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1 **Supporting Information for “Late Amazonian ice**
2 **survival in Kasei Valles, Mars”**

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6 **Contents of this file:**

7 Figure S1. Coverage of HRSC DEM in our study site.

8 Figure S2–S49. Impact crater size frequency distributions of GLDA depressions, mesas,
9 and the AHv lava flow. The same caption applies to these figures.

Corresponding author: A.J. Hepburn, adh28@aber.ac.uk

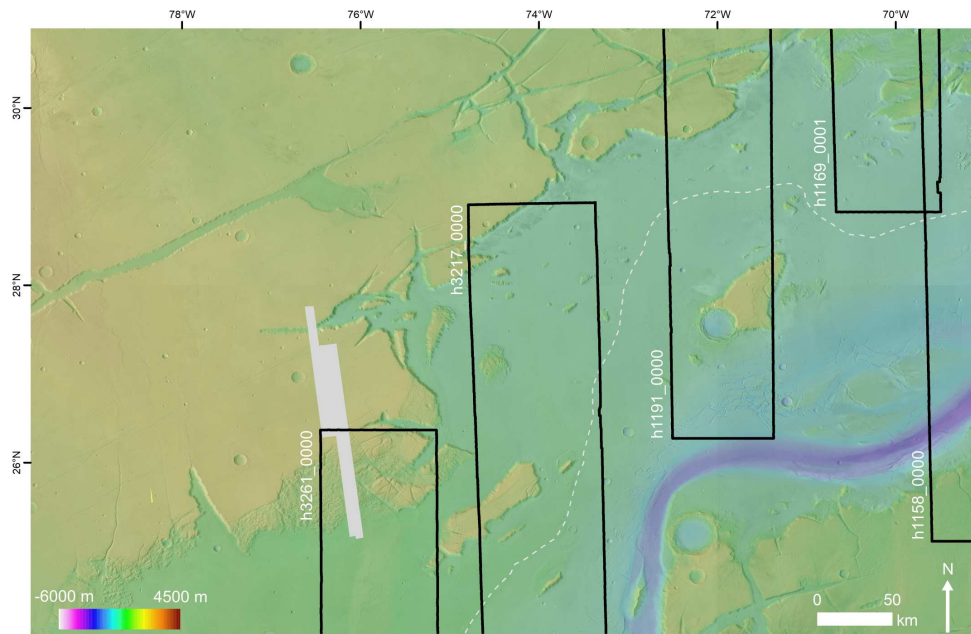


Figure S1. Coverage of HRSC DEM in our study site. HRSC scenes are marked by black polygons. Background colours show MOLA gridded topography in a equirectangular projection. Dashed white line indicates the approximate extent of the AHv lava flow. The grey irregular polygon indicates a gap in CTX coverage.

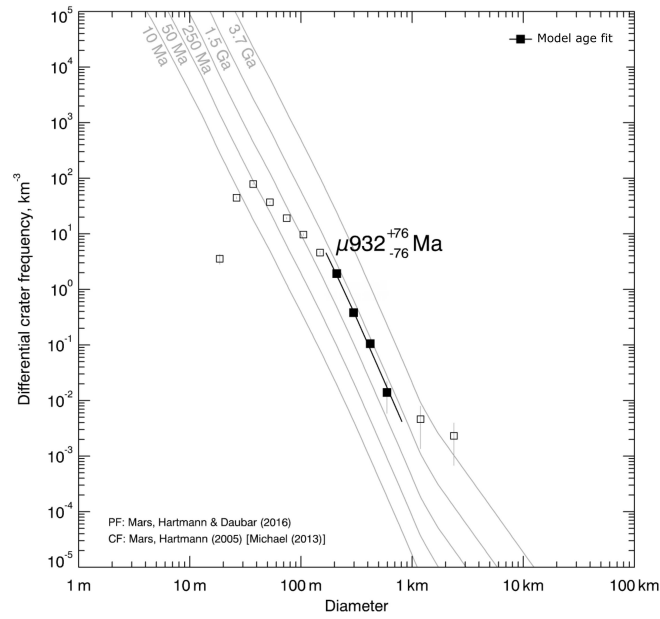


Figure S2. Impact crater size-frequency distributions of GLDA depression 1 and 18. Data points are derived from crater counts on CTX imagery. Grey curves outline the isochron system. Each line segment next to data points shown with solid symbols (having the same colour as the line) is a fitted isochron in our age determination procedure; the corresponding crater-diameter ranges are documented in Table 2 of the online repository linked to this paper.

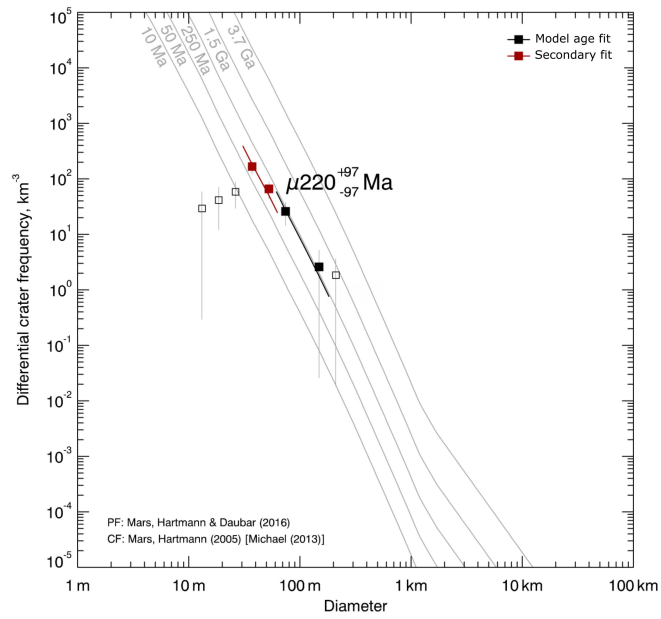


Figure S3. GLDA depression 2. See Figure S2 caption.

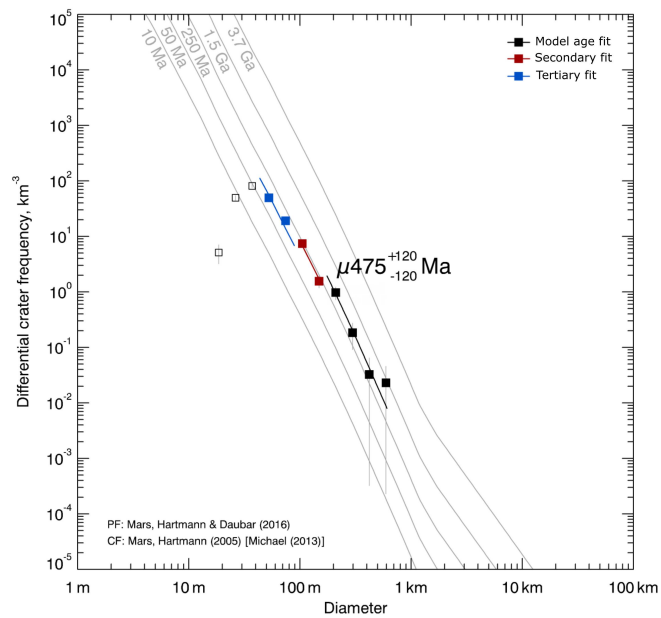


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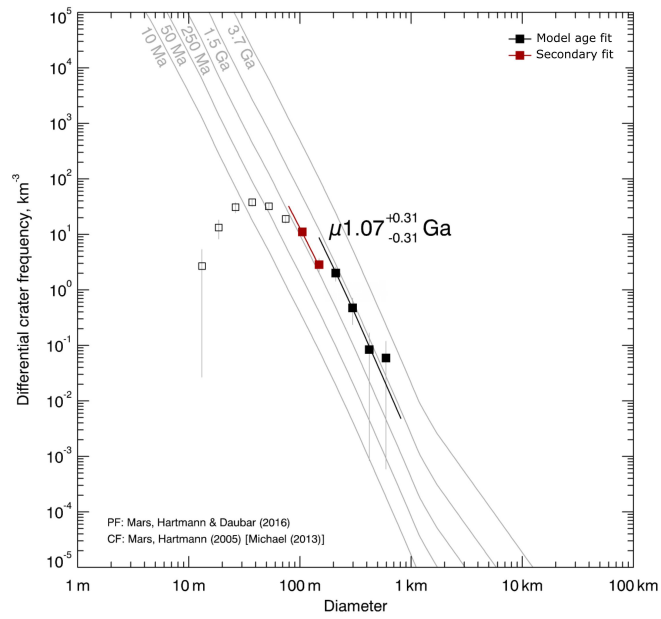


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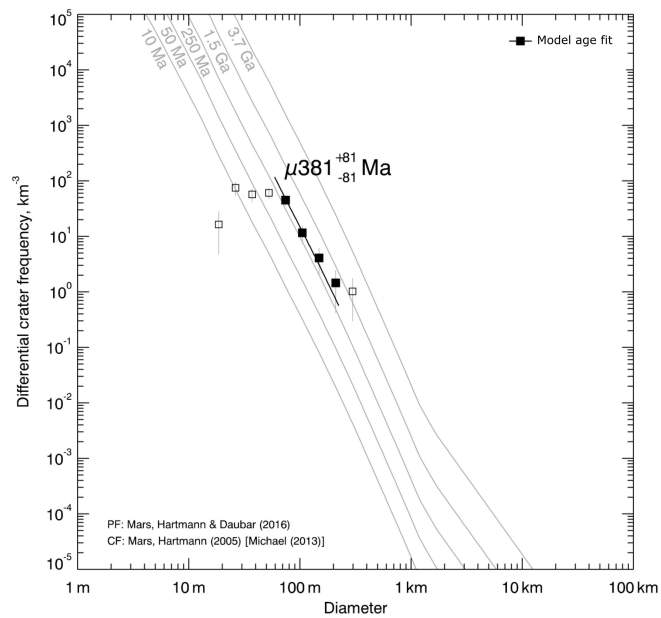


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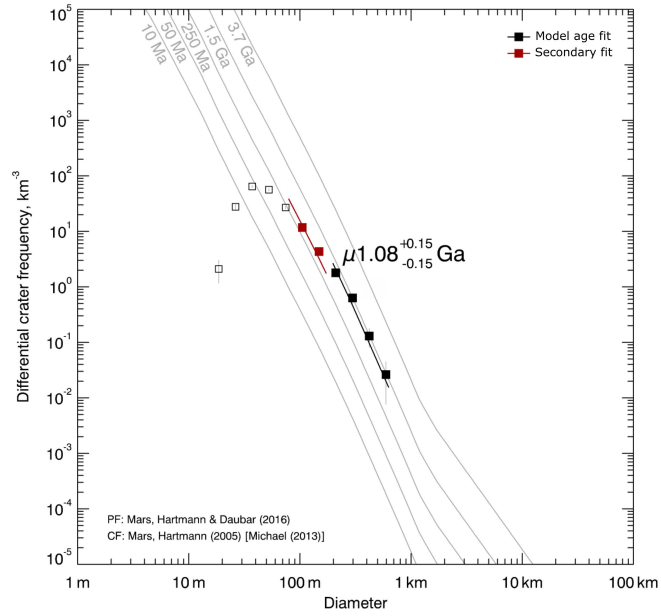


Figure S7. GLDA depression 6. See Figure S2 caption.

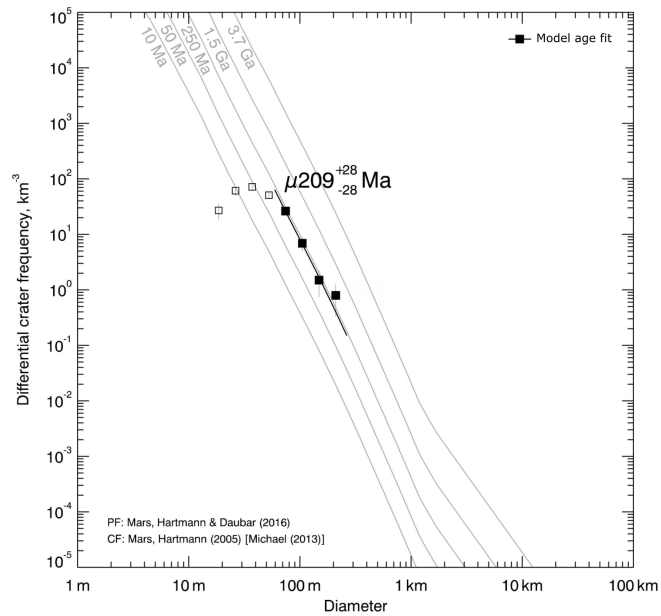


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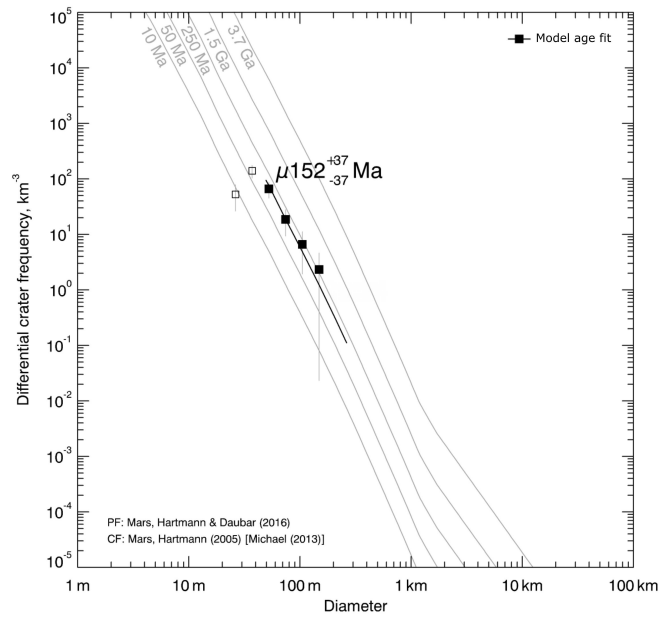


Figure S9. GLDA depression 8. See Figure S2 caption.

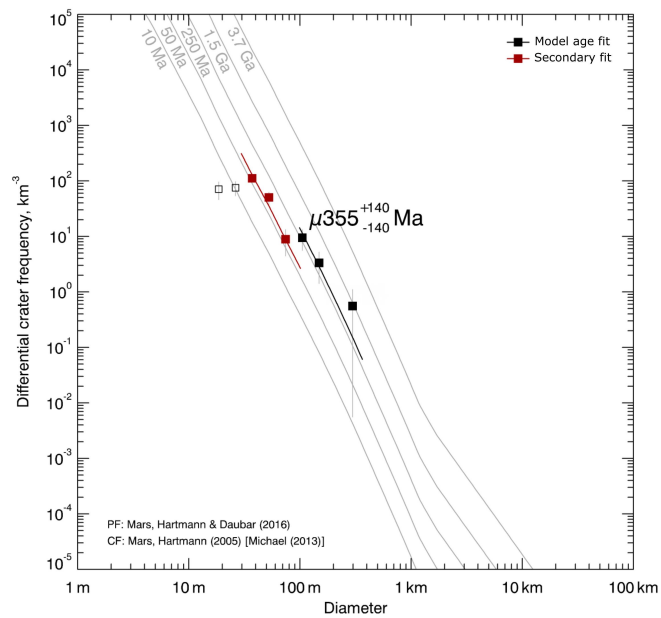


Figure S10. GLDA depression 9. See Figure S2 caption.

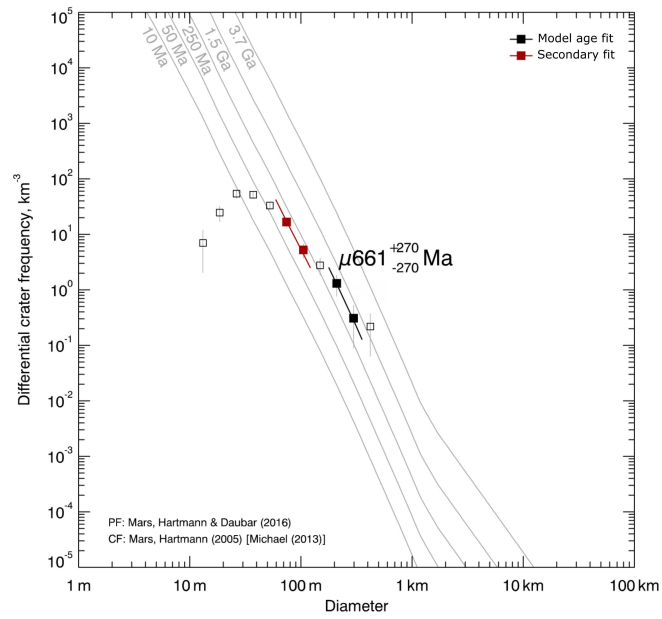


Figure S11. GLDA depression 10. See Figure S2 caption.

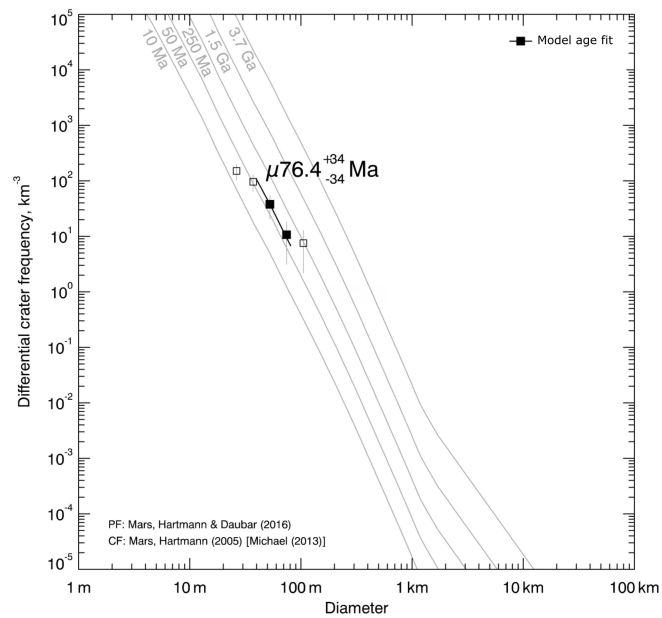


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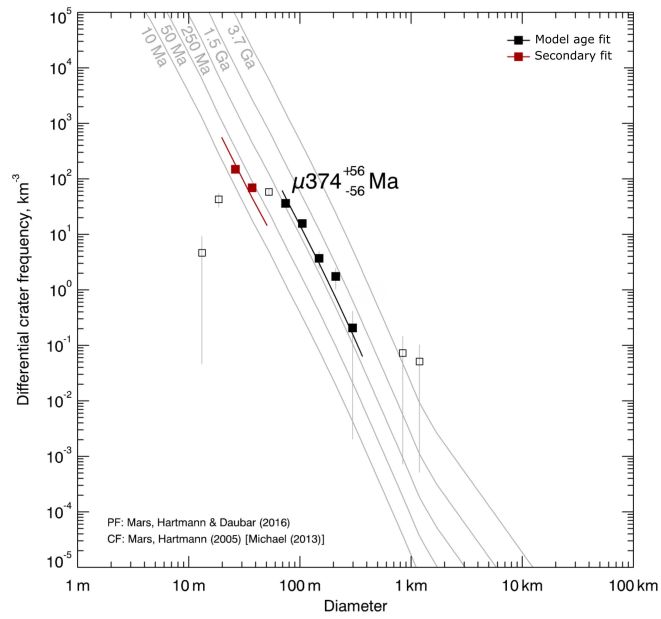


Figure S13. GLDA depression 12. See Figure S2 caption.

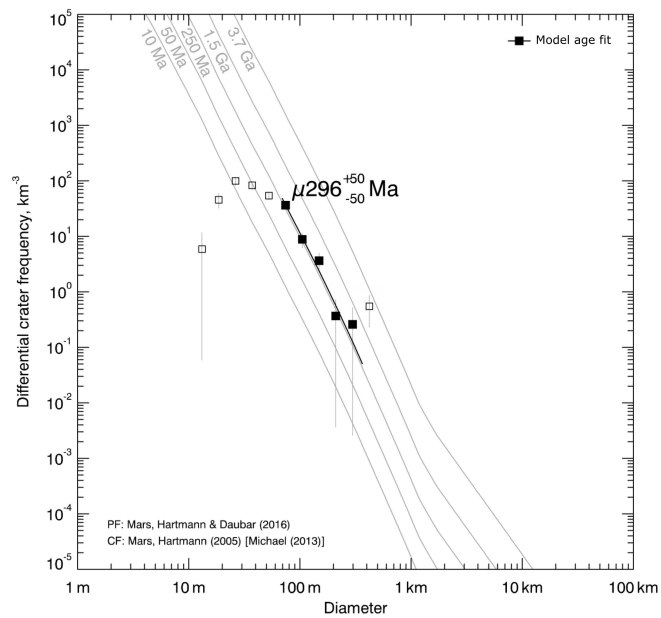


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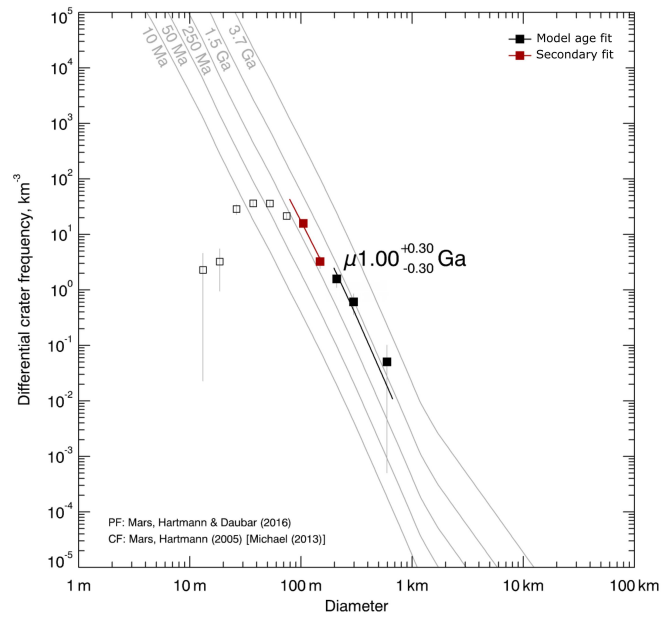


Figure S15. GLDA depression 14. See Figure S2 caption.

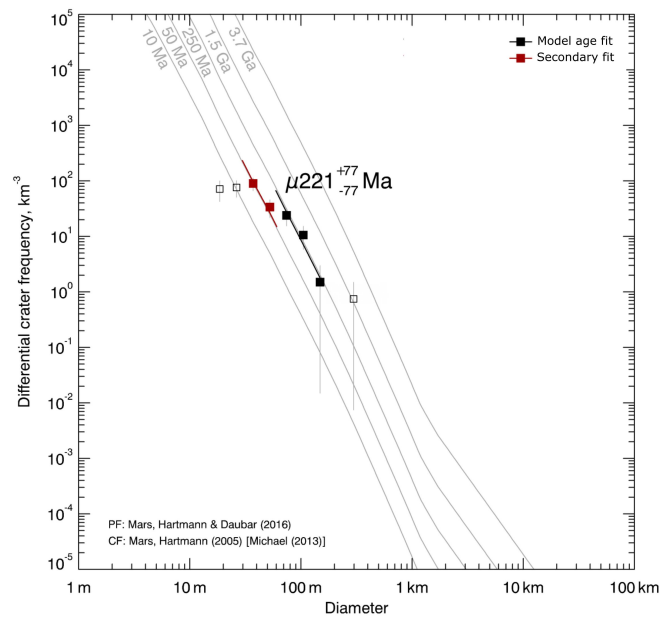


Figure S16. GLDA depression 15. See Figure S2 caption.

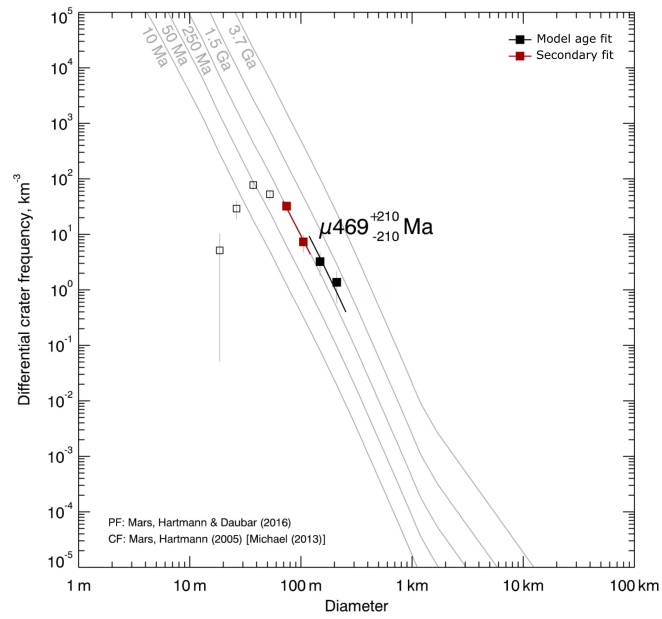


Figure S17. GLDA depression 16. See Figure S2 caption.

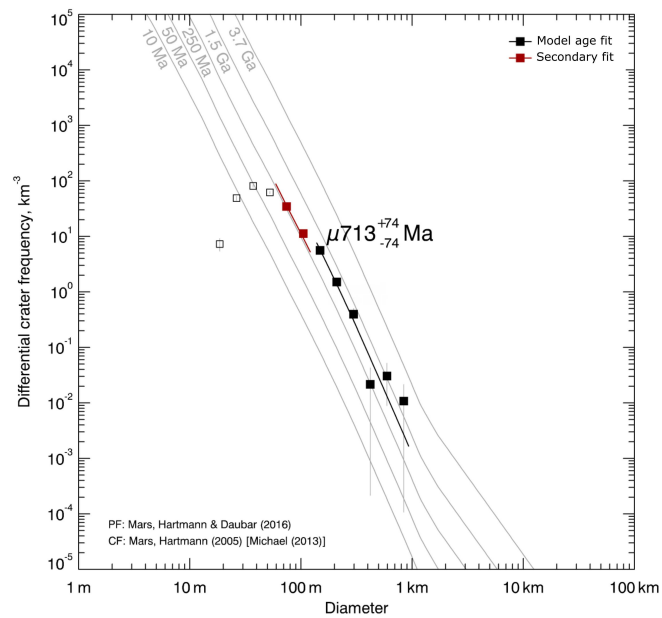


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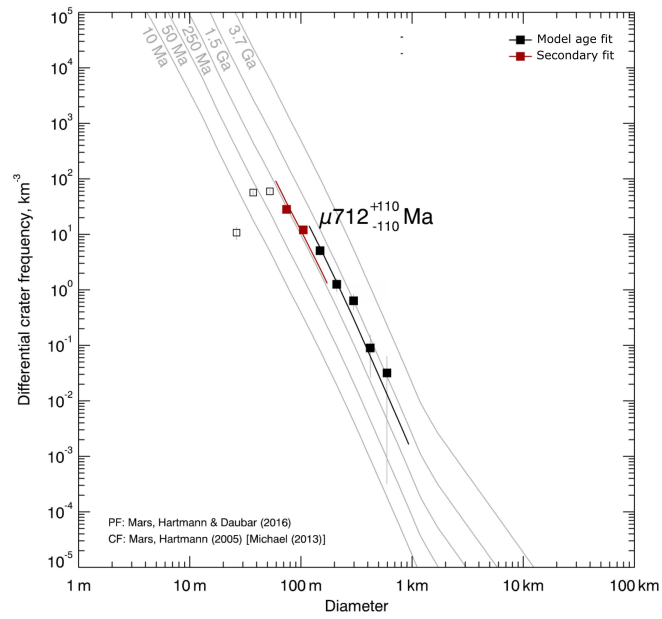


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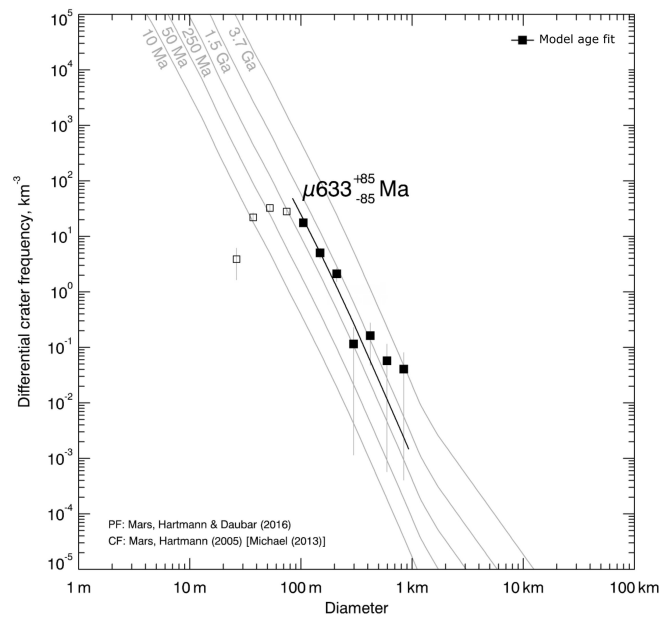


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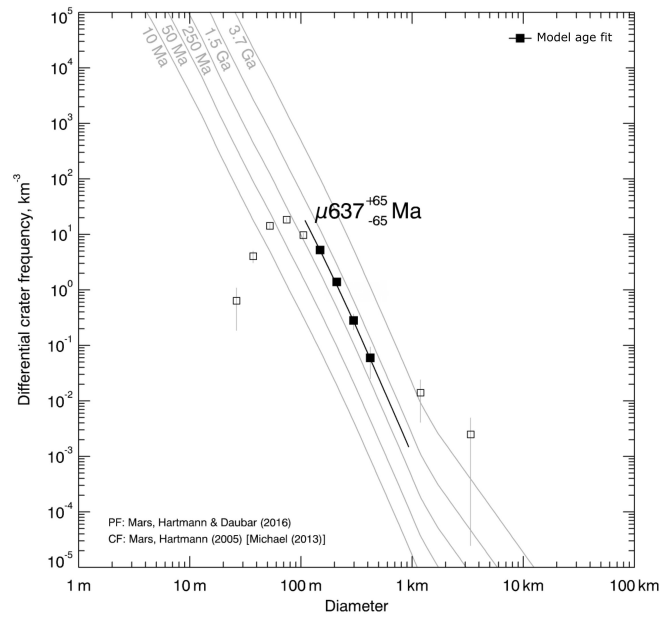


Figure S21. GLDA depression 21. See Figure S2 caption.

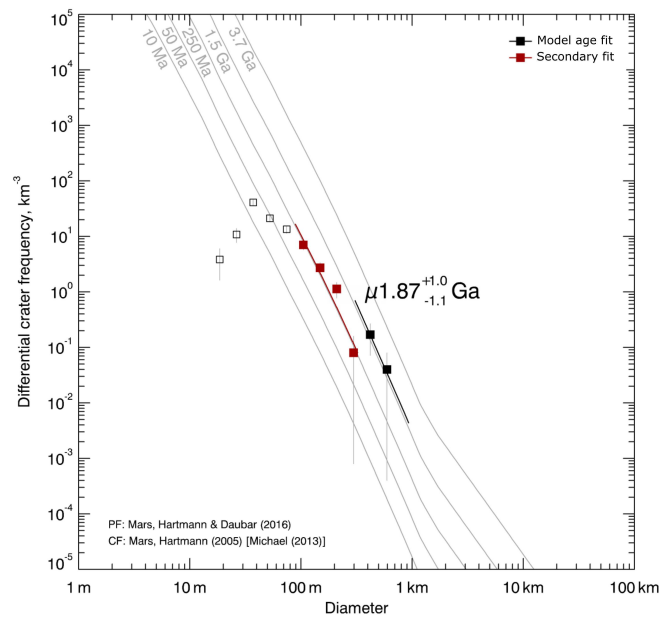


Figure S22. GLDA depression 22. See Figure S2 caption.

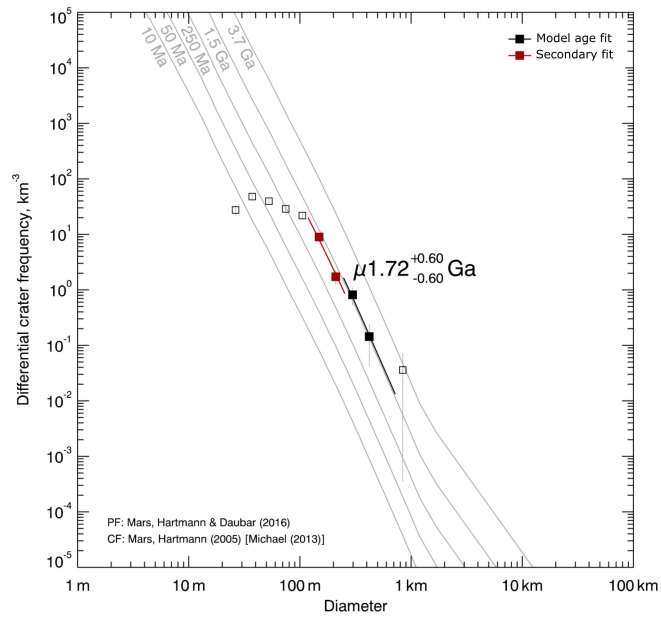


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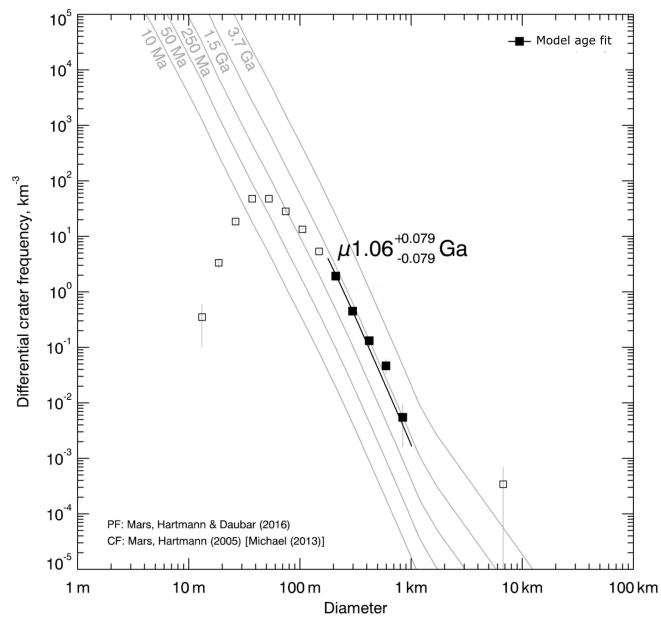


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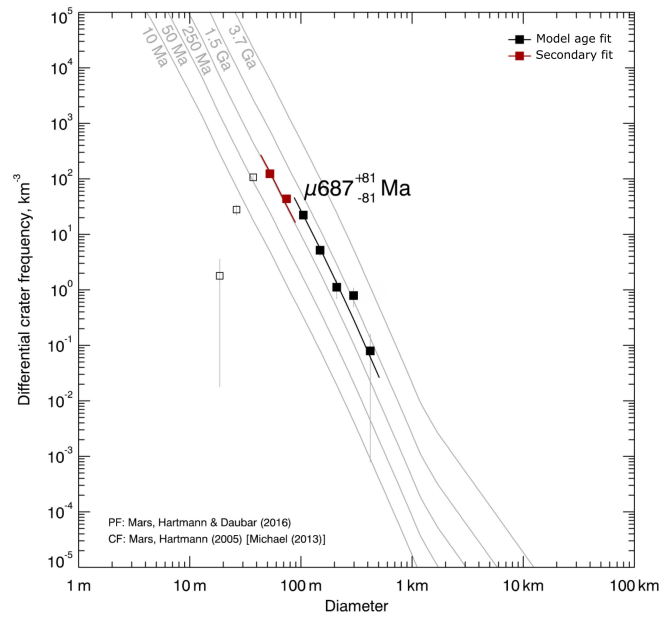


Figure S25. GLDA depression 25. See Figure S2 caption.

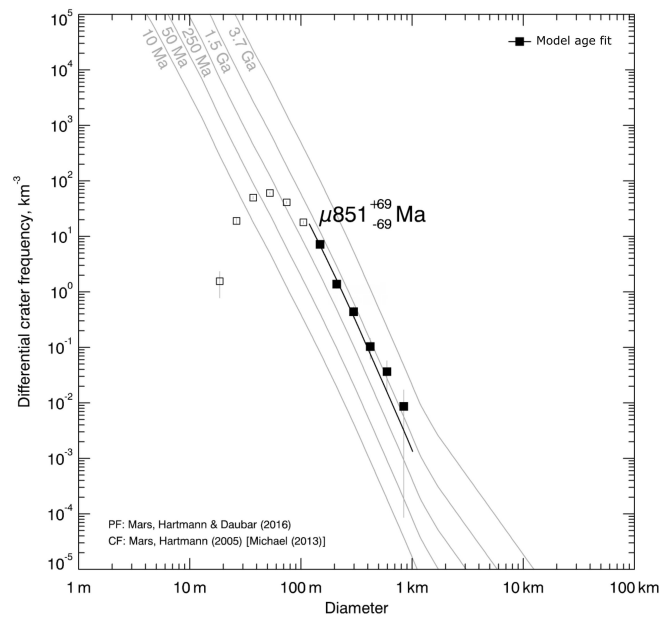


Figure S26. GLDA depression 26. See Figure S2 caption.

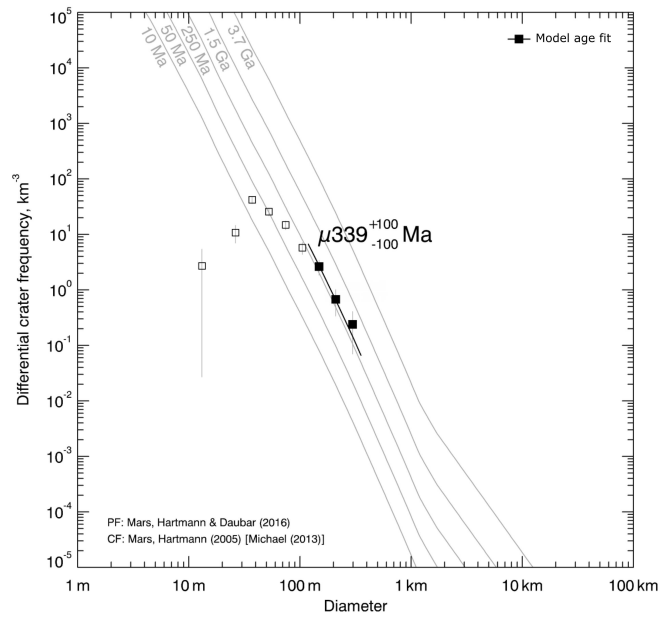


Figure S27. GLDA depression 27. See Figure S2 caption.

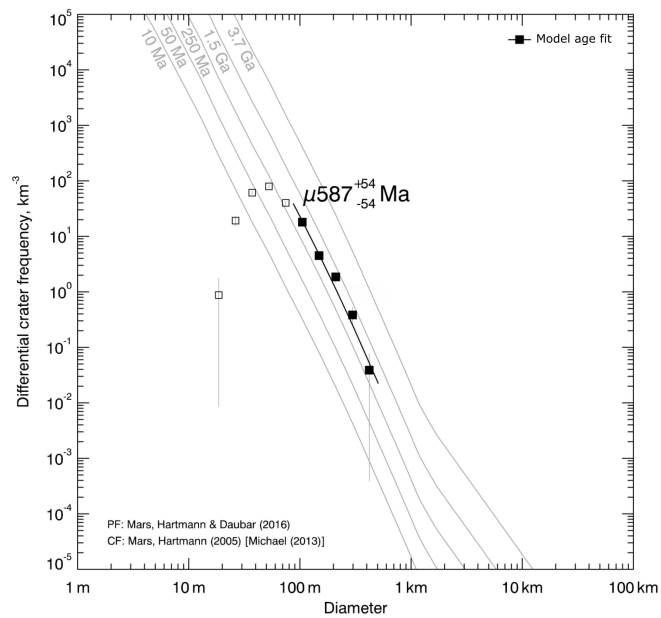


Figure S28. GLDA depression 28. See Figure S2 caption.

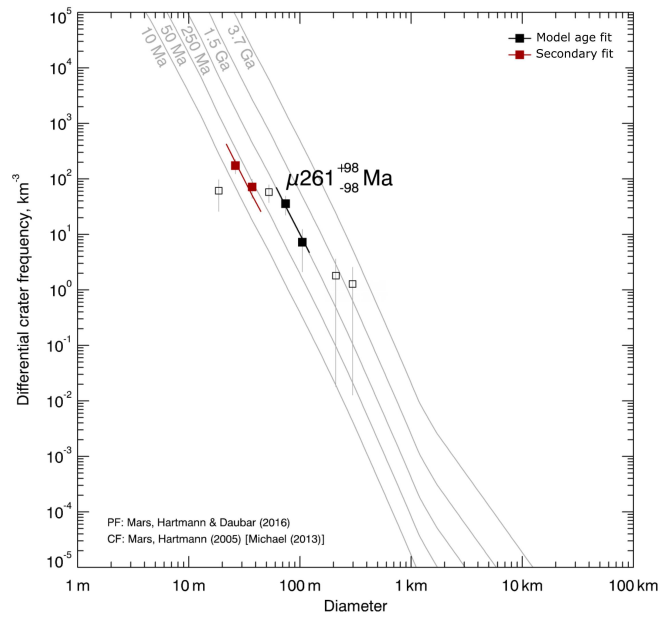


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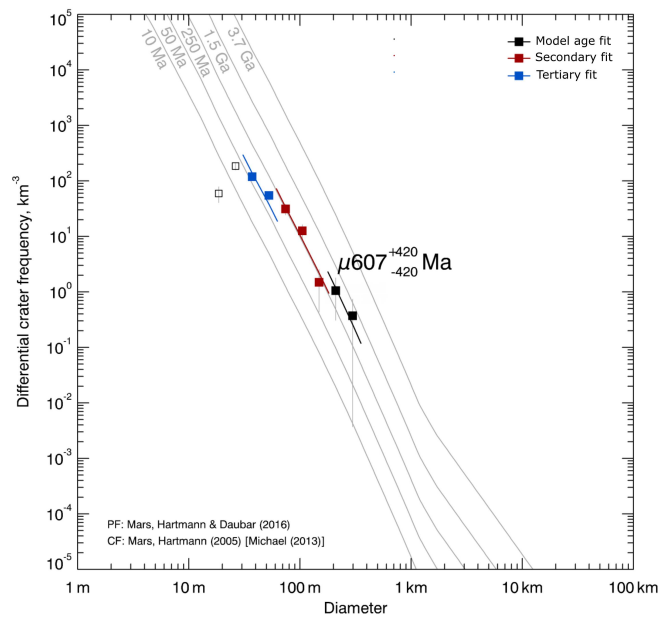


Figure S30. GLDA depression 30. See Figure S2 caption.

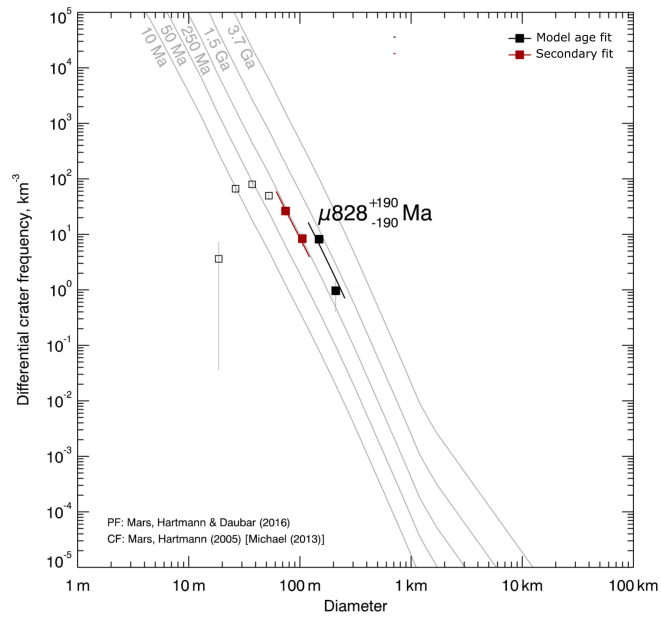


Figure S31. GLDA depression 31. See Figure S2 caption.

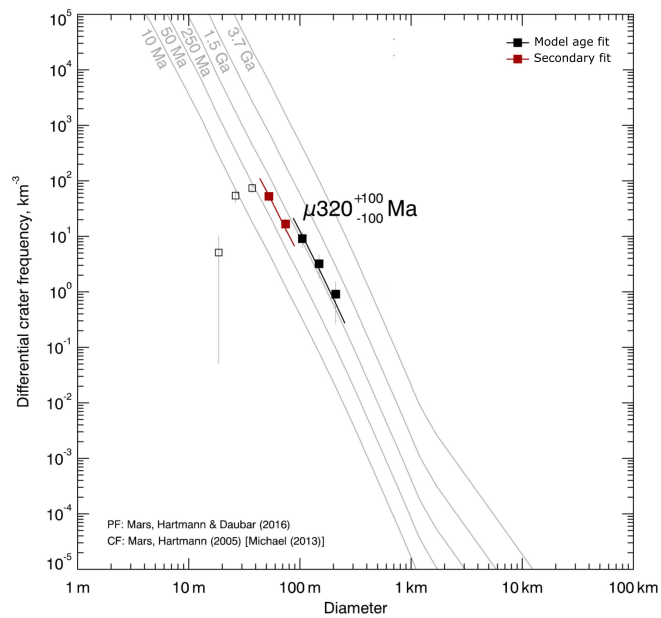


Figure S32. GLDA depression 32. See Figure S2 caption.

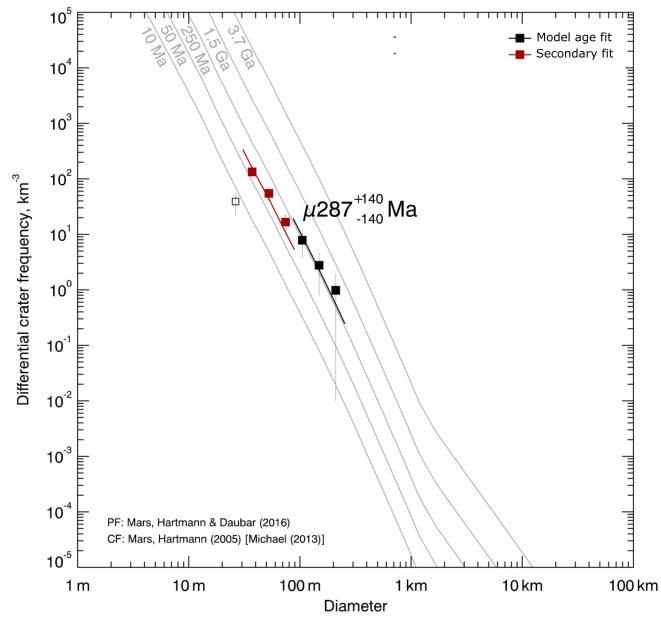


Figure S33. GLDA depression 33. See Figure S2 caption.

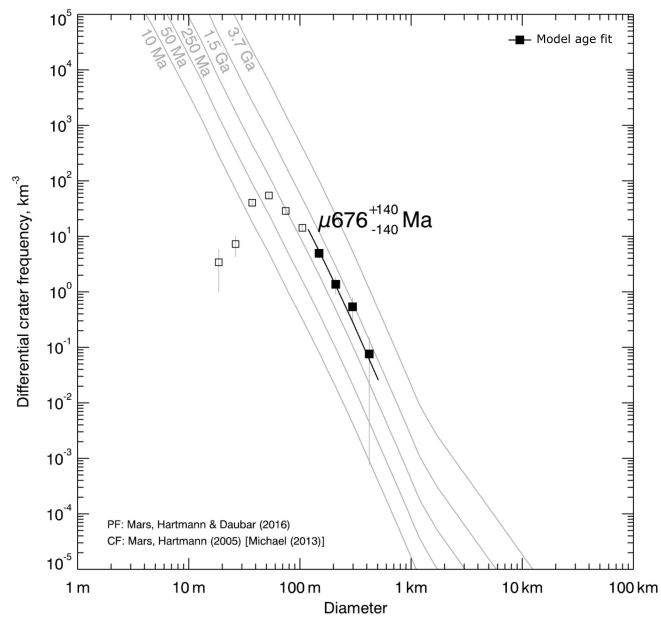


Figure S34. GLDA depression 34. See Figure S2 caption.

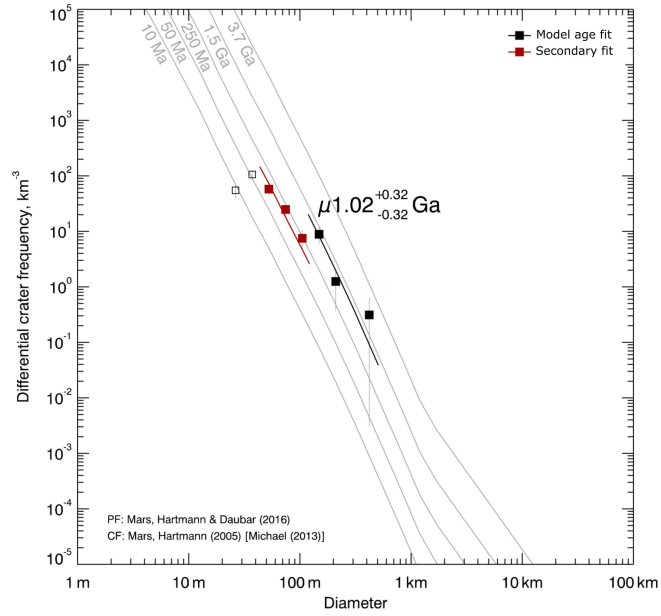


Figure S35. GLDA depression 35. See Figure S2 caption.

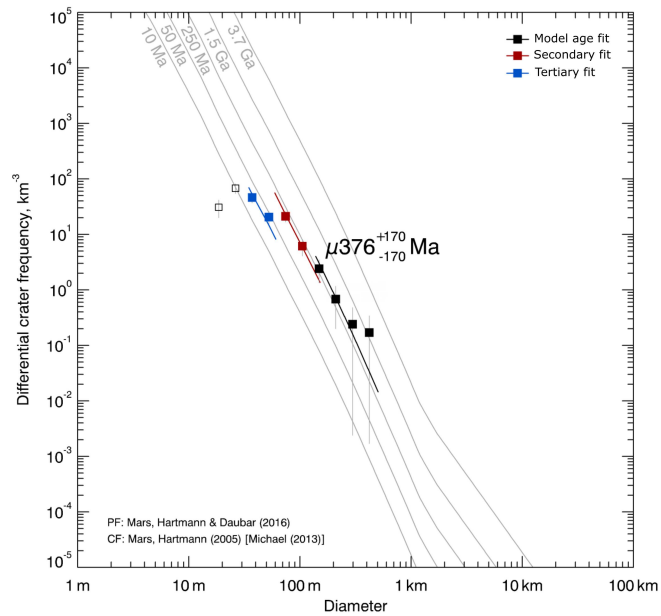


Figure S36. GLDA depression 36. See Figure S2 caption.

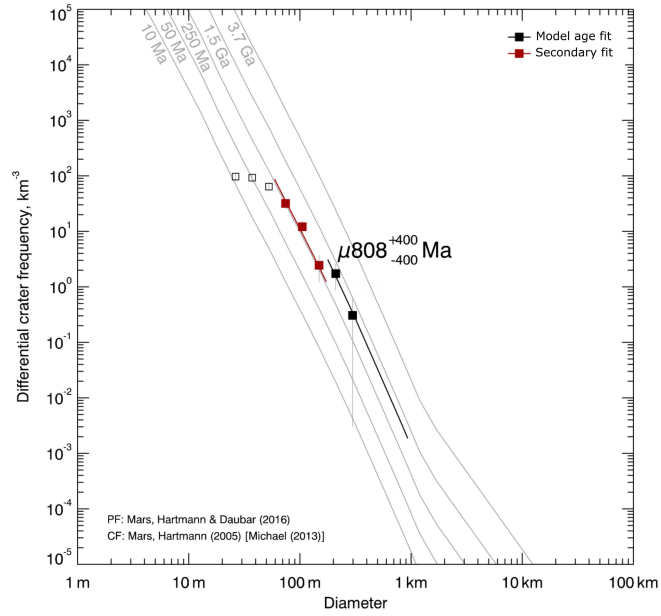


Figure S37. GLDA depression 37. See Figure S2 caption.

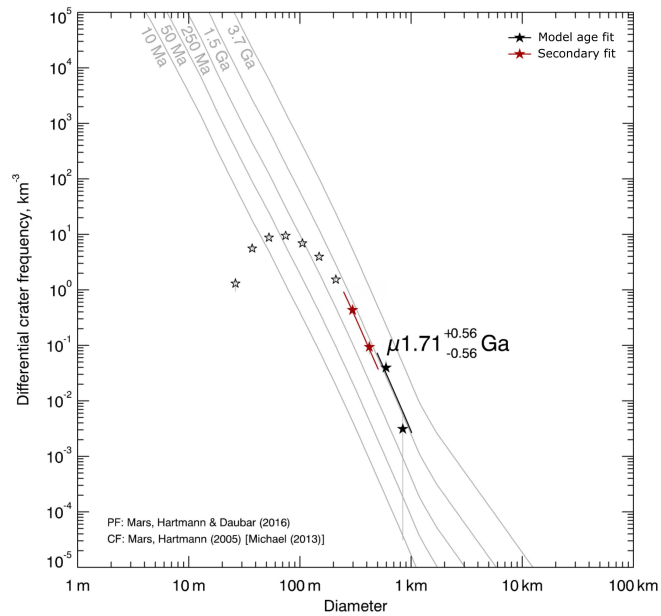


Figure S38. Mesa associated with GLDA depression 1. See Figure S2 caption.

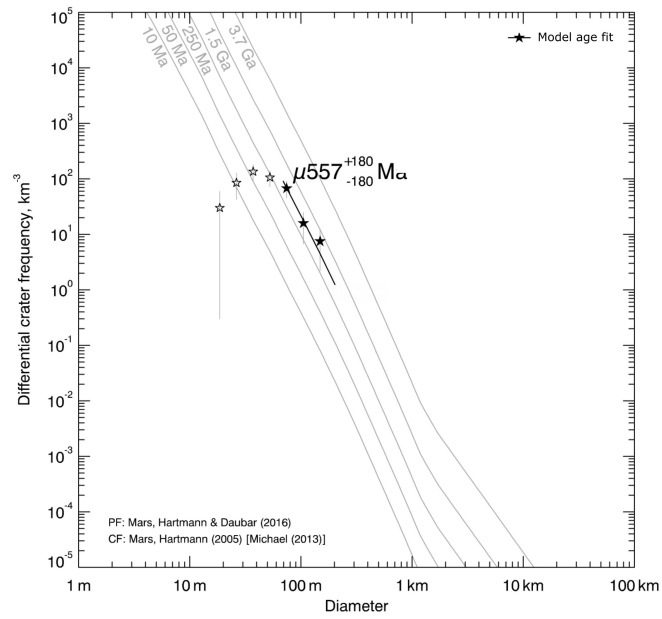


Figure S39. Mesa associated with GLDA depression 2. See Figure S2 caption.

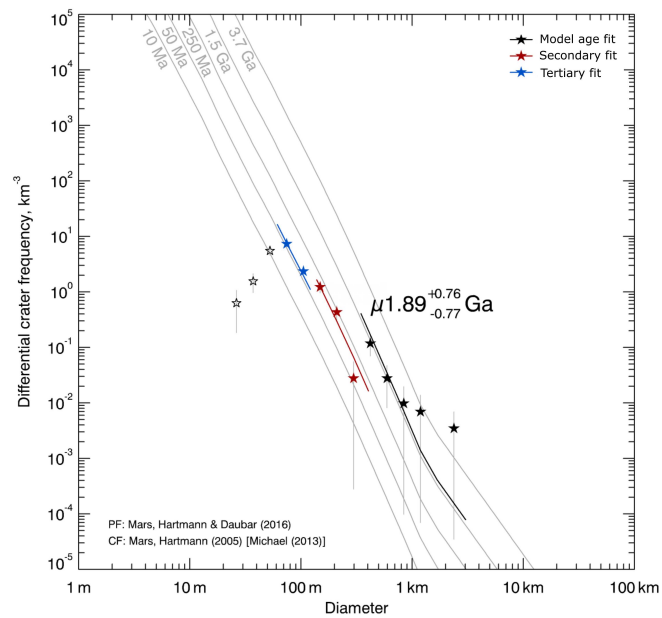


Figure S40. Mesa associated with GLDA depression 3. See Figure S2 caption.

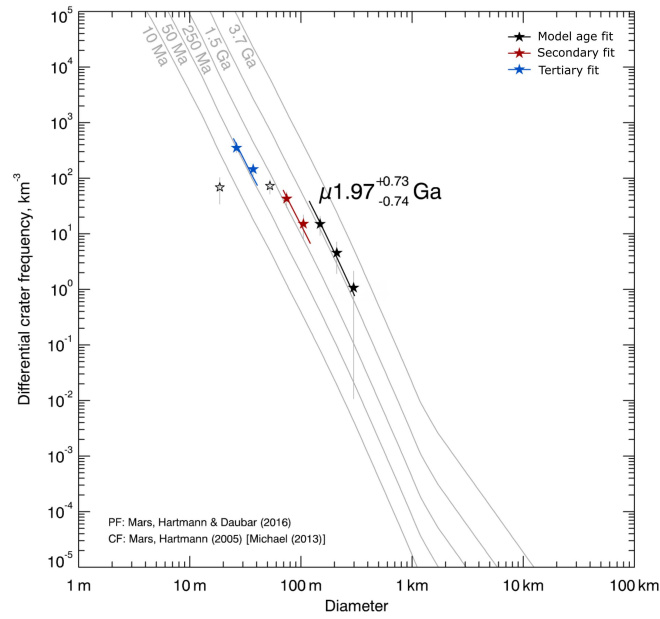


Figure S41. Mesa associated with GLDA depression 4. See Figure S2 caption.

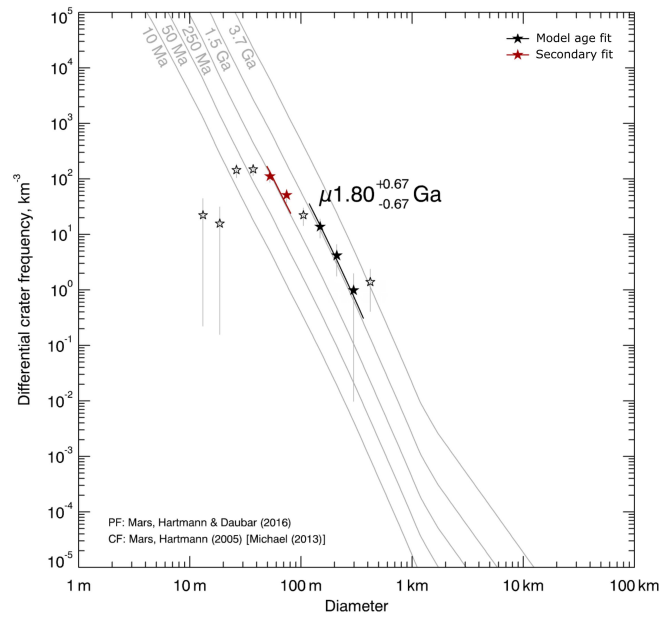


Figure S42. Northernmost mesa associated with GLDA depression 6. See Figure S2 caption.

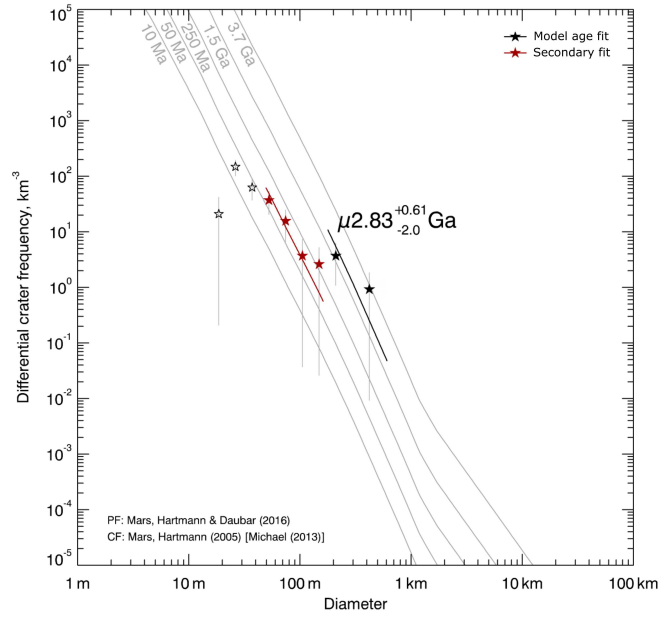


Figure S43. Southernmost mesa associated with GLDA depression 6. See Figure S2 caption.

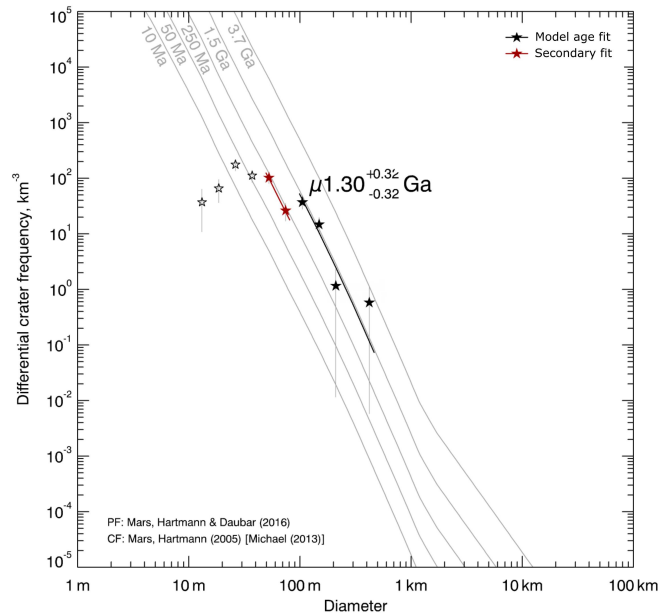


Figure S44. Mesa associated with GLDA depression 7. See Figure S2 caption.

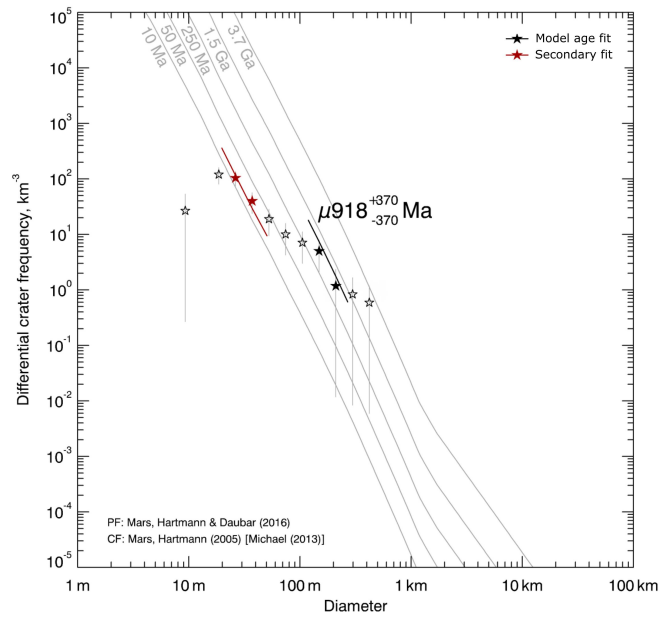


Figure S45. Mesa associated with GLDA depression 8. See Figure S2 caption.

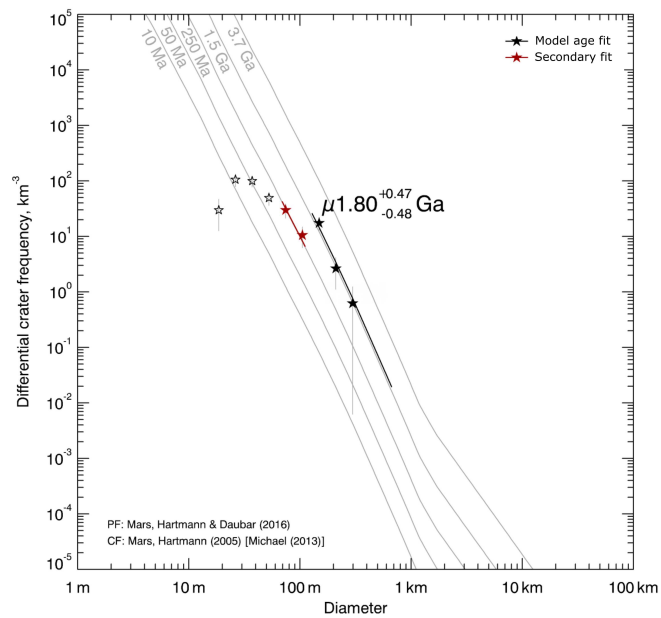


Figure S46. Mesa associated with GLDA depression 14. See Figure S2 caption.

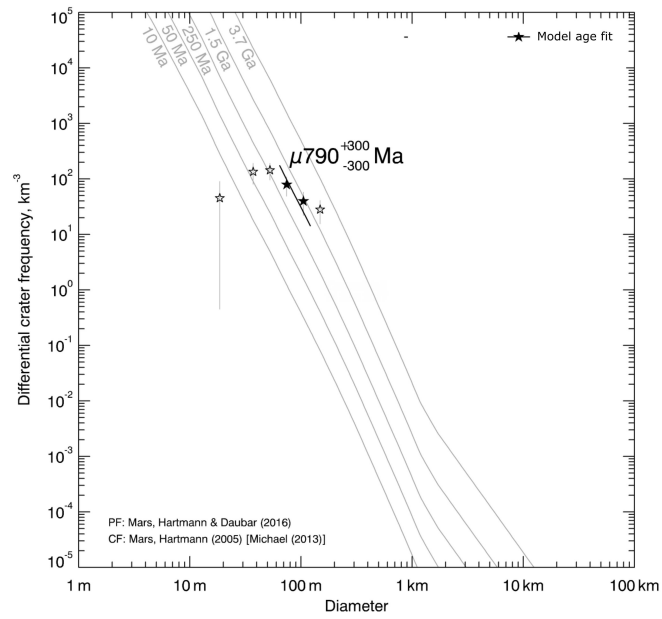


Figure S47. Mesa associated with GLDA depression 16. See Figure S2 caption.

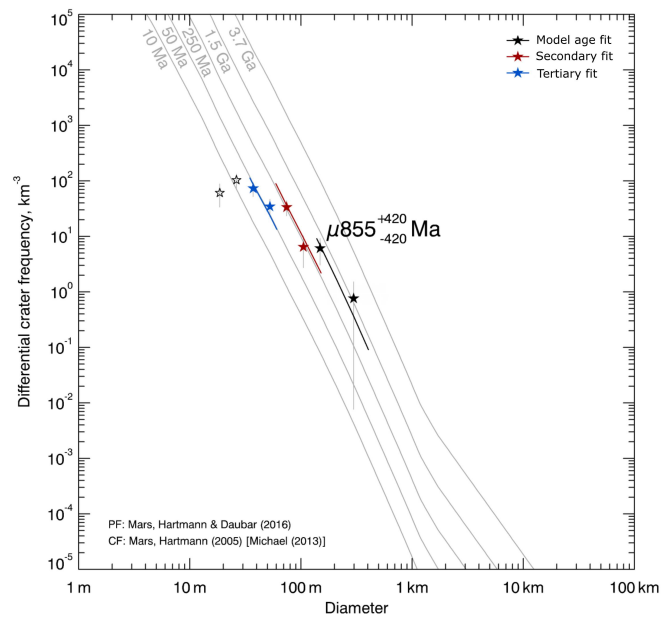


Figure S48. Mesa associated with GLDA depression 36. See Figure S2 caption.

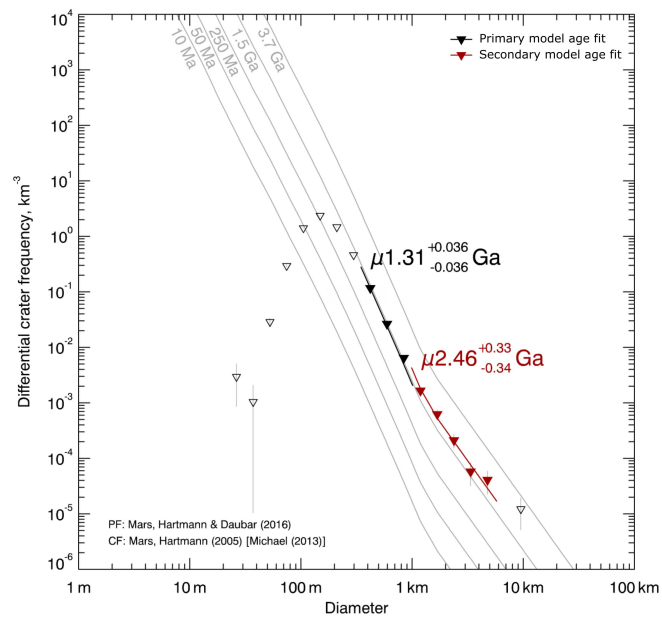


Figure S49. Kasei Valles lava flow (AHv: Tanaka et al. (2014)). See Figure S2 caption.

10 **References**

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