

# SCIENCE ALERTS FROM THE JOAN ORÓ TELESCOPE

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# MONTSEC OBSERVATORY

Longitude: 00° 43' 46" E

[www.oadm.cat](http://wwwoadm.cat)

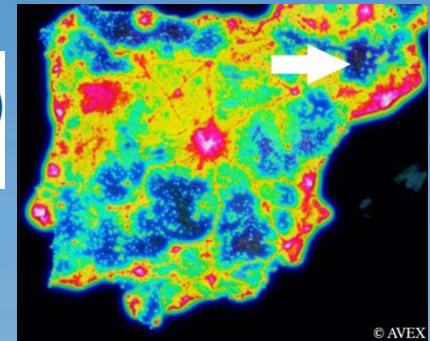
Latitude: 42° 03' 05" N

Altitude: 1570 m above sea level

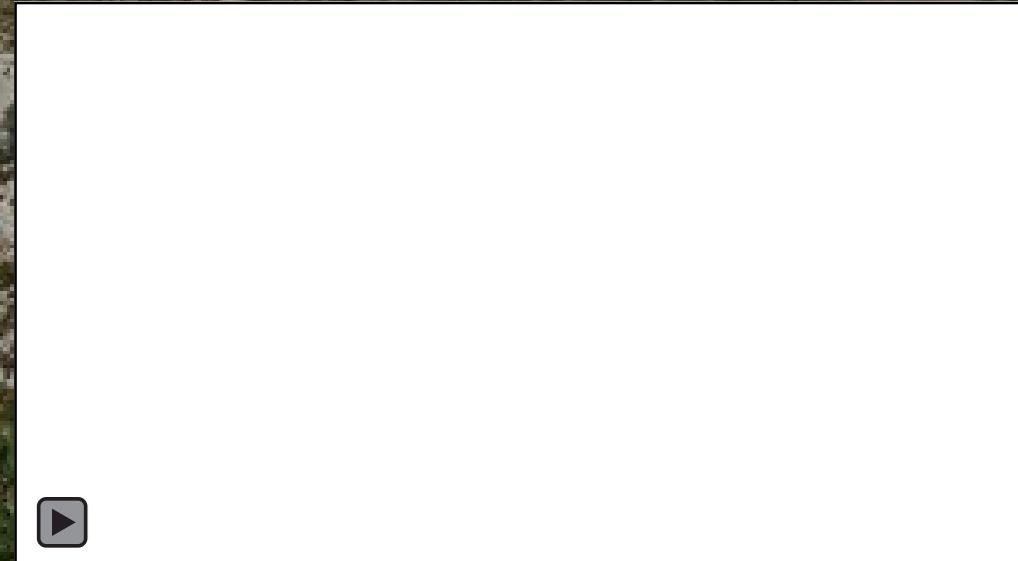
Opening: 24 October 2010

UNESCO Starlight reserve area (free of luminical pollution):

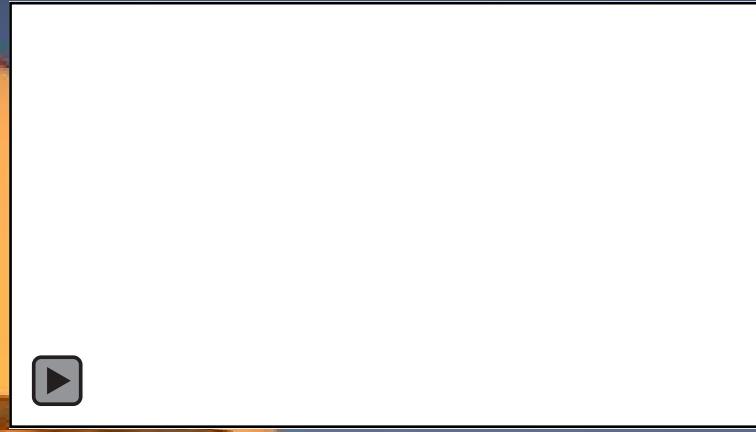
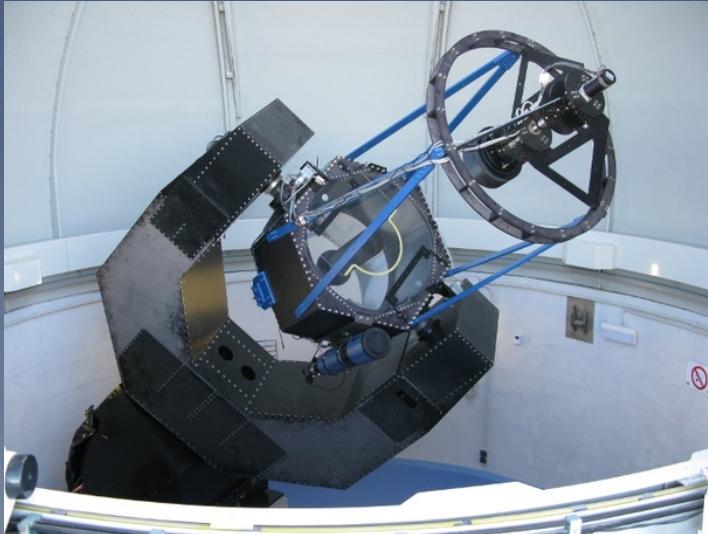
Background brightness at zenith in moonless nights=22.0 mag·arcsec<sup>-2</sup>



© AVEX



# JOAN ORÓ TELESCOPE



- 0.8 m robotic telescope (Optical Mechanics Inc., OMI)
- F/9.6 Ritchey-Chrétien configuration. 1 arcmin pointing
- 6.15 m automatic dome (Baader Planetarium GmbH)
- Controlled by TALON software. OpenROCS architecture.
- 2 weather stations + 1 storm detection + GPS.



# TJO INSTRUMENTATION

## LAIA (Imager):

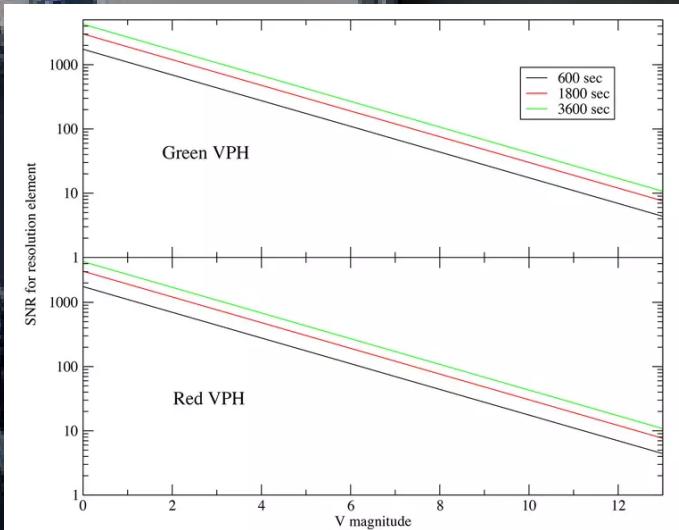
- Model: iKon XL, CCD230-84
- Sensor Manufacturer: e2v
- Sensor Type: Back Illuminated
- Coating: BV
- Number of pixels: 4096 x 4096
- Pixel Size:  $15 \times 15\mu\text{m}$  ( $0.4 \times 0.4$  arcsec at the TJO)
- Field of view at TJO without vignetting: 30 arcmin
- Sensor size: 61.4 x 61.4mm
- Quantum Efficiency: >90% from 500 to 650nm;  
>50% in all the range from 400 to 850nm
- Typical Working Temperature: -50° C
- Typical Dark Current: <0.01 e-/pixel/sec. @ -50° C
- Typical Read-out Noise: <9 e- RMS a 1 MHz
- Read-out channels: 4
- Non linearity: <1%
- Read-out time: 8 seconds



# TJO INSTRUMENTATION

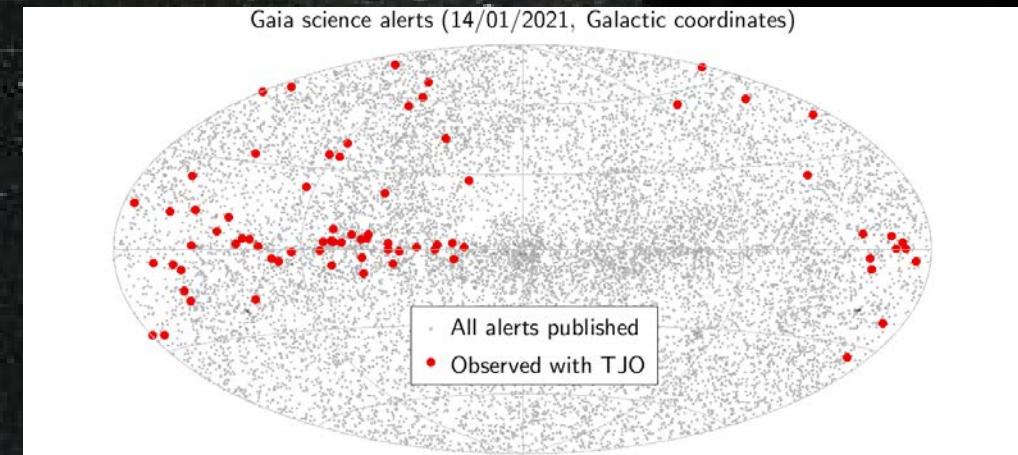
## ARES (Spectrometer):

- RES is the fiber-fed optical spectrograph (designed by Fractal SLNE) currently starting the commissioning phase at the TJO. It is mainly conceived to perform medium-resolution spectroscopy with the following characteristics:
- Limit star magnitude: S/N=10 for V=13 mag in 1 h.
- Global transmissivity: > 10%
- Spectral resolution: R=12000
- Two spectral windows:
  - Green: between 495 and 530 nm
  - Red: between 630 and 673 nm.



# GAIA ALERTS WITH TJO

- Observing Alerts since 23rd Feb 2015.
- Johnsons-Cousins observations: BVRI
- 3 exposures /passband
- 75 Gaia alerts followed up
- >21000 images collected
- Third most contributing observatory
- Start observing only AlertMag < 17.5 mag
- Until the target reaches V  $\sim$  19 mag
- Gaia16aye (Wyrzykowski+2020),
- Gaia18dvy (Szegedi-Elek+2020)
- Granted time for 2021A semester



J.M. Carrasco  
CU5 member



U. Burgaz  
PhD student

**Is anybody interested to scientifically analyse our data  
or to drive our observations to any particular type of  
alerts?**

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