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The dynamic geophysical environment of (101955) Bennu based on OSIRIS-REx measurements

D. J. Scheeres[1]*, J. W. McMahon[1], A. S. French[1], D. N. Brack[1], S. R. Chesley[2], D. Farnocchia[2],
Y. Takahashi[2], J. M. Leonard[3], J. Geeraert[3], B. Page[3], P. Antreasian[3], K. Getzandanner[4], D. Rowlands[4],
E. M. Mazarico[4], J. Small[5], D. E. Highsmith[5], M. Moreau[4], J. P. Emery[6], B. Rozitis[7], M. Hirabayashi[8],
P. Sánchez[9], S. Van wal[10], P. Tricarico[11], R.-L. Ballouz[12], C. L. Johnson[11,13], M. M. Al Asad[13],
H. C. M. Susorney[13], O. S. Barnouin[14], M. G. Daly[15], J. A. Seabrook[15], R. W. Gaskell[11], E. E. Palmer[11],
J. R. Weirich[11], K. J. Walsh[16], E. R. Jawin[17], E. B. Bierhaus[18], P. Michel[19], W. F. Bottke[16], M. C. Nolan[12],
H. C. Connolly Jr[20], D. S. Lauretta[12] and The OSIRIS-REx Team[21]

[1]Smead Department of Aerospace Engineering, University of Colorado, Boulder, CO, USA. [2]Jet Propulsion Laboratory, California Institute of Technology, Pasadena, CA, USA. [3]KinetX Aerospace, Inc., Simi Valley, CA, USA. [4]NASA Goddard Space Flight Center, Greenbelt, MD, USA. [5]Aerospace Corporation, Chantilly, VA, USA. [6]Department of Earth and Planetary Sciences, University of Tennessee, Knoxville, TN, USA. [7]School of Physical Sciences, The Open University, Milton Keynes, UK. [8]Department of Aerospace Engineering, Auburn University, Auburn, AL, USA. [9]Colorado Center for Astrodynamics Research, University of Colorado, Boulder, CO, USA. [10]JAXA Institute of Space and Astronautical Science, Sagamihara, Japan. [11]Planetary Science Institute, Tucson, AZ, USA. [12]Lunar and Planetary Laboratory, University of Arizona, Tucson, AZ, USA. [13]Department of Earth, Ocean and Atmospheric Sciences, University of British Columbia, Vancouver, British Columbia, Canada. [14]The Johns Hopkins University Applied Physics Laboratory, Laurel, MD, USA. [15]The Centre for Research in Earth and Space Science, York University, Toronto, Ontario, Canada. [16]Southwest Research Institute, Boulder, CO, USA. [17]Smithsonian Institution National Museum of Natural History, Washington, DC, USA. [18]Lockheed Martin Space, Littleton, CO, USA. [19]Université Côte d'Azur, Observatoire de la Côte d'Azur, CNRS, Laboratoire Lagrange, Nice, France. [20]Department of Geology, Rowan University, Glassboro, NJ, USA. [21]A full list of authors and affiliations appears at the end of the paper. *e-mail: scheeres@colorado.edu
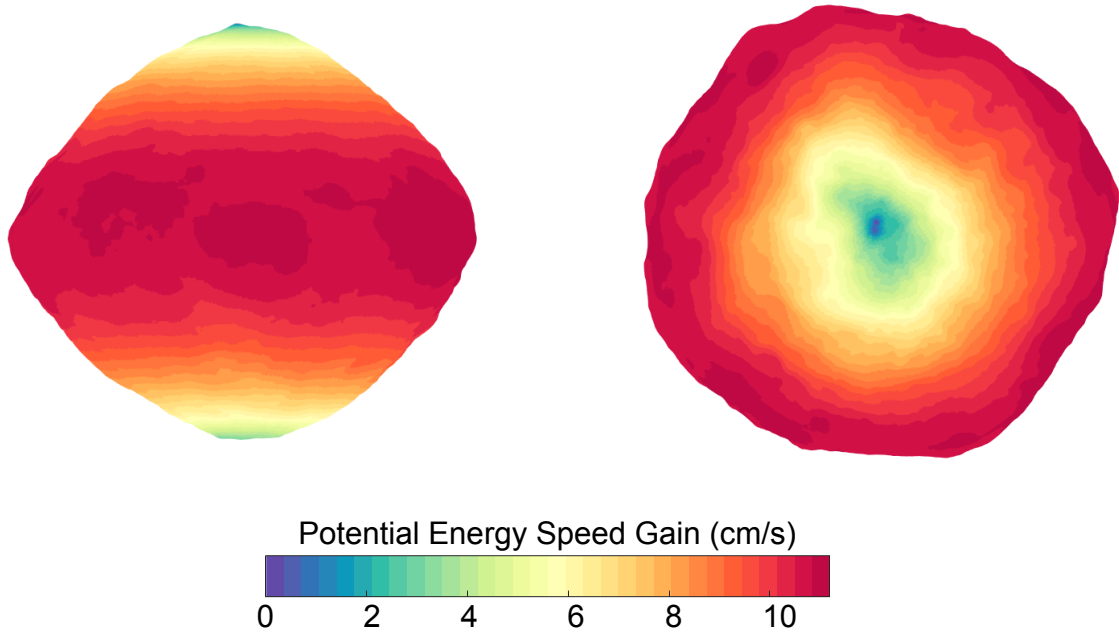
Supplement:

Surface Accelerations
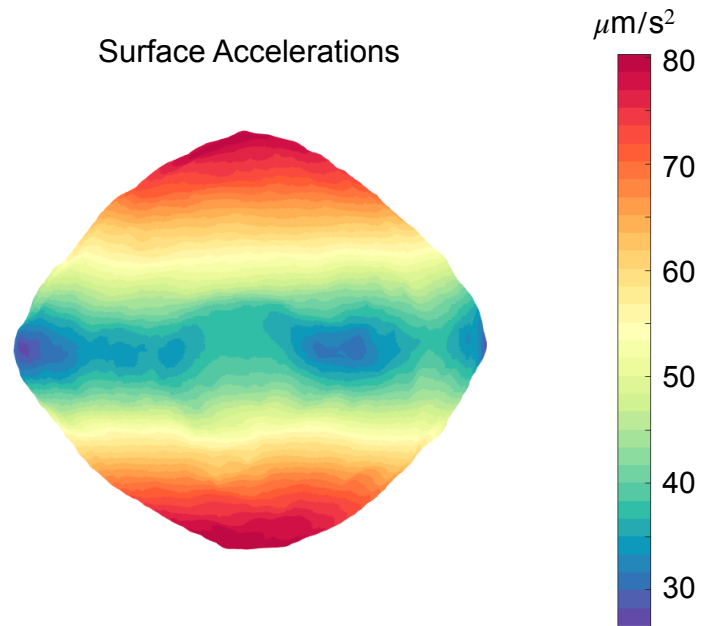
Supplementary Figure 1: Surface accelerations mapped over the Bennu surface, viewing along the y-axis.
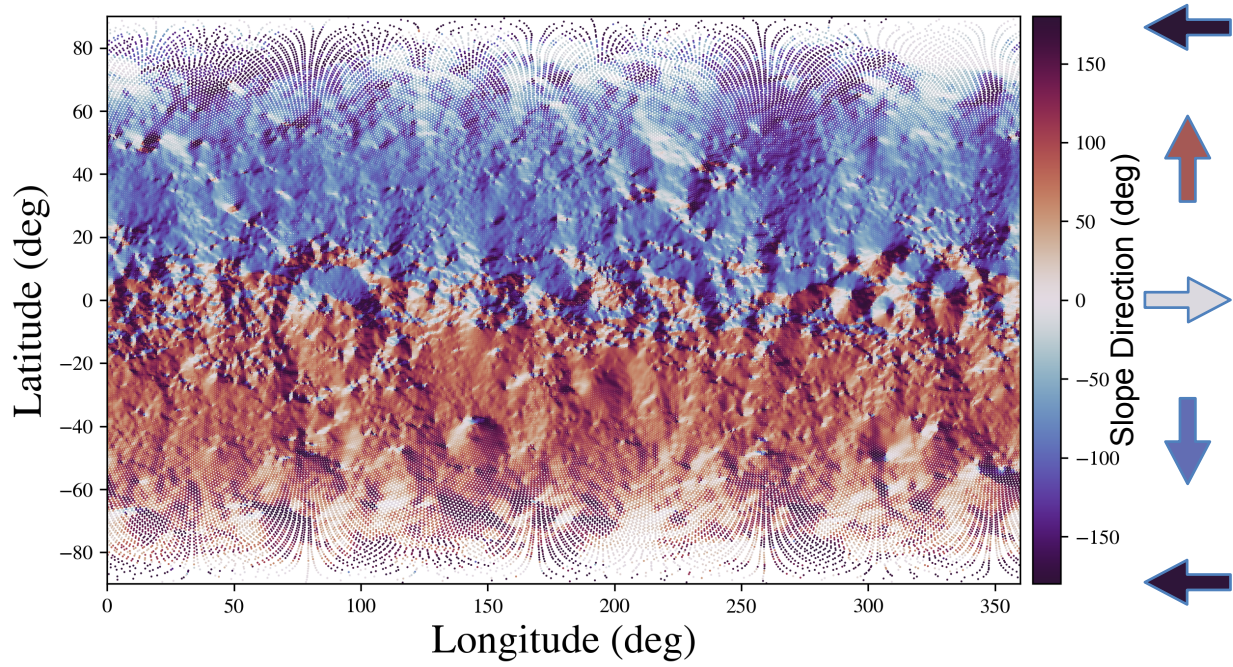
Supplementary Figure 2: Direction of decrease in geopotential energy mapped across Bennu. The hemispheres are seen to clearly send all material towards the equatorial region.

Potential Energy Speed Gain (cm/s)

Supplementary Figure 3: Potential energy plotted in terms of kinetic energy gain over the surface. To find the speed gain between any two speeds on the diagram, one takes the square root of the difference of the squares of these speeds.

Return Speeds   cm/s   **Direct Escape Speeds**   cm/s

a)   b)
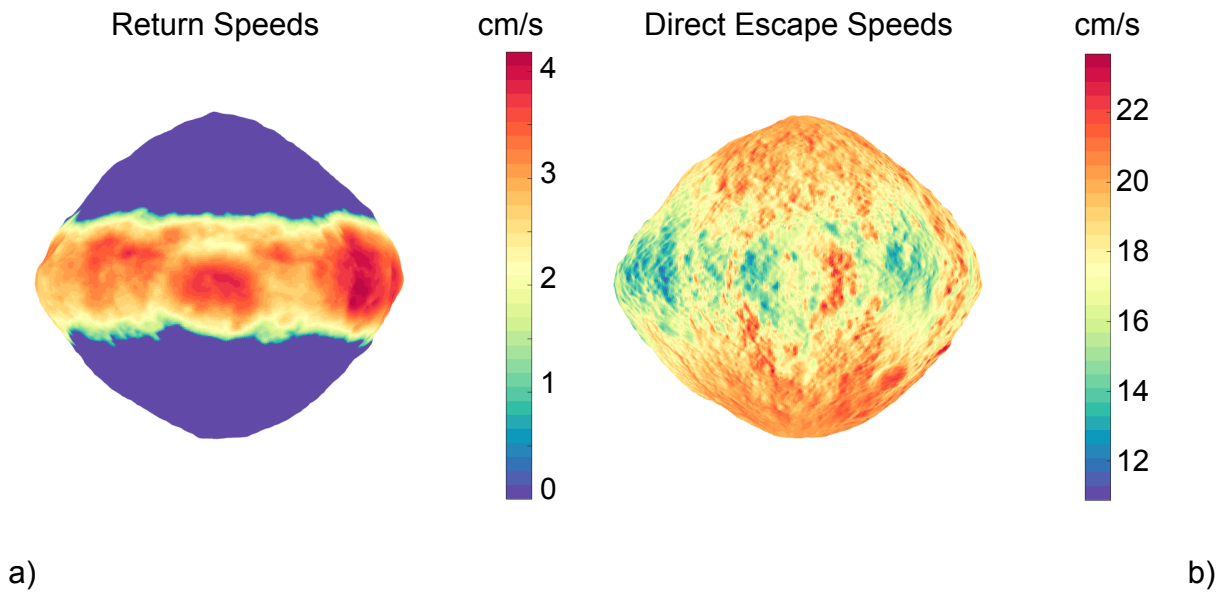
Supplementary Figure 4: Return speeds and direct escape speeds plotted over the Bennu surface, looking down the y-axis. Return speeds give the surface speed that will give a particle an energy greater than the Roche lobe, opening up the lobe and enabling escape. The direct escape speeds are computed assuming a launch normal to the surface, hence they are sensitive to the local surface orientation.
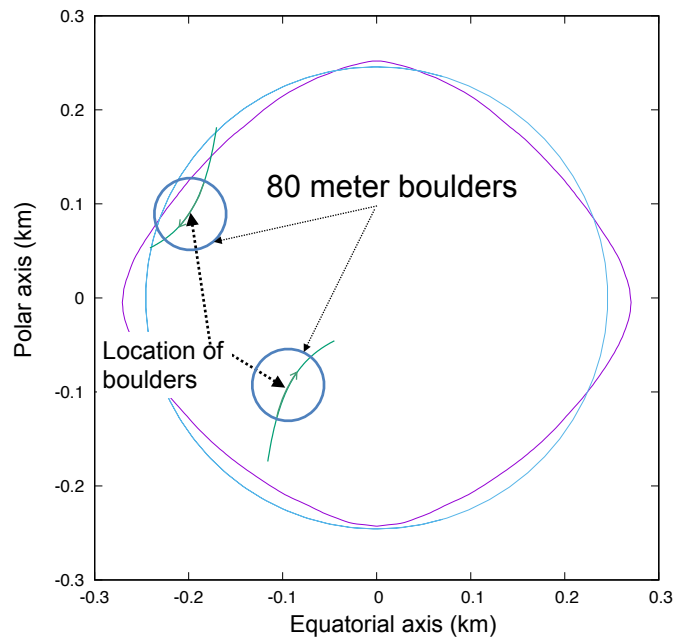
Supplementary Figure 5: Locations of the boulder centers as the Delta Z parameter varies from -1.86 to -1.96, projected into the x-z plane (the y variations are all small).