

GRACE GRAVITY DATA TARGET POSSIBLE MEGA-IMPACT IN NORTH CENTRAL WILKES LAND, ANTARCTICA

R.R.B. von Frese¹, L.V. Potts², S.B. Wells¹, L.R. Gaya-Piqué³, A.V. Golynsky⁴, O. Hernandez⁵, J.W. Kim⁶, H.R. Kim⁷, J.S. Hwang⁸

¹*Dept. of Geological Sciences & Byrd Polar Research Center, The Ohio State University, Columbus, Ohio, United States,* ²*Laboratory for Space Geodesy & Remote Sensing Research, The Ohio State University, Columbus, Ohio, United States,* ³*Istituto Nazionale di Geofisica e Vulcanologia, Rome, Italy,* ⁴*VNIIOkeangeologia, Dept. of Antarctic Geology, St. Peterburg, Russia,* ⁵*Dept. of Geociencias, Universidad Nacional de Colombia, Bogotá, Colombia,* ⁶*Dept. of Geoinformation Engineering, Sejong University, Seoul, Korea, South,* ⁷*NASA Geodynamics Branch, Goddard Space Flight Center, Greenbelt, Maryland, United States,* ⁸*Dept. of Earth System Sciences, Yonsei University, Seoul, Korea, South*

A prominent positive GRACE satellite-measured free-air gravity anomaly over regionally depressed subglacial topography may identify a mascon centered on (70°S, 120°E) between the Gamburtsev and Transantarctic Mountains of East Antarctica. Being more than twice the size of the Chicxulub crater, the inferred Wilkes Land impact crater is a strong candidate for a Gondwana source of the greatest extinction of life at the end of the Permian. Its ring structure intersects the coastline and thus may have strongly influenced the rifting of East Antarctica from Australia that resulted in the enigmatic lack of conjugate crustal thinning on the Australian block.