

STREWN FIELD SIMULATIONS AND FIELD SEARCHES OF A FEW LATEST BOLIDES OVER HUNGARY – CONNECTION WITH THE FRAGMENTATION HEIGHT. T. Hegedüs¹, Z. Jäger¹, Sz. Csizmadia², Z. Zelkó³, A. Gucsik⁴, Zs. Kereszty⁵. ¹Baja Observatory of the University of Szeged (H-6500 Baja, Szegedi út KT.766., Hungary; E-mail: hege@electra.bajaobs.hu), ²Institute of Planetary Research, German Aerospace Center (Berlin, Germany), ³Vega Astronomical Association (Zalaegerszeg, Hungary), ⁴University of Debrecen, Department of Mineralogy and Geology (H-4032 Debrecen, Egyetem tér 1., Hungary), ⁵Corona Borealis Observatory (Győrújbarát, Hungary).

Introduction: Inspired by several unsuccessful field searches on the probable fall locations, we reanalysed a few most recently observed blowing bolides appeared over Hungary on: 18:47:33 UTC 8 April, 2018; 17:31:01 UTC April 06, 2015 (so-called "Easter Bolide"); and 19:02:08 UTC August 24, 2013. This study is based on careful recalibration of all available observational materials, and both the visual orbit calculation and dark flight integration were done with codes developed by us. For atmospheric model we used the International Standard Atmosphere (ISA1975), while the concrete meteorological parameters of the given dates were taken from ECMWF tables. We simulated the 'theoretical' strewnfields, showed some example on the logged real field searches and gave some comments. Finally we present a simple comparison of the structure and sizes of the calculated strewn fields to the well-studied historical strewnfields. Some consequences are deduced for the present and next field searches. A typical freefall starts about 25 km height or even higher, where the final desintegrations happen usually. Under this initial parameter the fragments are thrown along a longer strip, which makes the field searches to exhibit very low effectivity. Only some lucky circumstances (like the fortunate geometry of meteor path), better quality professional camera input data and additional technics (radar or accurate seismic detection) can help to find new fell meteorites.

References:

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