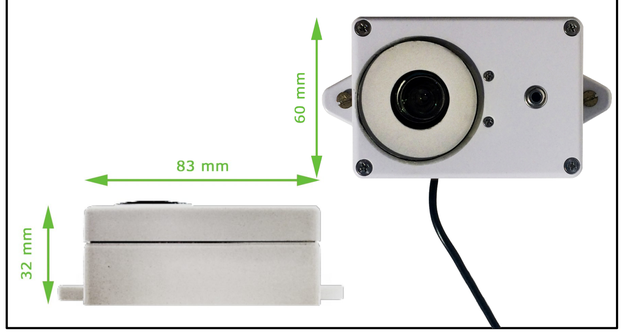
Platform for online browsing Night Sky Brightness monitoring data

Carlos Tapia[1], Jaime Zamorano[1], Esteban González[2], Samuel Lesmes[3], *ceta@ucm.es*
Óscar Corcho[2], Miquel Serra-Ricart[3], Rafael González, Cristóbal García, and The STARS4ALL consortium
[1] *Universidad Complutense de Madrid, Madrid, Spain*
[2] *Universidad Politécnica de Madrid, Madrid, Spain*
[3] *Instituto de Astrofísica de Canarias (IAC), Tenerife, Spain*

LPTMM Conference 2019: Light Pollution: Theory, Modelling and Measurements

ABSTRACT

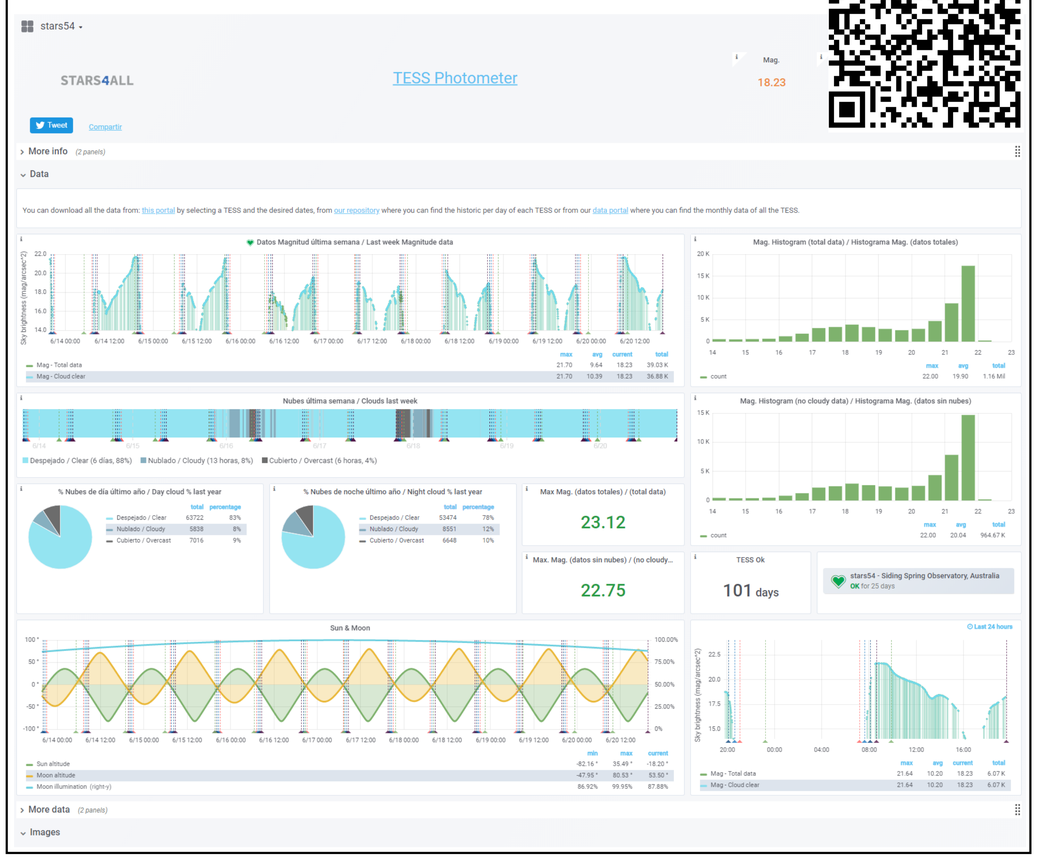
- STARS4ALL team has developed a platform for recording and displaying in real time the Night Sky Brightness data measured by the TESS-W photometers.
- The data recorded by the photometers are open and is ready t be used in research.
- The real time data and the archived data could be displayed using a web browser.
- Some examples and use cases are given.



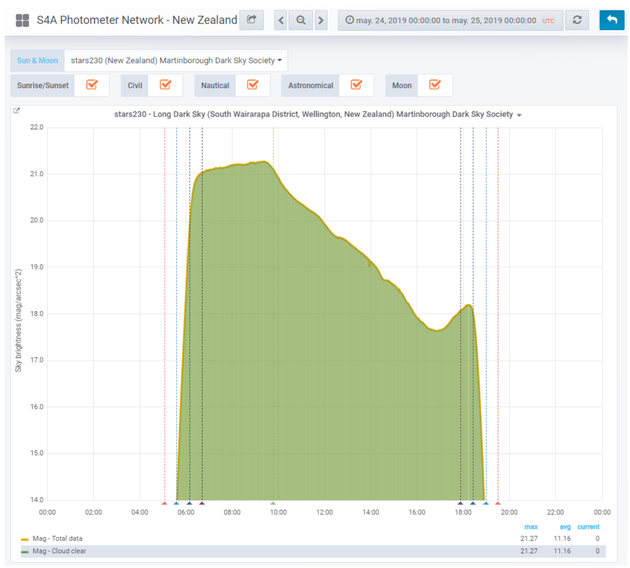
STARS4ALL NSB monitoring network

- TESS-W photometers around the world are providing open data in real time (every minute) that are stored for future research.
- The network of TESS-W has been growing during the last years thanks to the STARS4ALL European Project.
- After the Project we have created the STARS4ALL Foundation to continue the aims of the Project and to sell and donate photometers to increase the network.
- The network has been designed as open data citizen science Project.
- Currently there are 154 photometers online
- The platform provide real time statistics of every photometer
- Any photometer on the network can be compared with another.

Custom dashboard for each photometer

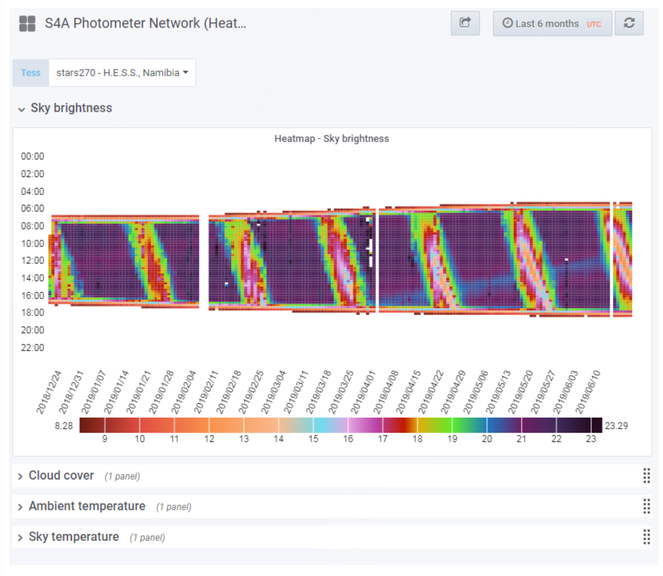


Example 1: Evolution of NSB during one night



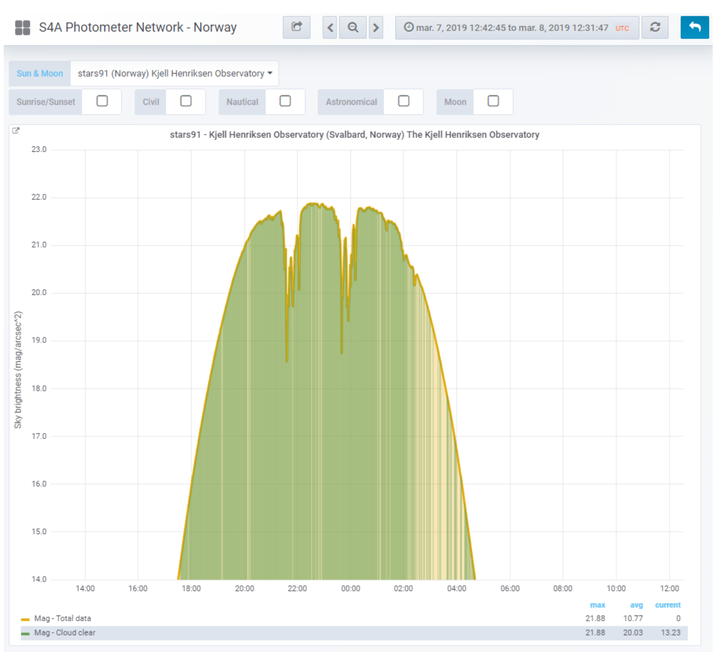
- One night in an IDA reserve at New Zealand.
- At 10 UTC the moon rise reaching the highest altitude at 17 UTC.

Example 2: Evolution of NSB during 6 months



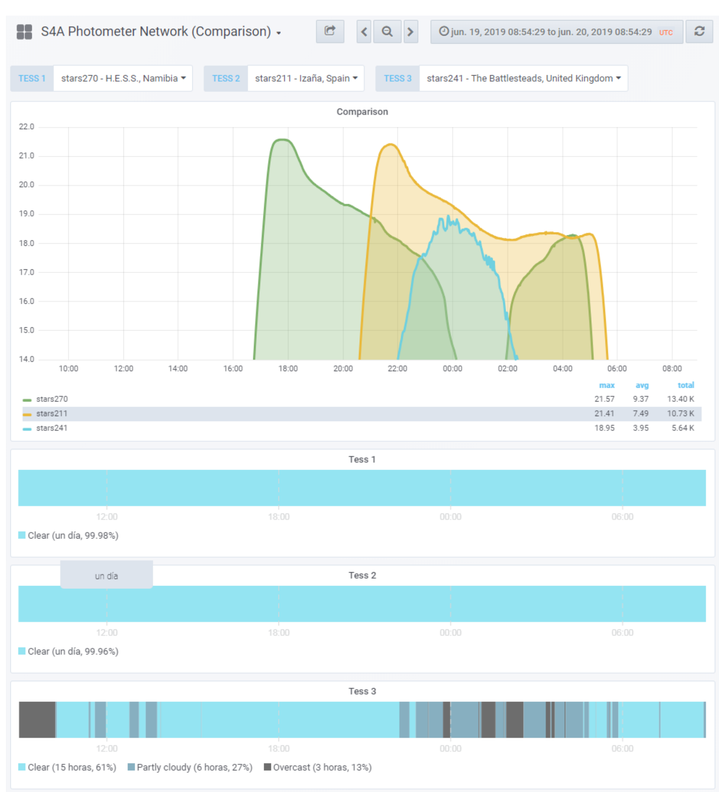
- The moon phases are easy to detect in high and low polluted skies.
- The Milky way can be detected too (blue line)

Example 3: Detection of auroras



- Two aurora storms at the same night over Svalbard (Norway, Polar Circle).
- The auroras can be detected as increasing in brightness
- Thanks to the cloud detector we can distinguis between clouds or real auroras.

Example 4: Comparisson between photometers



As the network cover all the globe can be done comparisson with other photometers by latitude, longitude for outreach.

Example 5: Evolution of NSB during one night

And of course it can be detected the turn on of lights that must be turned off.

This work was funded by the EU project STARS4ALL (H2020-688135).

We are developing our research thanks to ACTION https://actionproject.eu/ (H2020-824603).

European Commission
Horizon 2020
European Union funding for Research & Innovation