EPSC Abstracts
Vol. 7 EPSC2012-715 2012
European Planetary Science Congress 2012

Košice meteorite – overview of analyses

V. Porubčan (1), J. Tóth (1), J. Borovička (2), A. Igaz (3), P. Spurný (2), L. Kornoš (1), J. Haloda (4), D. Ozdín (5), P. Uher (5), P.P. Povinec (1), I. Sýkora (1), P. Veis (1), T. Kohout (6,7), J. Svoreň (8), M. Husárik (8)
(1) Faculty of Mathematics, Physics and Informatics, Comenius University in Bratislava, Mlynská dolina, 842 48 Bratislava, Slovak Republic (porubcan@fmph.uniba.sk), (2)Astronomical Institute, Academy of Sciences, Ondřejov, Czech Republic, (3) Hungarian Astronomical Association, MCSE, Hungary, (4) Czech Geological Survey, Prague, Czech Republic, (5) Faculty of Natural Sciences, Comenius University in Bratislava, Slovak Republic, (6) Department of Physics, University of Helsinki, Helsinki, Finland, (7) Institute of Geology, Academy of Sciences of the Czech Republic, Prague, Czech Republic, (8) Astronomical Institute of the Slovak Academy of Sciences, Tatranská Lomnica, Slovak Republic

1. Introduction

On February 28, 2010 at 22:25 UT a very bright bolide has flown over Slovakia accompained with cannon-like burst sounds and a series of low frequency blasts. Due to bad weather, cloudy skies and scatter showers no optical records by the Central European Fireball Network (operated by Pavel Spurný) and the Slovak Video Meteor Network (operated by Juraj Tóth) could not be taken However, thanks to three video records by the surveillance cameras in Northern Hungery, were was clear sky, the trajectory and impact area western of the city of Košice in Eastern Slovakia could be calculated and the meteorite could be recovered [1].

2. Results

Preliminary as well as complex mineralogical analysis implies that the recovered meteorite is classified as an ordinary H5 chondrite (Jakub Haloda, Daniel Ozdín and Pavel Uher). Thin sections show a recrystallized fine-grained granular texture. Chondrule commonly indistinct. Planar fractures in olivine and undulatory extinction of olivine and albite as well as opaque shock veins and locally melt pockets indicate a shock of S3. Minerals such as olivine ($Fa_{18.6}$), low-Ca pyroxene ($Fs_{16.6}$), diopside (Fs_6Wo_{46}), augite ($Fs_{8\text{-}15}Wo_{26\text{-}43}$), albite ($Ab_{82}An_{12}Or_6$), chromite, chlorapatite, merrillite, troilite, kamacite, taenite and tetrataenite are also present. Weathering grade is W0 [2]. The porosity of meteorites is low, bulk and grain densities as well as magnetic susceptibilities are similar to other H chondrites. Additional analyses such as remanent magnetism, non-destructive gamma-spectrometry showed the presence of 8 cosmogenic radionuclides, neutron activation analysis, chemical analyses, laser breakdown spectroscopy etc. have already been performed or are still ongoing. The orbital evolution of the meteorite orbit as well as possible orbital clones will be also presented.

Acknowledgements

This work was supported by APVV-0516-10 grant.

References

[1] Borovička J. et al. (2012) *Meteoritics & Planet. Sci.*, submitted.

[2] *Meteoritical Bulletin* 100