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Development of notification system for bright meteor signals by using wide angle and time series images

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1. Purpose and Background

The Sky monitoring system by using wide angle lens camera have been maintained until Nov. 2011 at Okayama University of Science. Images are obtained by the CCD camera system which provide the slow shutter image, and they have been transferred to data storage PC system via the Internet connection. This system enables us to monitor the real time condition of the sky. We can now operate this system with 90% duty cycles. In the obtained images, bright meteors and sometimes fir balls were registered. Now we analysed these images by offline analysis software. In this report, we are going to describe our new system which can provide quick analysis results for meteor and fire ball at the moment of observations.

2. System

In the sky monitor system, CCD camera with wide angle (fish eye) lens and image server system have been operated in 24 hours/day. The exposure of CCD cameras has been set to 256 frames or 128 frames which correspond to 7 second or 4 second, respectively. The acquired image data have been stored in PC system via the internet ftp command. 28,800 images(500MB data size) are stored in each day. In offline mode, images are processed with contrast enhancement module, image differentiating and object detection module.

3. Development

In this researches, we develop new analysis system for online image processing and for providing meteor signal detection, arrival direction determination and brightness profile information. We are going to present new system and analysis result in this reports.

Reference

K.Noguchi, ”High-accuracy direction findings of meteors and development of an automatic meteor observation system by 5-channels radio interferometer”, Kochi University of Technology, Graduate School of Engineering, 2009

Keywords: meteor, fire ball, image processing, simultaneous observation