

The Ishiduchi-yama fireball: Description about the fireball and its trajectory determined from video and seismic observations

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The Ishiduchi-yama meteoritic fireball was appeared on Sep 22, 2004, 01:09 JST (UT+9h), during the midnight. The fireball was witnessed by people who lived in Shikoku and Chugoku district. A few minutes later, anomalous loud sounds like booms or thunderclaps were also heard in Shikoku and Chugoku region. Some people reported that, they have felt the shaking of the house and rumbling the ground. On the other hand, this fireball was also detected by some instrument.

Two video cameras at Tokushima Kainan Observatory recorded this spectacular fireball. They have not been imaged full length of visual trajectory, but some intensive bursts were detected. The Ishiduchi-yama meteoritic fireball crossed the sky above the dense digital seismic network, seismographs of which are installed by the Japan Meteorological Agency, National Research Institute for Earth Sciences and Disaster Prevention, Research Center for Earthquake Prediction Kyoto University, and Kochi University. We inspect the seismic array data around the time when the fireball appeared. A shockwave arrival can be easily noticed on a velocity seismogram by its characteristic waveform like N shape. We identify shockwave signals from the fireball at 11 seismic stations.

In this presentation, we describe the circumstances of the fall and determine the fireball using video records and shockwaves that recoded by seismographs.