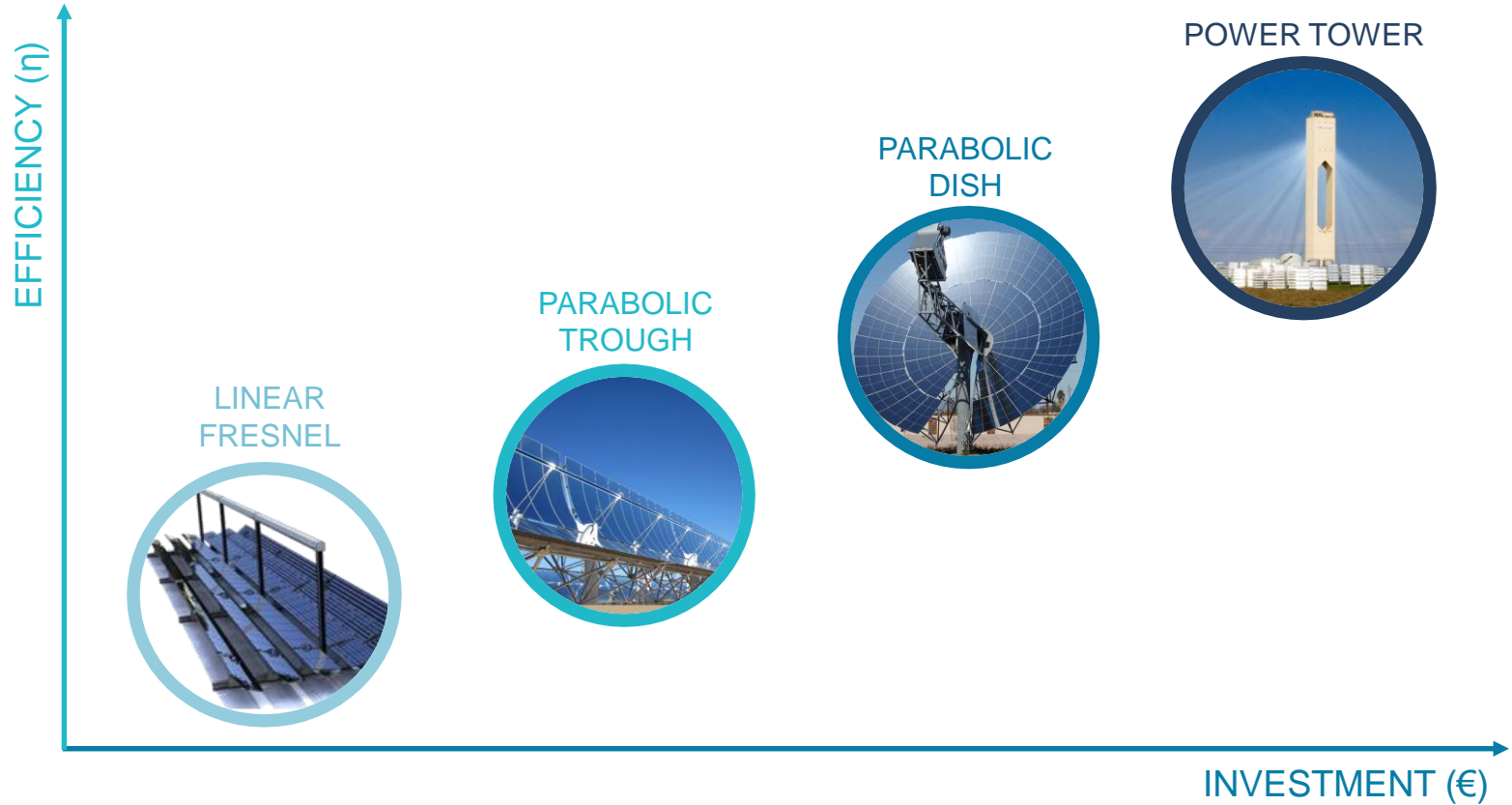


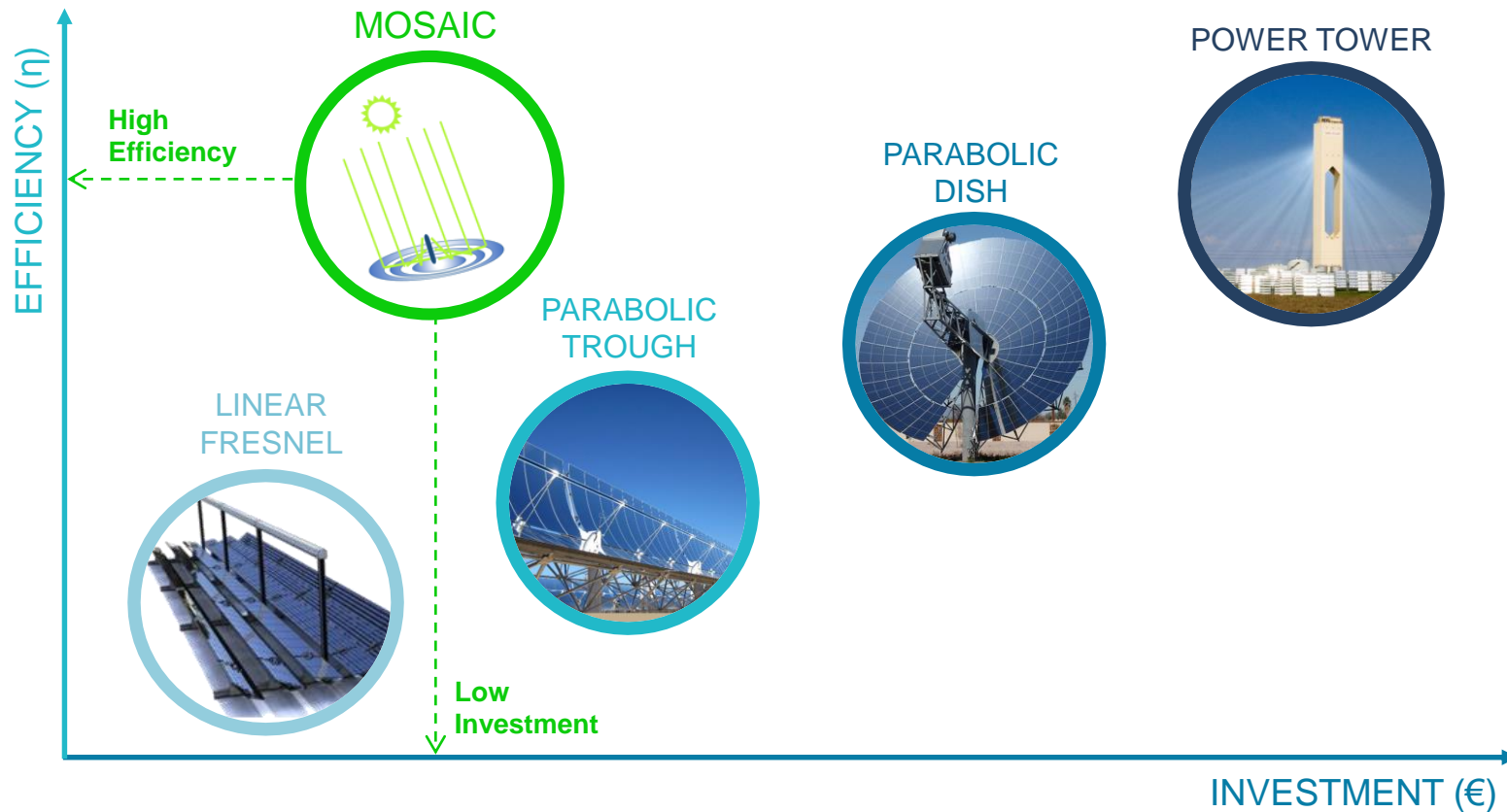
# Tracking system design for a new concept of solar concentration technology

Eneko Gomez-Acedo, Gorka Kortaberria, Joseba Domingo, Cristobal Villasante

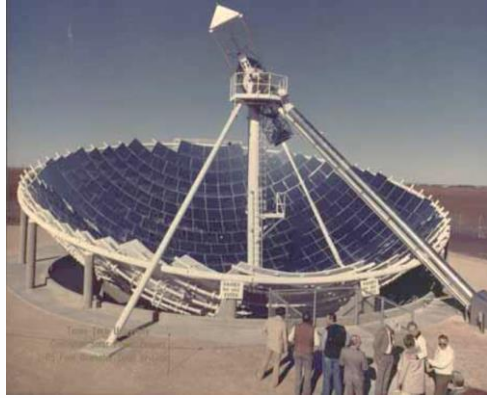
*eneko.gomez-acedo@tekniker.es*

3DMC 2019 London, 7<sup>th</sup> November





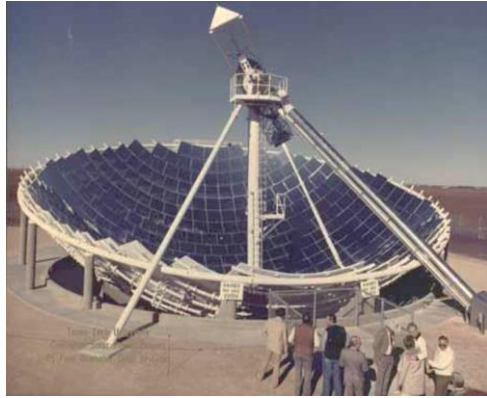
**SOLAR BOWL**  
CROSSBYTON, USA  
**20M**



**SOLAR BOWL**  
AUROVILLE, INDIA  
**15M**



**SOLAR BOWL**  
CROSSBYTON, USA  
**20M**



**ARECIBO**  
OBSERVATORY  
PUERTO RICO  
**305m**



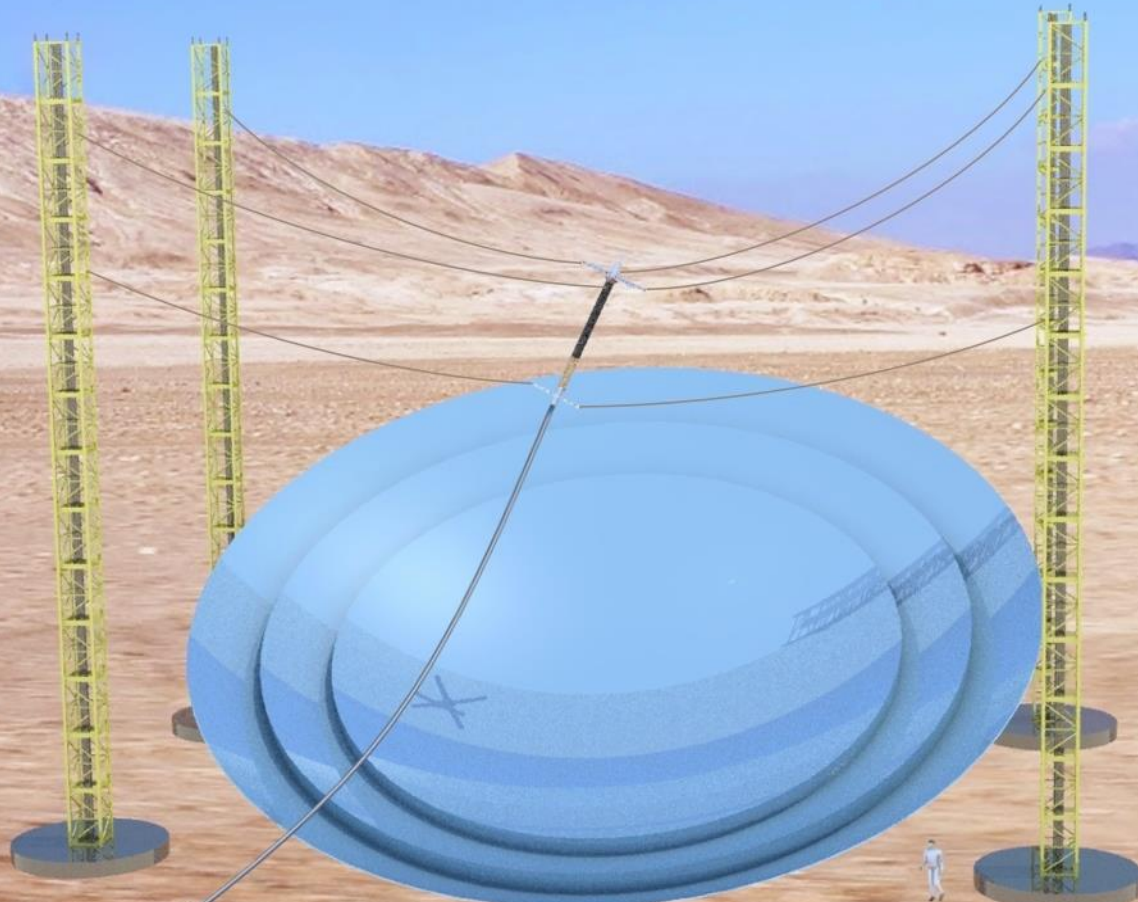
**SOLAR BOWL**  
AUROVILLE, INDIA  
**15M**

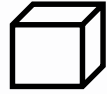


**FAST TELESCOPE**  
CHINA  
**500m**









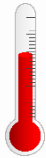
30m x 30m x 30m



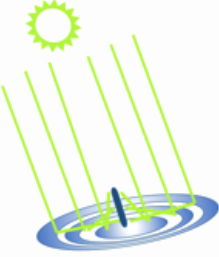
0.040m




1000 suns





500°C




30m x 30m x 30m





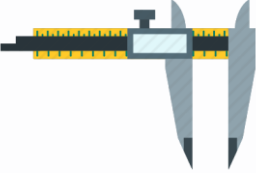
0.040m



1000 suns

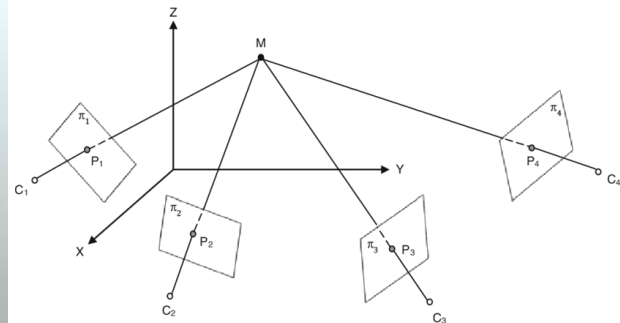
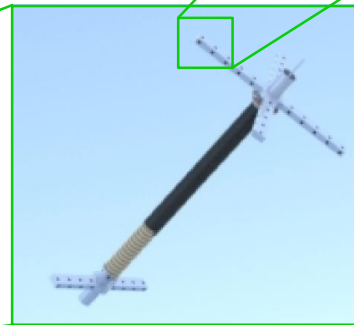
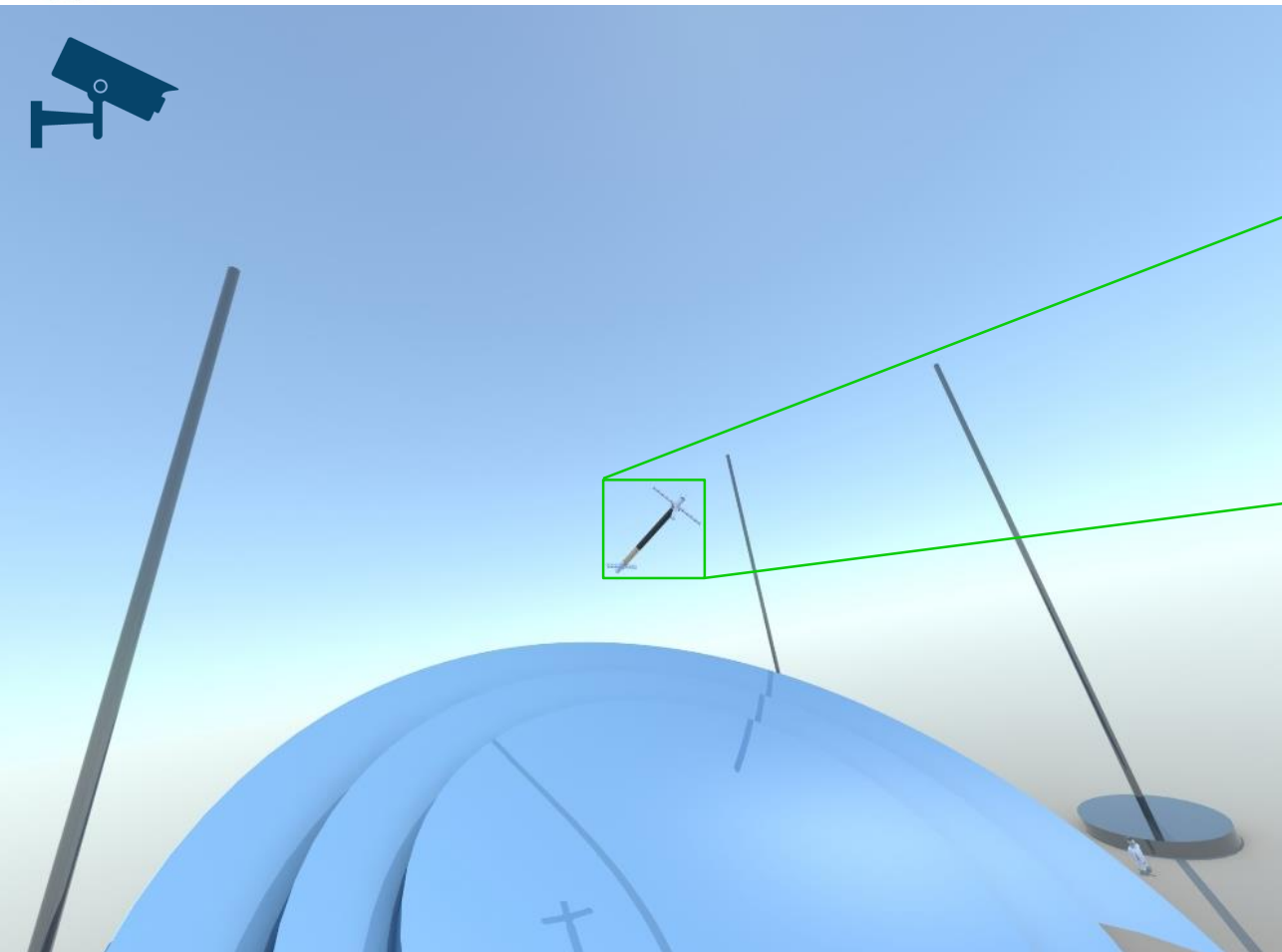


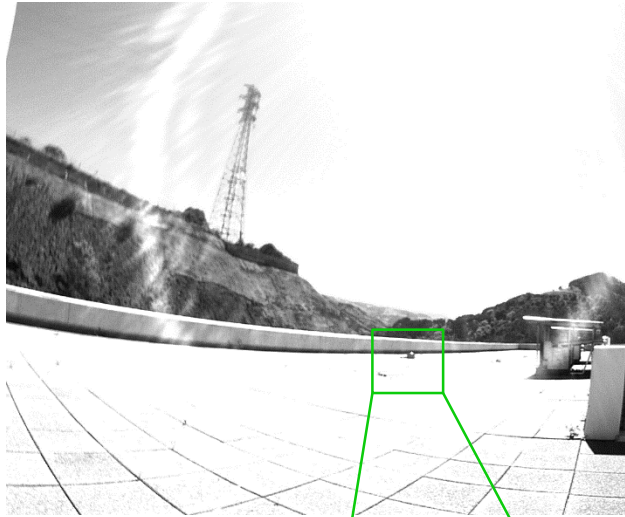
500°C



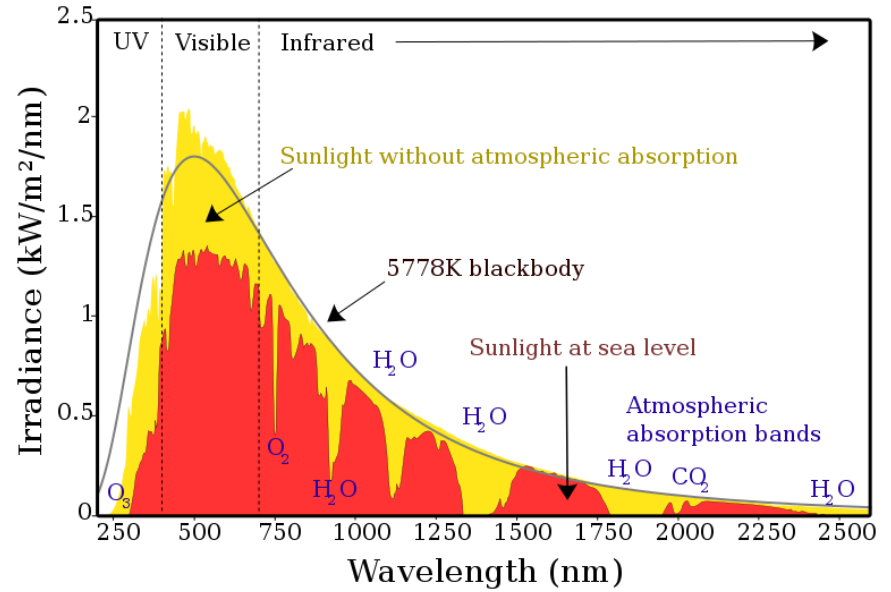
0.010m

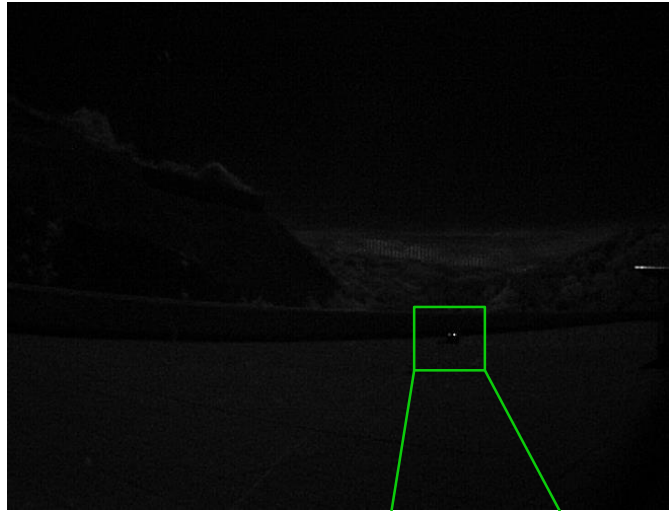




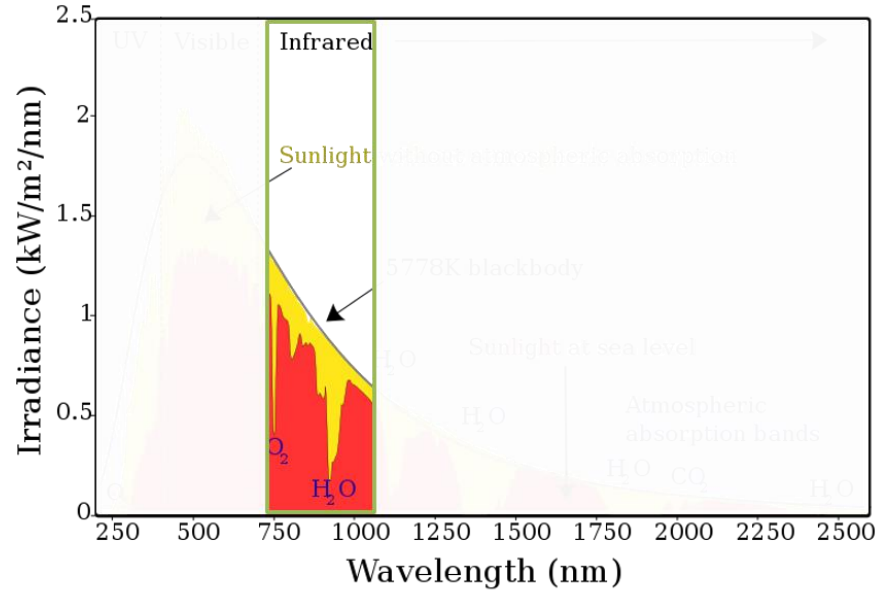


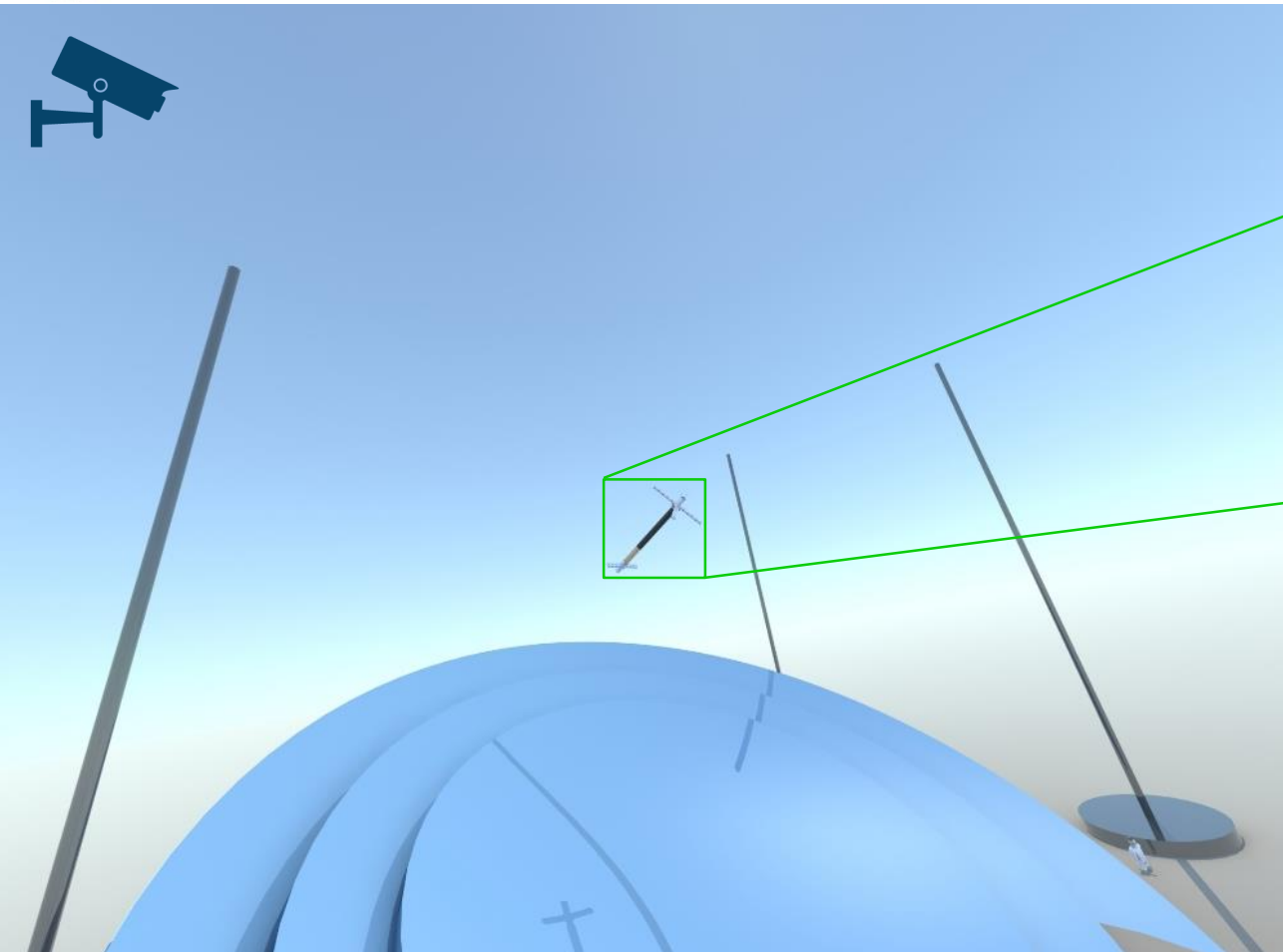
## Spectrum of Solar Radiation (Earth)

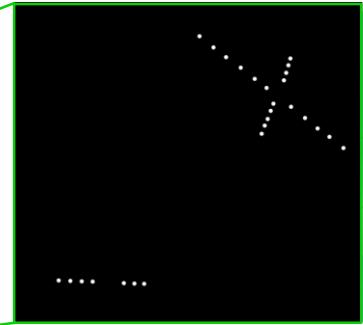
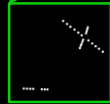
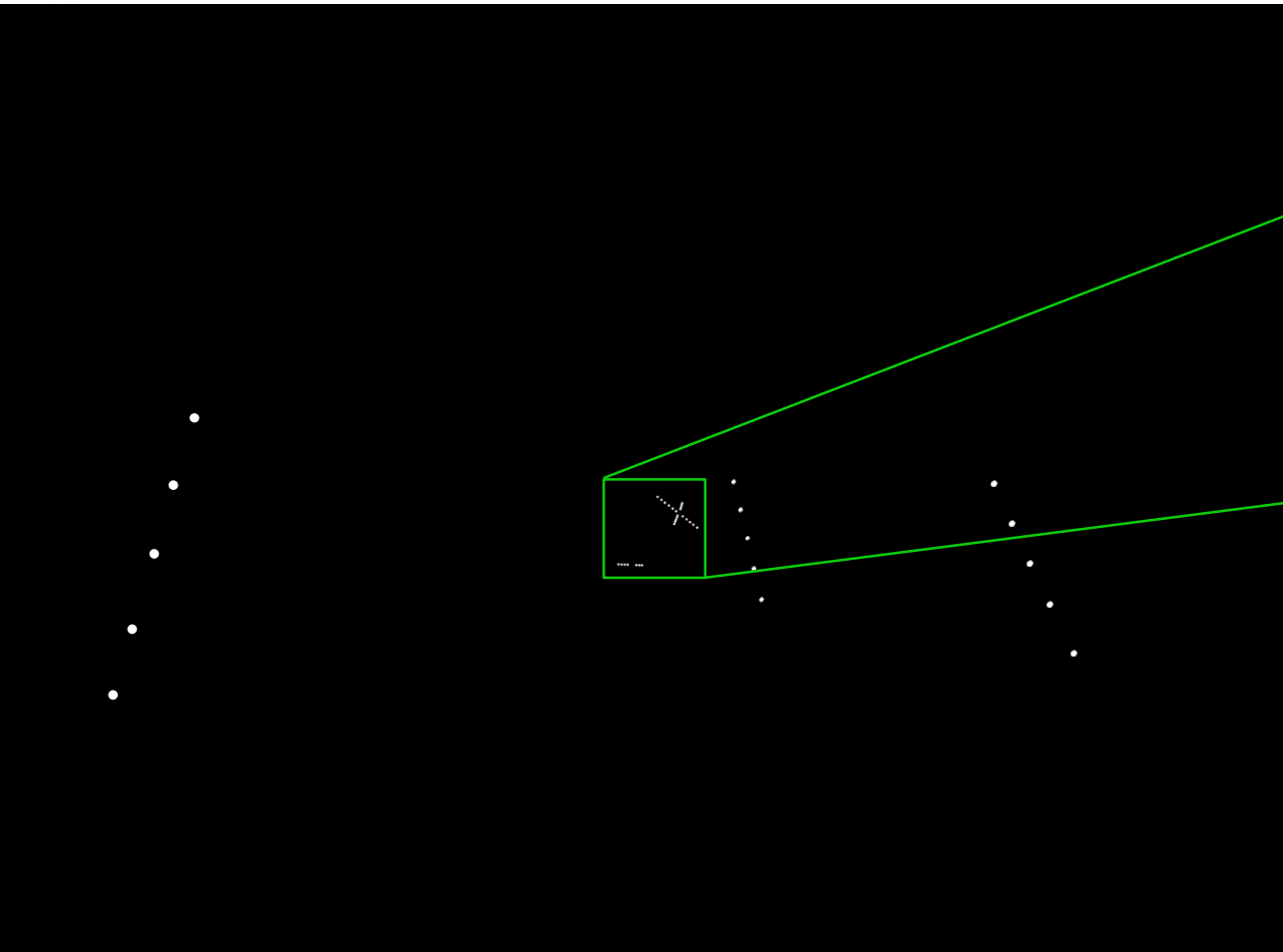




## Spectrum of Solar Radiation (Earth)

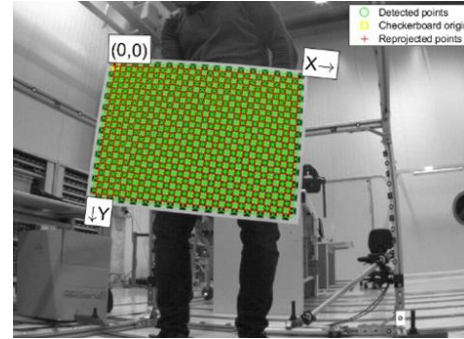




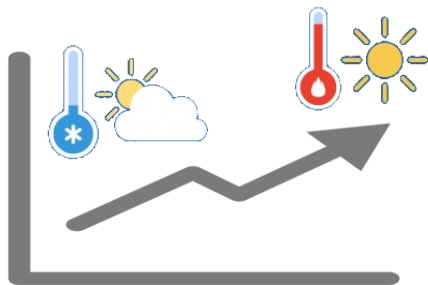




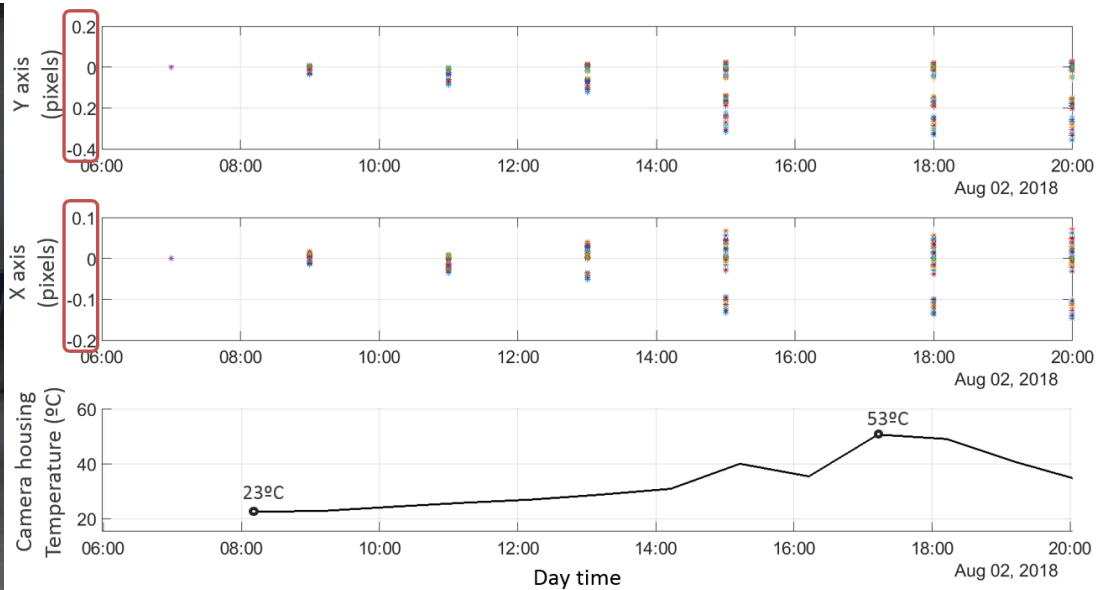
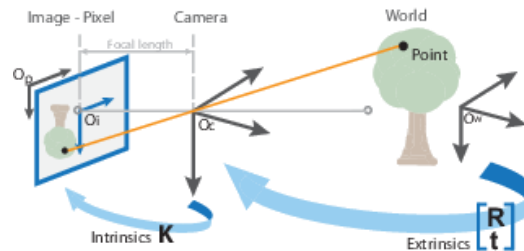
0.3 pixel ✓





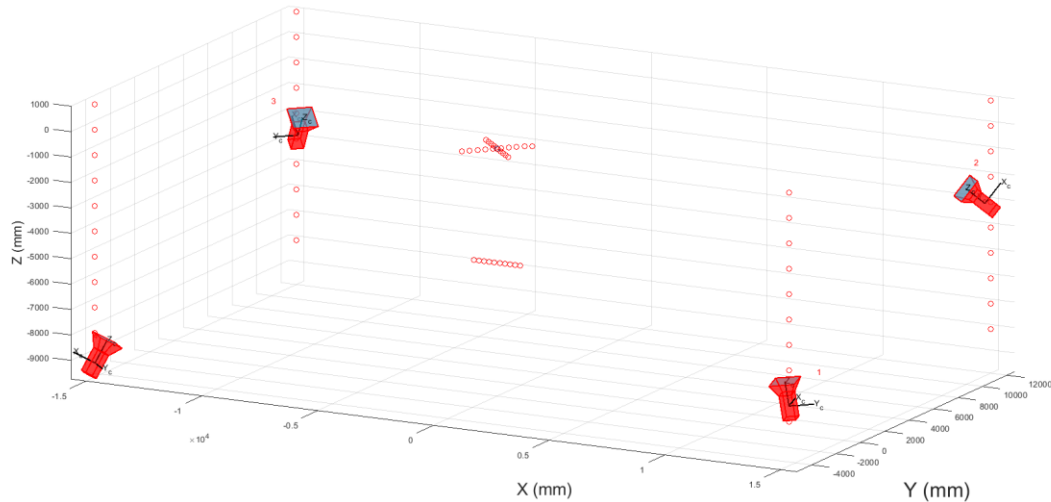
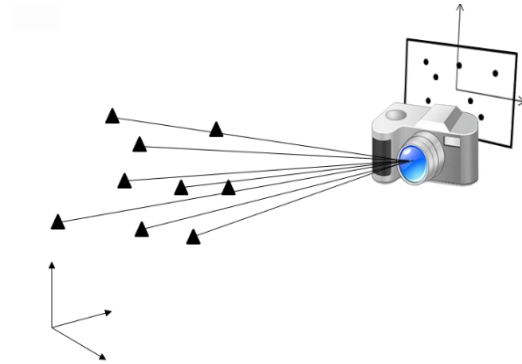


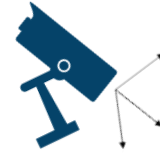
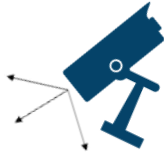
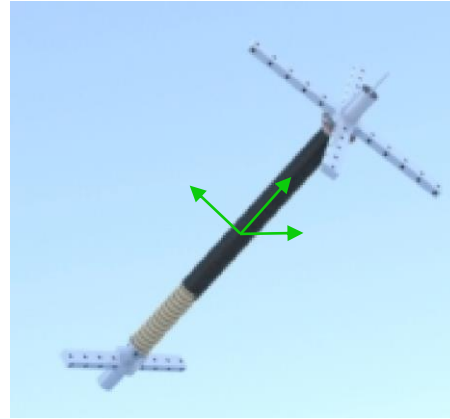
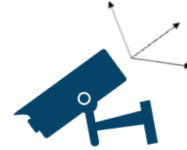
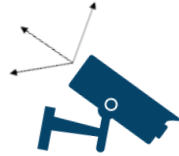
0.4 pixel ✓

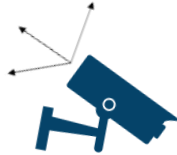




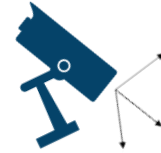
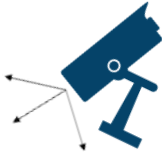
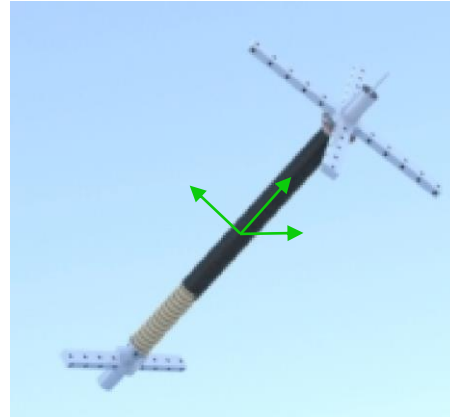
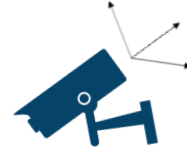
0.001rad ✓

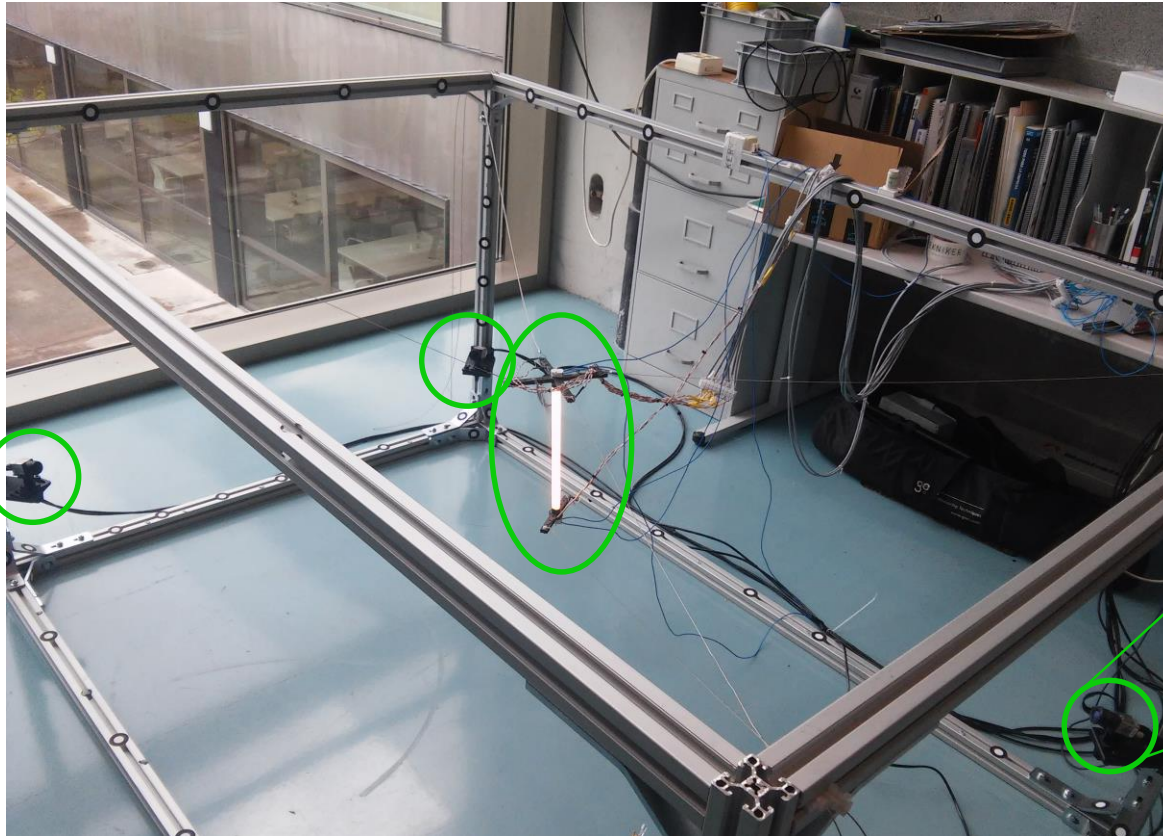






5mm < 10mm ✓





## Conclusions:

- The design of the measuring system has been done.
- Global measurement uncertainty has been estimated based on:
  - Camera internal calibration
  - Camera internal parameter drift
  - Camera external calibration
- Expected measurement uncertainty is estimated within requirements.
- An actual prototype of the system is being built in Sangüesa, Navarra (operating in 2020).



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3DMC 2019 London, 7<sup>th</sup> November

