Supplementary Information

MPF plots for the model ages presented in Table 2.

**SI1: Basins with basin-edge scarps.**

**SI1a**: Marchi et al. (2009) MPF plot for the smooth plains unit (black) and basin-edge scarp (red) of Aneirin.
Marchi et al. (2009) MPF plot for the smooth plains unit (black) and basin-edge scarp (red) of Beethoven.
Sl1c: Marchi et al. (2009) MPF plot for the smooth plains unit (black) and basin-edge scarp (red) of Hafiz.
SI1d: Marchi et al. (2009) MPF plot for the smooth plains unit (black) and basin-edge scarp (red) of Shevchenko.
SI1e: Marchi et al. (2009) MPF plot for the smooth plains unit (black) and basin-edge scarp (red) of Unnamed[-40, -70].
Marchi et al. (2009) MPF plot for the smooth plains unit (black) and basin-edge scarp (red) of Unnamed[91, 38].
SI1g: Marchi et al. (2009) MPF plot for the smooth plains unit (black) and basin-edge scarp (red) of Unnamed [150, -10].
Supplementary Information 2: Basins without basin-edge scarps.

SI2a: Marchi et al. (2009) MPF plot for the smooth plains unit of Mendelson.
Si2b: Marchi et al. (2009) MPF plot for the smooth plains unit of Hugo.
**SI2c**: Marchi et al. (2009) MPF plot for the smooth plains unit of Khansa.
SI2d: Marchi et al. (2009) MPF plot for the smooth plains unit of Copland.
Marchi et al. (2009) MPF plot for the smooth plains unit of Unnamed[-166,-25].
Marchi et al. (2009) MPF plot for the smooth plains unit of Unnamed[154,67].
SI2g: Marchi et al. (2009) MPF plot for the smooth plains unit of Unnamed[-69,0].
**Si2h:** Marchi et al. (2009) MPF plot for the smooth plains unit of Unnamed[-13,-22].