

## Experimental degassing of ordinary chondrites

A.V. STENNIKOV<sup>1\*</sup>, S.A. VOROPAEV<sup>1</sup>, V.S. FEDULOV<sup>1</sup>,  
N.V. DUSHENKO<sup>1</sup>, S.G. NAIMUSHIN<sup>1</sup>

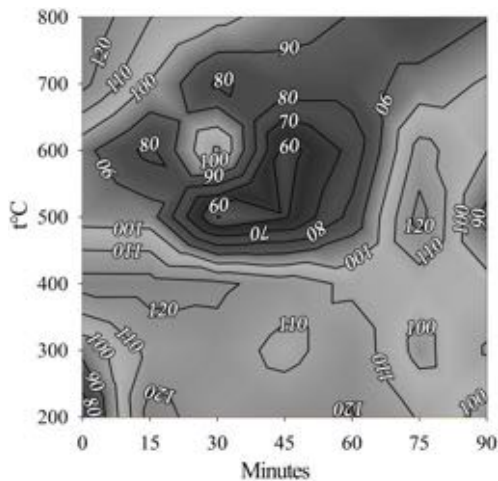
<sup>1</sup> Vernadsky Institute of Geochemistry and Analytical Chemistry (GEOKHI RAS), Moscow, 119334, Russian Federation (\*correspondence: ya\_email@mail.ru)

### Experimental approach

A series of experiments was conducted on 3 different ordinary chondrites of common types (H5 NWA 12370, L3 Aba Panu and LL5 Chelyabinsk) to register the absolute concentrations of outgassed highly volatile components. A specifically constructed annealing chamber with helium atmosphere was used for these experiments. Detailed description of experiment and set up can be viewed in [1].

### Results and discussion

Defined volatiles are: H<sub>2</sub>O, CO<sub>2</sub>, N<sub>2</sub>, CH<sub>4</sub>, CO, H<sub>2</sub> and H<sub>2</sub>S. Combining all profiles at different temperatures for individual volatile results in time-temperature-concentration diagram, presented as a heat contour (fig. 1).



**Figure 1.** Heat contour of H<sub>2</sub>O concentration (mg/g sample) versus time-temperature from degassing of Aba Panu (L3)

Observed change in concentration indicates chemical behaviour and possible form of accumulation within meteorite matrix. Obtained results can be applied for assessing degassing budget of first atmospheres during accretion or supply of volatiles from impacts during LHB.

[1] Stennikov *et al.* (2019) Solar Sys. Research, **3**, *in press*.