Report to VEXAG About

Workshop on Surface Ages & Histories: Issues in Planetary Chronology

Houston May 21-23, 2006

Nadine G. Barlow, Northern AZ Univ.

Workshop Organizers: Paul Schenk, Nadine Barlow, Beau Bierhaus

White Paper-style report on "Planetary Chronology 2007: Status and Issues" for peer-reviewed journal. Welcome community input to this document.

Recommendations for improving understanding of surface ages & chronologies in Solar System:

Radiometric Dating of Samples

•Firmly anchor lunar time scale and establish time scale on another Inner Solar System body by obtaining new samples

Recommendations for Improving Understanding of Surface Ages & Chronologies in Solar System

Crater-Based Chronologies

- Establish transparency in crater counts and age estimates by publishing all data on-line.
- Understand consistency and reliability of crater statistics as an age-dating tool by evaluating the amount of human error in the counts, having crater counts of selected regions done by 2 or more independent groups, and automating crater counting techniques.
- Understand role of secondary craters through numerical modeling, geologic mapping, and Monte Carlo simulations.
- Understand lunar production function through geologic mapping and numerical models.

Solar System Dynamics

- Understand orbits and size distributions of impactor populations throughout the solar system as a function of time and location through numerical models of small body dynamics and collisional evolution.

Establishing a solar system chronology should be a NASA priority!