



E I N L A D U N G

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V E R A - S E M I N A R

von

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**Dating small impact craters on Earth**

Precise and accurate dating of impact craters 1) enables correlation of an impact structure formation with other geological events (e.g. the Chicxulub crater associated with the Cretaceous-Paleogene mass extinction) and with events in human history, 2) is crucial to determine the rate of the impact flux on Earth, and 3) helps us to better understand the overall geological history of the Earth.

Dating small ( $\leq 120$  m in diameter) impact craters is a complex task. Dating methods based on radioisotopic systems such as  $^{40}\text{Ar}/^{39}\text{Ar}$ , K/Ar, Rb/Sr or U/Pb are used for larger impact structures, but are not applicable or practical in case of smaller ones (due to lack of rocks with fully re-set isotopic clocks). Ages of craters younger than a couple of million years can be measured with  $^{10}\text{Be}$  and  $^{26}\text{Al}$  exposure dating methods on boulders, but it does not work for craters developed in unconsolidated target material. The most precise and accurate age of small ( $\leq 120$  m) and young ( $< 50$  ka) craters can be obtained by means of  $^{14}\text{C}$  dating of organic material associated with an impact structure. Depending on the geological setting of the organics, only the minimum or the maximum age of the crater can be determined. Unless of course we find an organism that was killed by the impact event. Which we (most probably) did, a few times, in a few craters.

**Donnerstag, 27.04.2017, 16:30 Uhr**

**1090 Wien, Währinger Str. 17, "Kavalierstrakt",  
1. Stock, Victor-Franz-Hess Hörsaal**