



Lunar impact flashes: first detection from the Observatory of Nice

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Abstract

We report the first lunar flash due to meteoroid impact observed by our team at Observatoire de la Côte d'Azur (OCA) in south France.

Introduction

Meteoroids impacting onto the lunar surface can produce very short bursts of light—commonly called impact flashes. Such flashes have been the subject of several lunar monitoring surveys over the last 20 years (1,2,3) for the purpose of determining the size frequency distribution of near-Earth objects in the cm–dm size range. The goal of our international team is to build a network of moderate telescopes that will survey the lunar surface for impact flashes and subsequently locate the produced impact craters. We have developed all the necessary algorithms in order to detect the flash events in real time during the observations, identify the selenographic coordinates, link the meteoroid to a parent meteoroid stream, measure the mass and size of the meteoroid (4) and discover the potential fresh lunar crater. Updates on the methodology is presented by the accompanying EPSC 2020 abstract of Munaibari & Larson et al. The description of the crater identification is presented by the accompanying EPSC 2020 abstract of Sheward et al.

First confirmed impact flash from OCA

On the night of May 27th, 2020 at 20:48:49.420 UTC, we detected our first impact flash from the

Observatoire de la Côte d'Azur (site of Mt. Gros). This is the first live impact observed for the project "Flash!", the first from the Observatoire de la Côte d'Azur and the first from all France by professional sites. The telescope used is a 16" MEADE coupled with a CMOS ASI ZWO 183mono camera. The frame rate was 20 fps and the frame integration time was 0.05 sec. The telescope was guiding on the lunar crescent using the lunar autoguider that we developed in the framework of the master course of MAUCA (University of Côte d'Azur).

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