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Titulo: Cheliábinsk and other February superfireballs.

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Resumen:

Superfireballs are rare and a fascinating natural phenomenon. The number of them is limited, their reports have been scarce and estimating their numbers is difficult. With the increased use of newspapers during the mid XIX century, the registration of meteor-related news grew dramatically. In addition, the digitalization of these sources opens up huge possibilities on the meteor research. This project has involved many collaborators in the context of a citizen science project. The research is based on the reports which appeared in the news dated back from more than 150 years ago and other databases such as the British Association for the Advancement of Science, SAO/NASA Astrophysics Data System and NASA-Fireball and Bolide Reports. We have an extensive database, 2393 registriesof fireballs, that allows to reduce the uncertainty in estimation of their numbers. We have made a descriptive statistical analysis on the data, based on the mean and dispersion of the sample and on meteor shower properties. For the moment, we have found a number of abnormally concentrated events that cannot be explained by a Poisson distribution. The Chelyabinsk meteor was a superbolide that entered Earth\'s atmosphere over Russia on 15 February 2013 (03:20 UTC). It was observed over a wide area of the region. It became a brilliant superfireball and their light was brighter than the Sun up to 100 km. Also, in the same month of this year, other meteors were observed and mentioned in newspapers. With these events we have analyzed statistically two significant overabundance peaks that we found in February. They are very interesting because during this period we found no evidence of fireball showers. These intervals are centered in February 12 and 22 (323º and 333º solar lengths) and it is probable that the first are connected with the Chelyabinsk event date. In addition, the last publications of Nasa Bolide Reports support that these superbolide streams are real. We start to pinpoint the radiant in order to characterize these concentrations and to determine their origin scenario.