

The All-Sky-6 and Video Meteor Archive System of the AMS Ltd.

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Over a period of several years, the American Meteor Society, Ltd. has developed a custom hardware and software system for capturing, reducing, solving and permanently storing meteor event data along with all-important corroborating video media from which high accuracy and reliable information can be gleaned. The connected hardware and software developed for video capture, detection and trajectory analysis up to this point has utilized mainly open source materials and steadily matured into a modern, online system with wide international connections through “live” internet synchronization interactions between the various camera stations. Some critical software components and algorithms used by our system for the astrometric and photometric calibration of the cameras as well as trajectory and orbit solving have been developed by Denis Vida and provided through his RMS (Raspberry Pi Meteor Station) and WMPL (Western Meteor Python Library) open-source projects. These routines and solvers are currently integrated into the AMS routine workflow along with some others from the open or published literature. A continuing test of system integrity is obtained by “back” solving events collected from both present and past publicly-available meteor event databases and comparing our derived orbital elements with those formally published. Our derived geometric elements are generally in good agreement with those derived by others, but occasionally velocity and deceleration disagreements (as reflected in implausible a , e orbit values) remain in certain cases. We are continuing to search for causes and possible remediation of these errors.