

Accepted Manuscript

Concentrations of Potassium and Thorium within Vesta's Regolith

T.H. Prettyman, N. Yamashita, R.C. Reedy, H.Y. McSween Jr., D.W. Mittlefehldt, J.S. Hendricks, M.J. Toplis

PII: S0019-1035(15)00291-2
DOI: <http://dx.doi.org/10.1016/j.icarus.2015.05.035>
Reference: YICAR 11632

To appear in: *Icarus*

Received Date: 30 January 2015
Revised Date: 27 May 2015
Accepted Date: 28 May 2015

Please cite this article as: Prettyman, T.H., Yamashita, N., Reedy, R.C., McSween, H.Y. Jr., Mittlefehldt, D.W., Hendricks, J.S., Toplis, M.J., Concentrations of Potassium and Thorium within Vesta's Regolith, *Icarus* (2015), doi: <http://dx.doi.org/10.1016/j.icarus.2015.05.035>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



Concentrations of Potassium and Thorium within Vesta's Regolith

T. H. Prettyman,¹ N. Yamashita,¹ R. C. Reedy,¹ H. Y. McSween, Jr.,² D. W. Mittlefehldt³,
J. S. Hendricks⁴, M. J. Toplis⁵

¹Planetary Science Institute, Tucson AZ

²University of Tennessee, Knoxville TN

³NASA Johnson Space Center, Houston TX

⁴TechSource, Inc., Los Alamos NM

⁵CNRS/IRAP, University of Toulouse, Toulouse, France

For Icarus Special Issue on Vesta's Composition, Tom McCord and Jennifer Scully, Editors

Revision history: 5-Dec-2014 THP (created); 13-Jan-2015 (V2 from comments by NY, RCR, HYM, DWM);
15-Jan-2015 (V3&4, THP, NY); 16-Jan-2015 (JSH, HYM, DWM, NY, THP); 22-Jan-2015 (THP); 15-May-2015
(THP, NY, DWM, HYM, MT)

Contents

Abstract	3
1. Introduction	4
1.1. Previous GRaND observations	4
1.2. Radioelements	6
2. Methods	7
2.1. Data Reduction.....	7
2.2. Gamma Ray Spectra: Separating Vesta from Background	8
2.3. Difference Spectra.....	9
2.4. Sensitivity of GRaND to K and Th	10
2.5. Determination of K and Th Peak Areas.....	12
3. Results.....	13
4. Discussion.....	14
5. Conclusions for Vesta and prospects for Ceres	16
Acknowledgements	17
References	18

Download English Version:

<https://daneshyari.com/en/article/8136044>

Download Persian Version:

<https://daneshyari.com/article/8136044>

[Daneshyari.com](https://daneshyari.com)