

### Cosmogenic radionuclide activities in five recent meteorite falls

Å. V. Rosén<sup>1</sup>, B. A. Hofmann<sup>1,2</sup> & M. Schumann<sup>3,4</sup> Institute of Geological Sciences, University of Bern, Baltzerstrasse 1+3, 3012 Bern, Switzerland. Email: ake.rosen@geo.unibe.ch, <sup>2</sup>Natural History Museum Bern, Switzerland  
<sup>3</sup>Albert Einstein Center for Fundamental Physics, University of Bern, Switzerland, <sup>4</sup>Institute of Physics, University of Freiburg, Germany

**Introduction:** Gamma-ray spectrometry measurements of cosmogenic radionuclides in meteorites provide important data directly related to the cosmic radiation history of studied samples. During the last year, recently fallen meteorites have continuously been measured at the GeMSE (Germanium Material and Meteorite Screening Experiment) facility [1] in Switzerland. This is done in parallel to an ongoing meteorite screening effort which aspires to identify recently fallen samples collected within the scope of the Omani-Swiss meteorite search project [2].

**Method:** Eight pieces from five different meteorite falls were measured at the GeMSE facility during 2016-2017. The falls include Huaxi (H5, July 2010), Xinin (L5, February 2012), Kamargaon (L6, November 2015), Degtevo (H5, March 2016), and Oudiyat Sbaa (EH5, November 2016). Measurement times were between 1-3 weeks for each individual sample and measured masses 30-2100 g. The full measurement procedure and method of activity calculations along with details of the GeMSE setup are described in [1].

**Results:** We obtained radionuclide data from five meteorites that fell between July 2010 and November 2016. Detected cosmogenic isotopes include <sup>26</sup>Al, <sup>44</sup>Ti, <sup>60</sup>Co, <sup>22</sup>Na, <sup>54</sup>Mn, <sup>57</sup>Co, <sup>46</sup>Sc, <sup>56</sup>Co, <sup>58</sup>Co, <sup>7</sup>B, <sup>51</sup>Cr and <sup>48</sup>V. Activities of several isotopes could be quantified at a time corresponding to more than six radioactive half-lives after fall.

**Discussion:** Besides providing consistent data of cosmogenic radionuclides in chondrite falls from the last six year period the results will help to improve the screening process in the search for low terrestrial age meteorites from Oman, through evaluation of sample specific screening times, measurement uncertainties and limits of positive detection. Additionally, two recent falls, Degtevo [3] and Oudiyat Sbaa [4], were verified for classification. Measured radioisotope activities are generally within ranges expected for chondrites [5]. Anomalously high <sup>22</sup>Na/<sup>26</sup>Al activities ratio measured in Huaxi is in agreement with a recently published exposure age [6]. Detailed results and further discussion will be presented at the conference.

**Acknowledgements:** This project is supported by the SNF grant 152941. We are grateful to Aditi Bezbaruah, Abdelaziz Habibi, Tony Irving, Marc Jost and Shijie Li for providing access to samples. Moritz von Sivers is thanked for his work on developing GeMSE.

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