacial fan-shaped deposits (As); possible rock glacier			
HRSC_o143_As(0)	1.25e-4/6.30e-5	0.257/0.130	around 22N
HRSC_o143_As1(0)south	8.74e-5	0.179	
HRSC_o143_As2(0)north	1.38e-4	0.283	
HRSC_o143_As1(2)	1.29e-5	0.026	around 19N, second measurement
HRSC_o143_As2(2)	1.74e-6	0.004	
HRSC_o143_As3(2)	7.08e-5	0.145	
HRSC_o143_As4(2)	5.45e-4	1.14	!Kipukas
HRSC_o143_As6(2)	2.01e-5	0.041	?Kipukas
HRSC_o143_As4+6	2.22e-4	0.455	
HRSC_o143_As5(3)	1.36e-4/7.36e-6	0.278/0.015	around 17°N
E02/00289_Ar1	3.24e-5/1.63e-5	0.066/0.033	in As(0) and As1(0)
E03/02540_Ar1	2.24e-5	0.046	in As(0) and As2(0)
E04/01135_Ar1	1.93e-4	0.396	in As(0) and As2(0) possibly pits
M12/00197_Ar2	8.34e-6/3.98e-6	0.017/0.008	in As3(2)
_Ar3	2.03e-5/4.69e-6	0.042/0.009	in As2(2)
_Ar4	2.14e-6	0.004	in As2(2)
M04/01782_Ar2	2.58e-5	0.053	in As2(0)
_Ar3	2.72e-5	0.056	
_Ar4	4.36e-5	0.09	
_Ar2-4	2.60e-5	0.053	
_Ar5	1.17e-4	0.240	
E13/01204_Ar1	2.49e-5	0.050	in As1(0)
R01/01050_Ar1	3.66e-5/1.27e-5	0.075/0.026	
_Ar2	2.76e-5	0.057	
E12/01820_Ar1	7.94e-5/1.06e-5	0.163/0.022	

\* billion years



**Figure B.11.:** The eastern scarp region of Olympus Mons. Left: the mapped regions and the unit ages (map provided by S. van Gasselt, 2005). Right: The measured crater size–frequency distributions for the volcanic units (top) and of possibly fluvial origin (bottom).

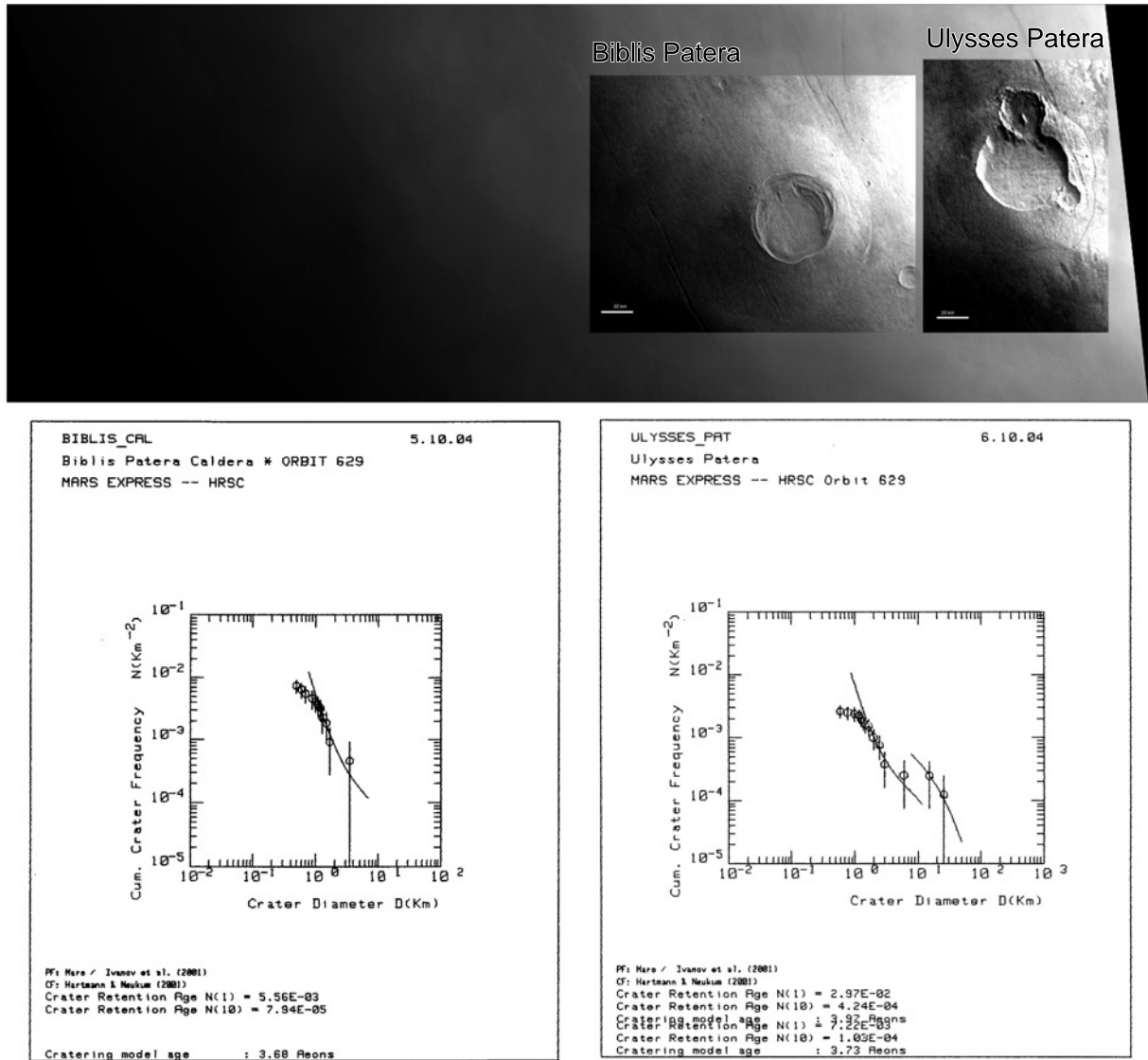


Figure B.12.: Resulting Crater Size–Frequency Distributions for Biblis Patera and Ulysses Patera flanks.

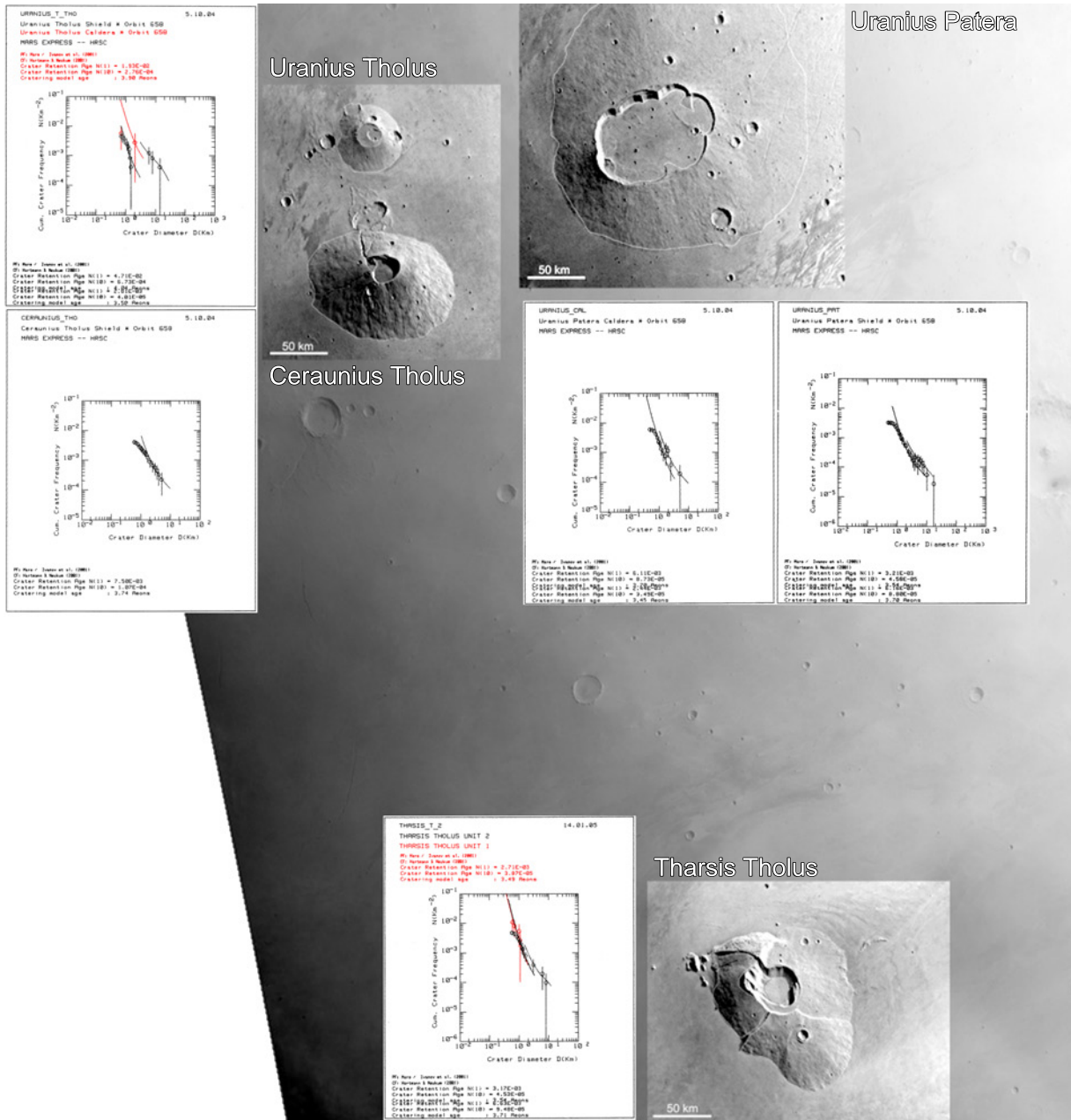


Figure B.13.: Resulting Crater Size–Frequency Distributions for tholi and paterae northeastern of the Tharsis Montes.

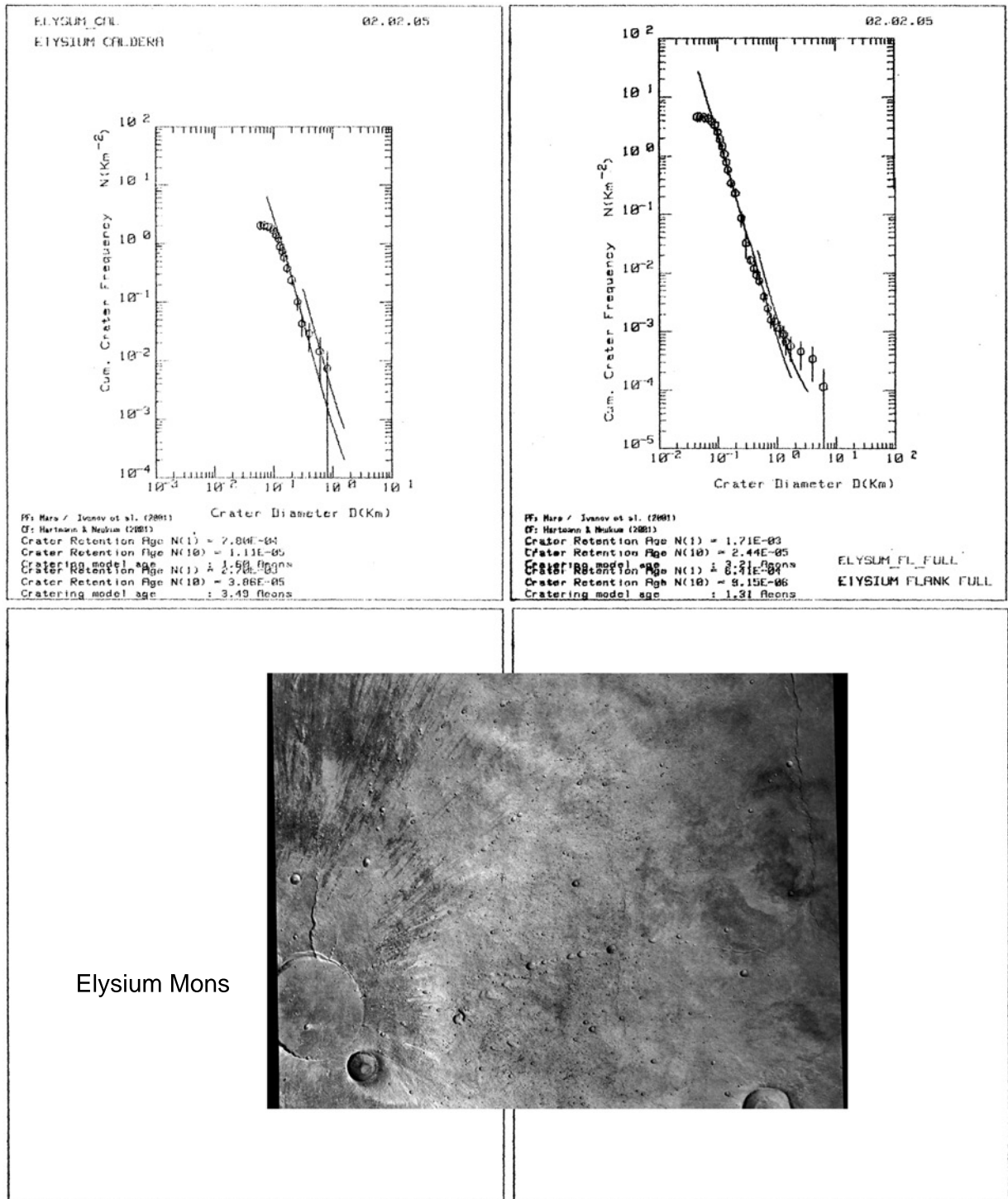


Figure B.14.: Resulting Crater Size–Frequency Distributions for Elysium Mons.



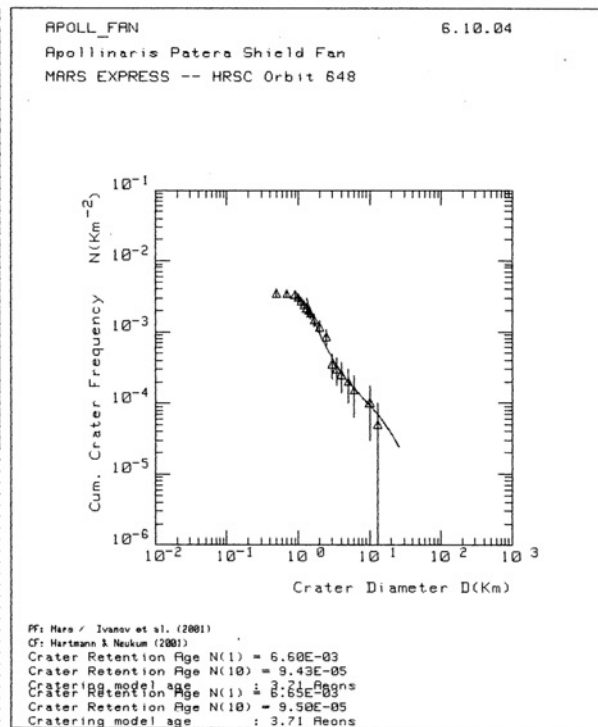
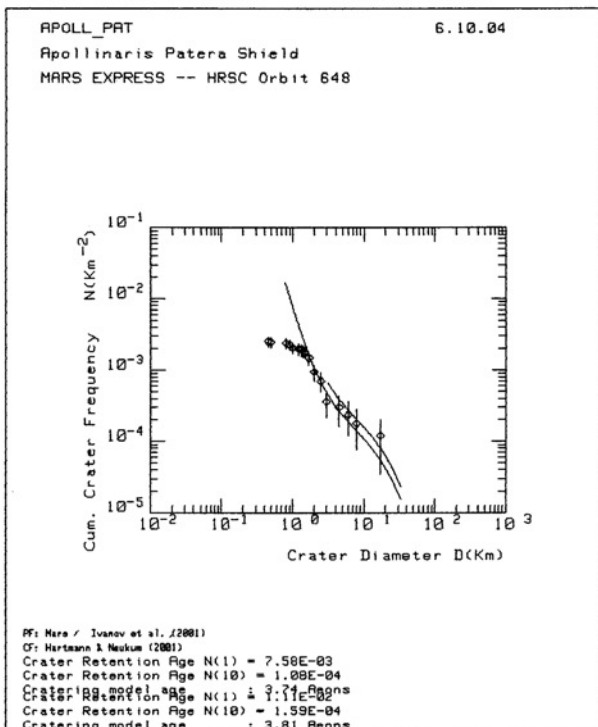
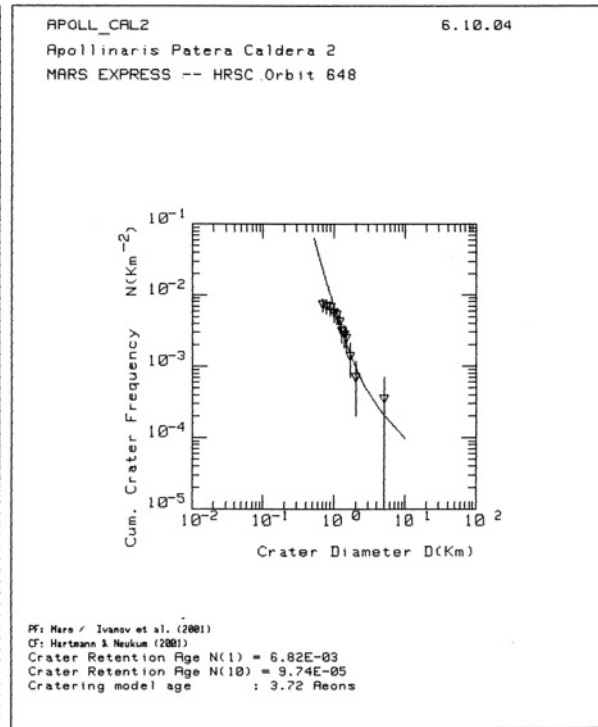
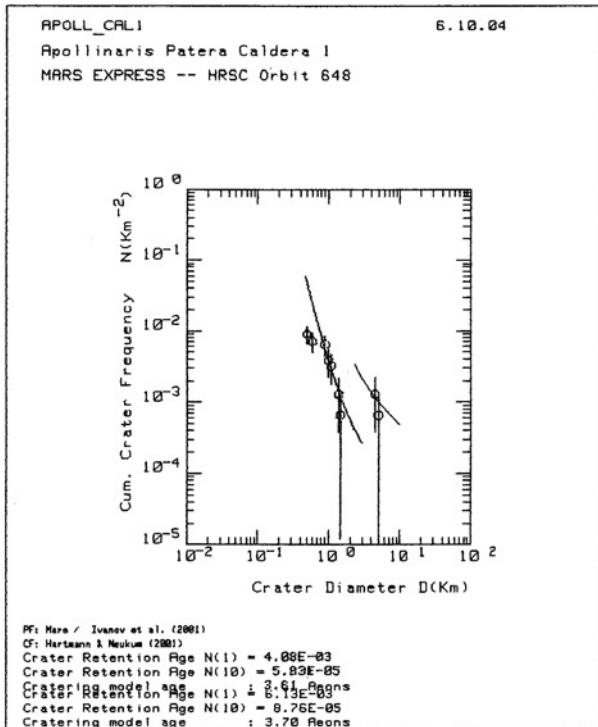


Figure B.15.: Resulting Crater Size-Frequency Distributions for Apollinaris Patera.

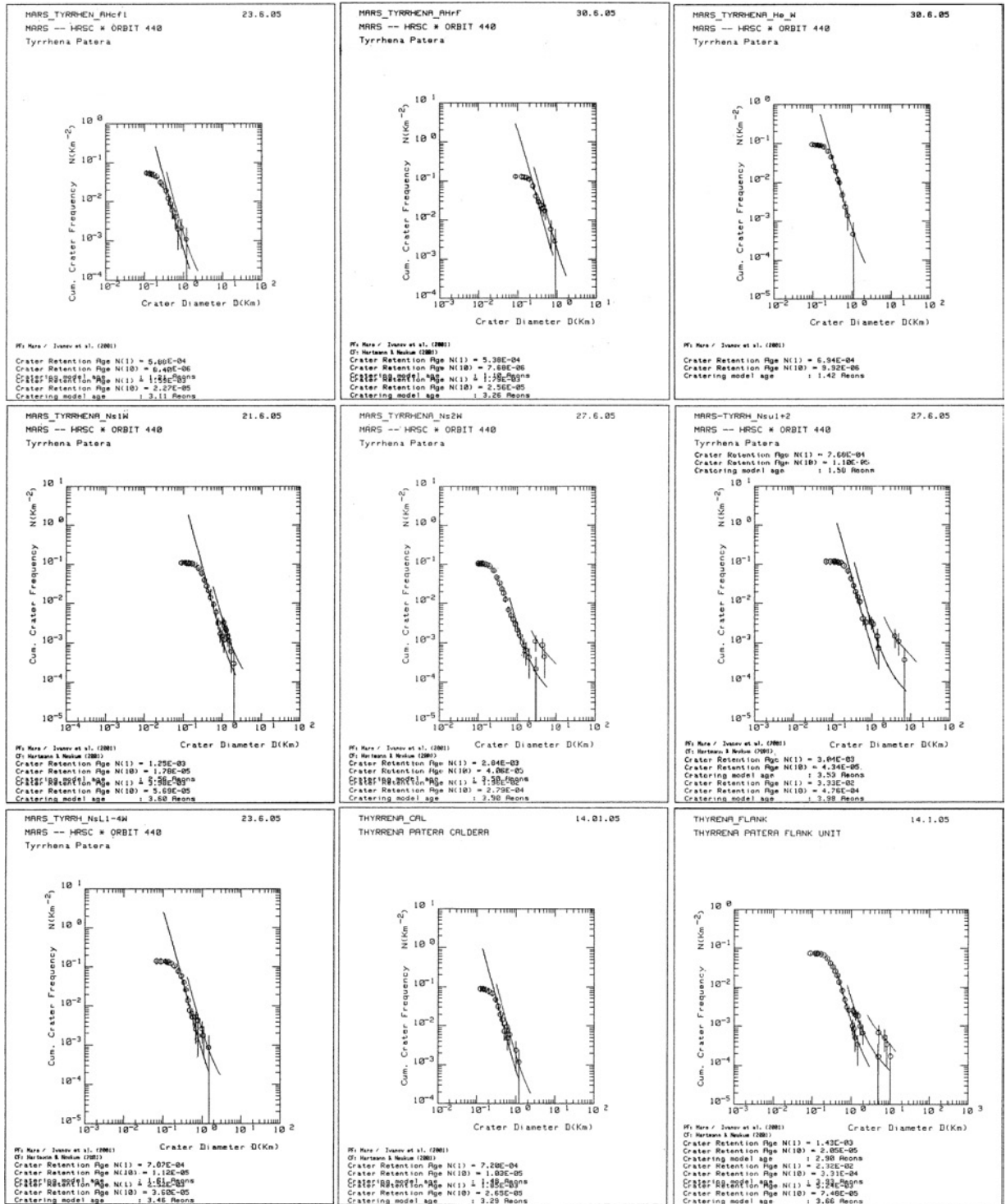


Figure B.16.: Resulting Crater Size–Frequency Distributions for Tyrrhena Patera.

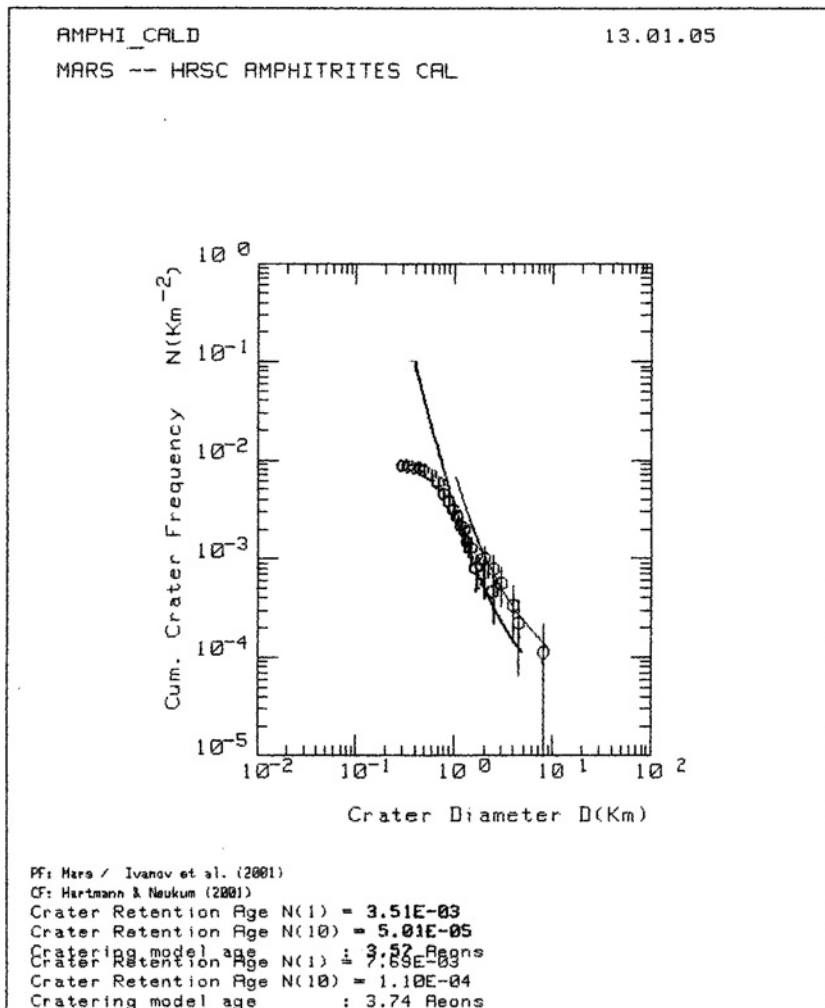


Figure B.17.: Resulting Crater Size-Frequency Distributions for Amphitrites Patera.

