

# ALL-SKY ATMOSPHERIC MONITORING CAMERA

The All-Sky Camera (ASC) allows long time periodical measurements of the following parameters of the full night sky.

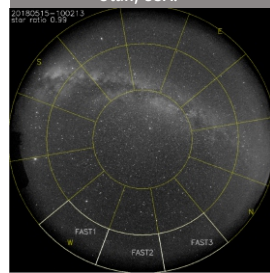
- Sky brightness measurement
- Cloud fraction of the sky
- Sky transparency and aerosol content estimate
- Star detection up to 8 mag

## POSSIBILITIES

- All-sky parameters without mechanical movement
- Autonomous operation (no human interference, no public electric power, no internet connection)
- Passive measurement in visible light range, wheel with astronomical filters upon request (up to 5 custom filters)
- Data accessible over internet (webpage, database, data files)
- Possible additional monitoring (temperature, humidity, rain, wind speed and direction, clouds altitude, calibrated night sky brightness monitor)



ASC, Black Rock Mesa site,  
Utah, USA.



The field of view of the ASC.

## APPLICATIONS

- Observatories – clouds and night sky quality monitoring, meteor detection
- Schools – education, astro applications
- Airports – on-site night and day clouds and meteorological conditions monitoring
- Meteorological stations – clouds monitoring with high angular and time resolution

## INSTALLATIONS

- Pierre Auger Observatory - background light measurement, clouds detection, observatory operation time control: Malargüe – Argentina
- Cherenkov Telescope Array - clouds detection, night sky brightness: Aar – Namibia; San Antonio de Los Cobres and Leoncito – Argentina; San Pedro Martir – Mexico; Meteor Crater and Yavapai – USA; Tenerife and La Palma– Spain
- Fluorescence detector Array of Single-pixel Telescopes - clouds detection, night sky brightness, aerosol content estimate: Black Rock Mesa site, Utah, USA

Join Laboratory of Optics of Palacký University and Institute of Physics of the CAS

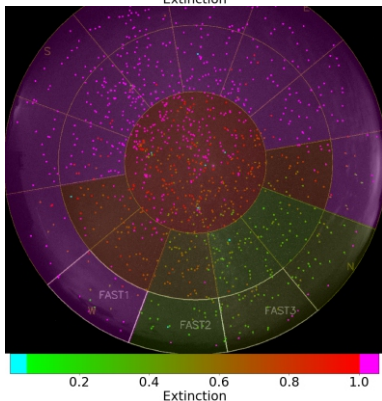
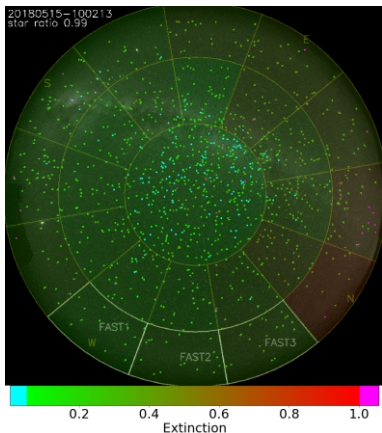


Palacký University  
Olomouc

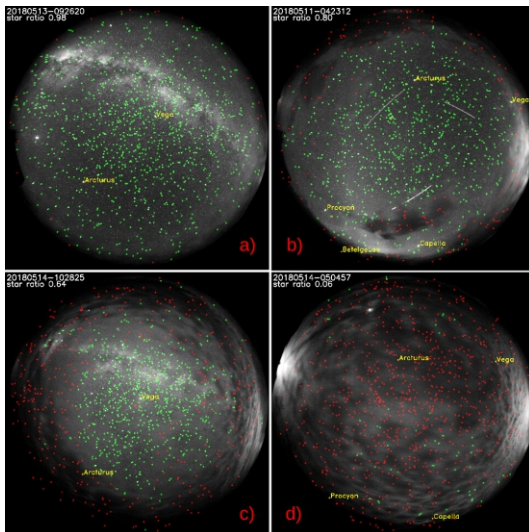


FZU

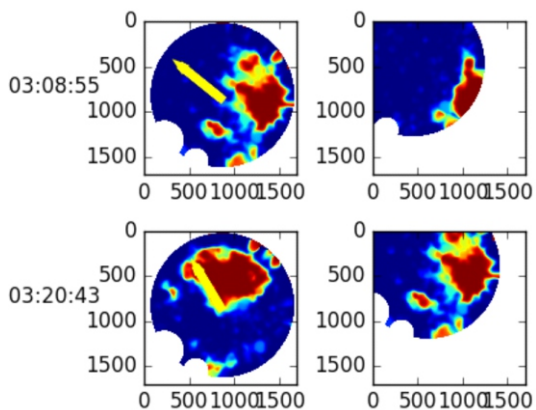
Institute of Physics  
of the Czech  
Academy of Sciences



Extinction maps showing transparency of the particular region of the sky. Each region of the sky is colored based on the region extinction value obtained by averaging the extinction values obtained using the stars in the particular region (cyan < 0.05, magenta > 1.0 and the missing stars).



Astrometry analysis of the night sky images. The star ratio represents the ratio of the number of detected stars in the image to the sum of catalogue stars in the field of view - a) clear sky, b) clouds close to horizon (and airplanes in the field of view), c) partially-cloudy sky, d) almost fully overcast sky.



Cloudiness maps - prediction of cloud movement.