

## Advances in Stratigraphy and Geochronology

### *Virtual Seminar Series of the Stratigraphy and Chronology Commission (SACCOM) of INQUA*

Thursdays at 9 am USA EST, 2 pm London, 3 pm Paris, and 10 pm Beijing time.

The third talk of the weekly series is on May 13,  
given by:

**Dr. Leah Morgan (United States Geological Survey, Denver)**

*"Tephrochronology by Ar/Ar: methods and applications in paleoanthropology"*



Dr. Leah Morgan is a Research Geologist at the U.S. Geological Survey in Denver, Colorado. She is a  $^{40}\text{Ar}/^{39}\text{Ar}$  geochronologist with research interests in method development, as well as applications to volcanology, paleoanthropology, ore deposits, framework geology, and the geologic timescale. She works on improving the accuracy and precision of the method through measurements of  $^{40}\text{Ar}$  and  $^{40}\text{K}$  concentrations in standard materials, as well as measurements of the  $^{40}\text{K}$  decay constant. In Quaternary applications, she has worked on the constraining the ages of paleoanthropological localities in Ethiopia, including Gademotta/Kulkuletti, Melka Kunture, Kesem-Kebena-Dulecha, and the Middle Awash.

Abstract: Paleoanthropology in East Africa has long relied on the  $^{40}\text{Ar}/^{39}\text{Ar}$  geochronometer to constrain the ages of fossiliferous sediments. The method is a variant of the K-Ar method, and both rely on the decay of  $^{40}\text{K}$  to  $^{40}\text{Ar}$  and thus can be applied to many K-bearing materials. Tephra and other volcanic materials typically are set to 'time-zero' at eruption, and thus can be used to place age constraints on interbedded sediments, fossils, and artifacts. Geochronological age constraints from three important localities will be discussed: 1. Gademotta/Kulkuletti (early Middle Stone Age, Middle Pleistocene, ca. 200-300 ka); 2. Melka Kunture (Acheulean-Oldowan, Middle-Early Pleistocene, ca. 0.7 – 1.8 Ma), and 3. Hugub at Kesem-Kebena-Dulecha (Acheulean, Middle Pleistocene, ca. 500 ka). These age constraints allow for the paleoanthropological material to be placed in context with materials found elsewhere in Ethiopia, East Africa, and the world.

For more details of the full seminar series please go to the SACCOM webpage at: <https://www.inqua.org/commissions/saccomm/fig>. Please see the Zoom link below.

### **ZOOM LINK:**

#### **Advances in Stratigraphy and Geochronology**

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Overseen by Lewis Owen on behalf of SACCOM