A Bright Fireball Over The State of Rio Grande do Sul

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In June 7th, around 01:33 (UT), inhabitant from Brazil (mainly in the states of Rio Grande do Sul, Santa Catarina and Paraná), Argentina, Paraguay and Uruguay observed a very bright fireball. The event was widely recorded by many security cameras, witness using cellphones and by two monitoring stations from BRAMON (…). Using some of those videos, it was possible to determine that the fireball entered in the atmosphere with a velocity of 14.3 km/s in a shallow angle relative to the horizon. It began the bright trajectory at an altitude of 104 km over the south of Paraguay, travelling 393 km to the southeast until reach the dark flight at an altitude of 27.4 km over the Midwest of the state of Rio Grande do Sul. The preliminary results of the calculated energy correspond to a pre-atmospheric mass between 3.25 10^3 and 5.75 10^3 kg [1], being that the uncertainty obtained for this mass is caused by the imprecision in the measurement of the luminous flux in different recordings. The estimation is that about 10% of the original mass reached the ground. Using the average density of an ordinary chondrite meteorite (3.84g/cm^3) [2], the most common meteorite type recovered in the Earth surface, the diameter of the meteoroid is about 1.2 m to 1.4 m. The shallow trajectory created a large meteorite strewn field, that could extend from the cities of Jari to Santa Maria (Rio Grande do Sul, Brazil) [3]. Teams are conducting a meteorite search in the region, with no success so far.

References:

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