

# MEO All Sky Camera Installation and Calibration

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**ERC**

**JACOBS™**

# Hardware

- ▶ Camera
  - ▶ Watec 802H Ultimate camera
  - ▶ 2 mm f/1.4 lens
  - ▶ Daylight sensor
  - ▶ Heater
- ▶ Computer
  - ▶ ASGARD
- ▶ Cables
- ▶ GPS



# Camera Image



# GPS

- ▶ NaviSys u-blox8
- ▶ USB
- ▶ Pulse Per Second
- ▶ 0.5 ms accuracy



# Computer



# Capture Card

- ▶ Sensory Model 811
- ▶ PCIe
- ▶ Four NTSC inputs



# Mounts



# Mounts



# Mounts



# Mounts



# Mounts



# Mounts



# Problems

## Broken Domes



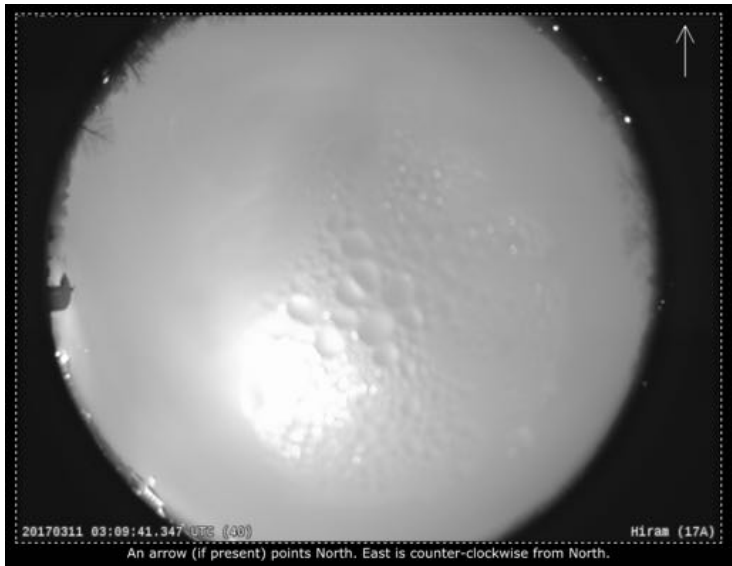
# Problems

## Raccoons



# Problems

Dew



# Problems

Hail



# Problems

RFI

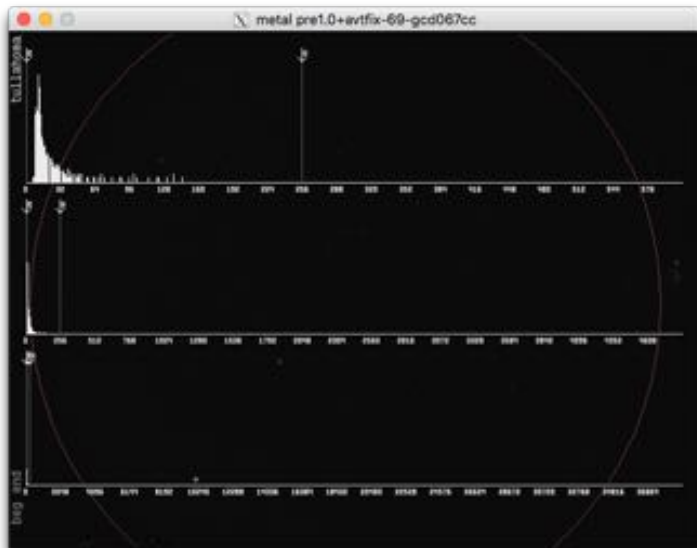
# Calibration

Stars



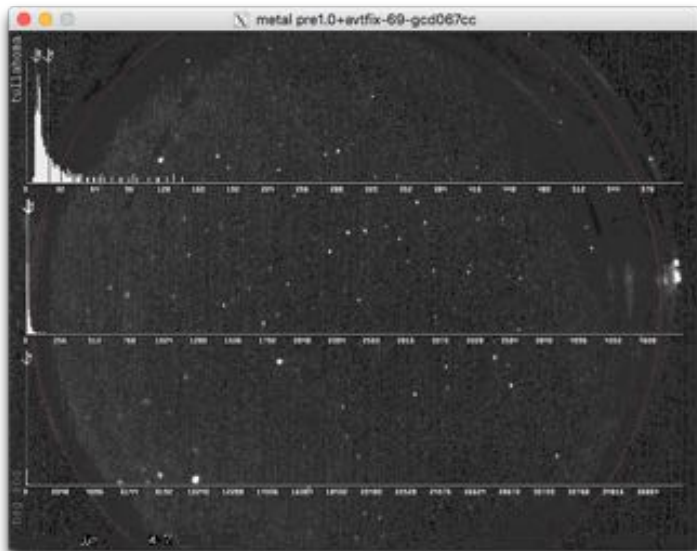
# Calibration

## Stars



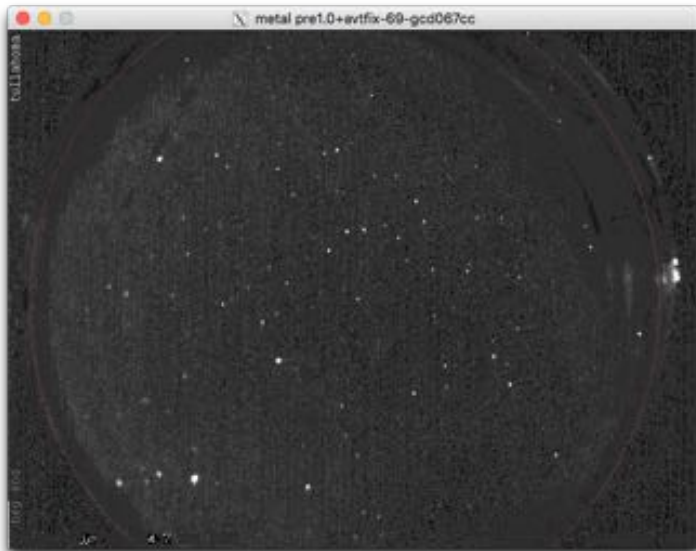
# Calibration

## Stars



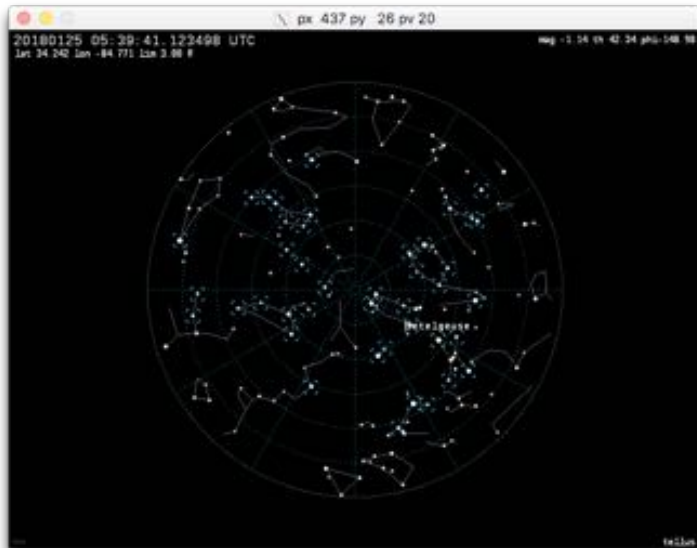
# Calibration

## Stars



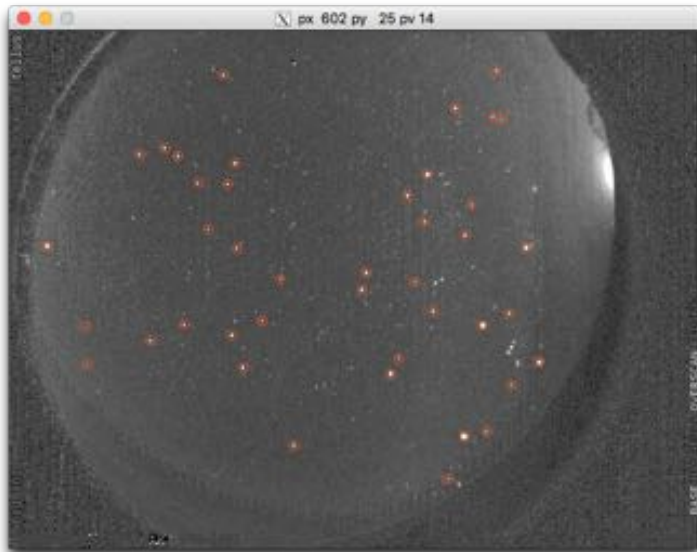
# Calibration

## Stars



# Calibration

## Stars



# Calibration

## Astrometric

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ASTRONOMY & ASTROPHYSICS

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## A new positional astrometric method for all-sky cameras

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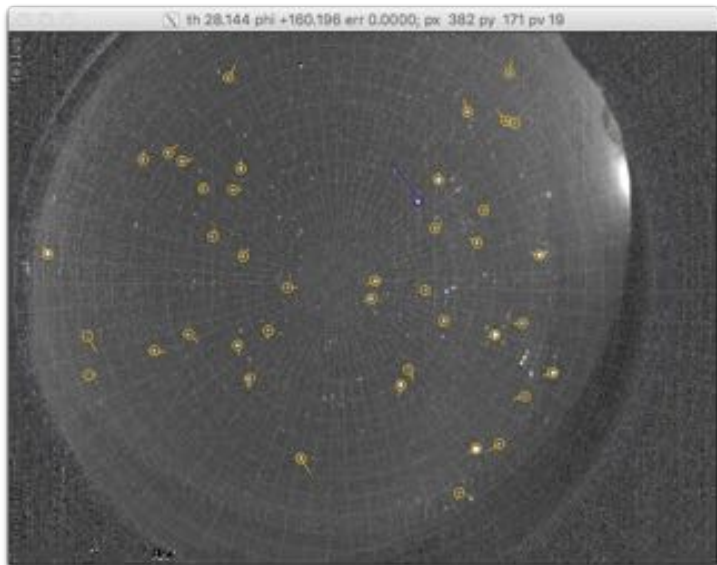
Received December 9, 1994; accepted January 27, 1995

**Abstract.** — All-sky photographs, used in meteor astronomy, need a special transformation formulae for converting the plate coordinates to celestial coordinates. An improved form of these formulae is presented. It includes a new radial projection function and the influence of the inclination of the plate from the plane perpendicular to the optical axis. The method then enables to achieve the precision near the theoretical limit simultaneously for the entire visible hemisphere. About 15 reference stars spread on the whole sky are needed. The meaning of the individual reduction constants is explained in detail. Practical hints for using the method and numerical examples are given.

**Key words:** astrometry — meteors — methods: data analysis

# Calibration

## Astrometric



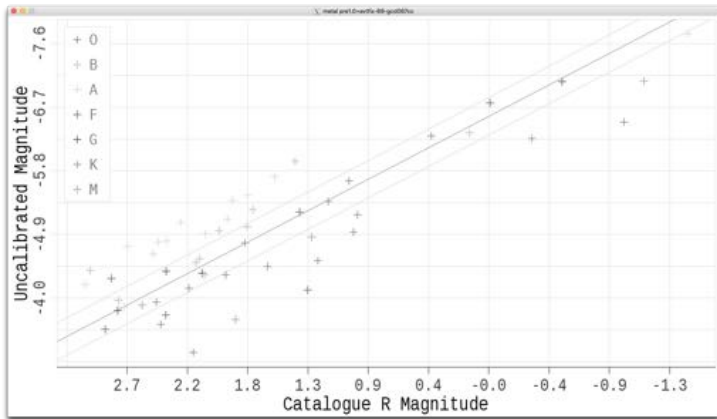
# Calibration

## Astrometric

- ▶ Approximately 50 stars
- ▶ 0.2 degree accuracy
- ▶ Done monthly

# Calibration

## Photometry



Thank You