Thursday, May 21, 2015
"YOU DON'T HAVE TO BE A MATHEMATICIAN
TO HAVE A FEEL FOR NUMBERS."   *– John Nash*
8:00 a.m.   E200 Auditorium

Chairs: **Lillian Ostrach**
               Jeff Plescia

8:00 a.m.   Chapman C. R. *
              A Critique of Methods for Analysis of Crater Size-Frequency Distributions **[#9039]**
              "Crater counting" is not so easy as it superficially appears.   Many current techniques can result in
              misleading conclusions.   The Craterstats tool actually computes error bars in cumulative
              size-frequency distributions incorrectly.

8:40 a.m.   Palucis M. C. *   Dietrich W. E.
              *How Small is too Small? A Model for Assessing Retention Age Uncertainties When Dating
              Small Areas* **[#9044]**
              We developed a model to address the uncertainty in crater retention ages, specifically focused on ages
              derived from smaller areas due to the growing interest in dating fans and deltas on Mars.

9:0 a.m.   Kukkonen S. *   Kostama V.-P.
              *Crater Counts by Using the CTX and HiRISE Images: A Case Study of the Harmakhis Vallis
              Channel, Mars* **[#9022]**
              The work presents some crater count results on the Harmakhis Vallis channel of Mars, based on the
              CTX and HiRISE datasets, with the goal to reveal information on the benefits and limitations of very
              high-resolution imagery used in age determinations.

9:30 a.m.   van der Bogert C. H. *   Michael G.   Kneissl T.   Hiesinger H.   Pasckert J. H.
              *Development of Guidelines for Recommended Lunar CSFD Count Area Sizes via Analysis of
              Random CSFDs* **[#9023]**
              Using random CSFDs, we derive absolute model ages for different count area sizes to evaluate the
              precision and accuracy of the ages. We consider the limitations that saturation equilibrium places on
              the smallest useful crater diameters for fitting.

9:55 a.m.   Warner N. H. *   Gupta S.   Calef F.   Grindrod P.   Boll N.   Goddard K.
              High Resolution Crater Counting of Small Areas on Mars **[#9015]**
              We describe both the statistical variability in the cratering pattern at small spatial scales as well as the
              influence of small crater resurfacing on crater counting small landforms ($<10,000$ km^2).

10:20 a.m.   BREAK

10:30 a.m.   Tar P. D. *   Thacker N. A.
              Understanding and Reducing Crater Counting Errors **[#9027]**
              We propose a crater counting model which incorporates uncertainties from false positive and false
              negative crater detections. We show how binomial statistics and Linear Poisson Models can be used to
              better understand and to reduce counting errors.

10:55 a.m.   Robbins S. J. *   Antonenko I.   Kirchoff M. R.   Chapman C. R.   Fassett C. I.   Herrick R. R.
              Singer K.   Zanetti M.   Lehan C.   Huang D.   Gay P. L.
              The Variability of Crater Identification Among Expert and Community Crater Analysts **[#9018]**
              We all know it in the back of our minds, but we tend to ignore the fact that crater identification and
              measurement is not an exact science. This work was to start to quantify the variation in how
              independent analysts identify and measure impacts.

11:20 a.m.   Weaver B. P. *   Robbins S. J.   Plesko C. S.   Riggs J. D.
On the Binning and Associated Uncertainty of Crater Diameter Size-Frequency Distributions **[#9054]**
The tabulation and graphical display of crater size-frequency data (crater diameters) is a critical part of analyzing crater populations, but despite a landmark 1979 paper, standardization remains elusive. We will discuss recommendations.

11:35 a.m.   Weaver B. P. *   Hilbe J. M.   Robbins S. J.   Plesko C. S.   Riggs J. D.
Determining Statistically Significant Deviations from a Model Crater Production Function for Estimating Resurfacing Events **[#9053]**
Many crater analysts will search for deviations of observed crater population data from model crater populations and treat those deviations as a modification event - usually resurfacing. We will discuss how to assign confidences for these deviations.

11:50 a.m.   Weaver B. P.   Hilbe J. M. *   Robbins S. J.   Plesko C. S.   Riggs J. D.
On the Fitting of Non-Linear, Empirical Functions for the Fitting of Model Crater Ages **[#9055]**
Fitting model crater production functions to observed crater data is considered an "art" by many, and there is no standard in the field for how best to do it. We will discuss mathematical techniques' pros and cons and make recommendations.

12:20 p.m.   DISCUSSION