

Dark matter related explanation of the night sky glow observed from Europe after the Tunguska meteorite fall in 1908

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One of a still not solved feature of Tunguska event on the 30th June 1908 was the appearance of night sky glow seen initially from UK and western Europe (The Times, 1908). The most common explanation of Tunguska event is that it was an impact of a cosmic body, from iron or stony meteorite, comet, down to a kind of a small black hole (Jackson and Ryan Jun, 1973). Recently some researchers proposed that the impacting body was baryonic dark matter object called MACHO (for Massive Astrophysical Compact Halo Object) or CUDO (for Cosmic UltraDense Object) (Rafelski 2012, Froggatt & Nielsen, 2015). Search for such objects, yet not discovered, started from publication of E. Witten (Witten, 1984). Due to ultrahigh density such matter (similar to black hole) can penetrate the Earth (Herrin & Teplitz, 1996, Rafelski et al., 2012). Proposed explanation is based on scenario of impact of CUDO “seed” surrounded by attracted during its travel in space normal matter dust. During atmospheric passage a fractionation of ordinary matter and dense “seed” happened. The first one produced all effects similar to cometary impact releasing energy in atmosphere, whereas the “seed” penetrated deeply the Earth along its chord. Finally the dense “seed” escaped from Earth in North Atlantic area rising to stratosphere hot water vapors plume, what caused famous night air glow observed from Europe in time of Tunguska event. Such scenario seems to compromise all proposed so far explanations in one, which explain all aspects of Tunguska event. The geometrical considerations restricts the output site to a spot on a Norway Sea between Faroe Islands, Shetlands and Norway. Details will be discussed.

References

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