

THE REXIS DATA ANALYSIS PIPELINE. D. Hoak¹, B. Allen¹, R. P. Binzel², M. Chodas², A. Cummings², J. Grindlay¹, D. Guevel¹, J. Hong¹, M. Lambert², L. F. Lim³, R. A. Masterson², C. Thayer², Dante S. Lauretta⁴
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The Regolith X-ray Imaging Spectrometer (REXIS) [1,2] is designed to measure relative elemental abundances of key elements on the surface of the asteroid Bennu. REXIS detects the X-ray fluorescence spectrum from the surface (stimulated by the solar X-ray flux) over the range of energies 0.5 to 7 keV. REXIS is composed of an array of four back-illuminated CCDs, a coded aperture mask to constrain the incident angles of X-rays from Bennu's surface, and a Solar X-ray Monitor to provide an onboard measurement of the incident solar X-ray spectrum.

The REXIS data analysis pipeline is a suite of Python-based modules that calibrate, characterize, and model the data from the REXIS instrument. The end product of the analysis pipeline is the X-ray flux measurements from each element and the best-fit relative abundances that reproduce the observed flux, given the observation parameters and the incident solar spectrum.

In this presentation, we will describe the end-to-end steps of the REXIS analysis pipeline, demonstrate the calibration of the data across three years of in-flight operations, and report on the data quality and instrument performance from the observing period in July-August 2019.

References: [1] B. Allen et al. (2013) *Proc. SPIE*, 8840, pp. 88400M.
[2] R. A. Masterson et al. (2018) *Space Sci Rev.* 214, pp. 48.

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