



Basin Formation and Evolutionary History of Mercury

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Basin formation ages for Mercury are determined and evaluated with respect to the maximum surface age, and two possible solar system evolution models. When compared to Mars and the Moon, Mercury appears to have undergone significant resurfacing, so that at least the initial 200-400 millions of years are not recorded on its surfaces, similar to Mars.

I will discuss the observed basin size-frequency distribution, the smaller crater size-frequency distribution and the main belt asteroid size-frequency distribution in comparison. It appears that there is an lack of understanding of the basin formation process. I will also show that the currently used cratering rate ratios used to transfer an absolute chronology model from the Moon to Mercury cannot be correct in the light of modern solar system dynamic evolution models.