

Mayo Dark Sky Park

Half the Park is After Dark



Wild Nephin National Park by Day | Mayo Dark Sky Park by Night

Georgia MacMillan
IRC PhD Employment Scholar
Mayo Dark Sky Park Development Officer



IRISH RESEARCH COUNCIL
An Chomhairle um Thaighde in Éirinn



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UNIVERSITY OF GALWAY



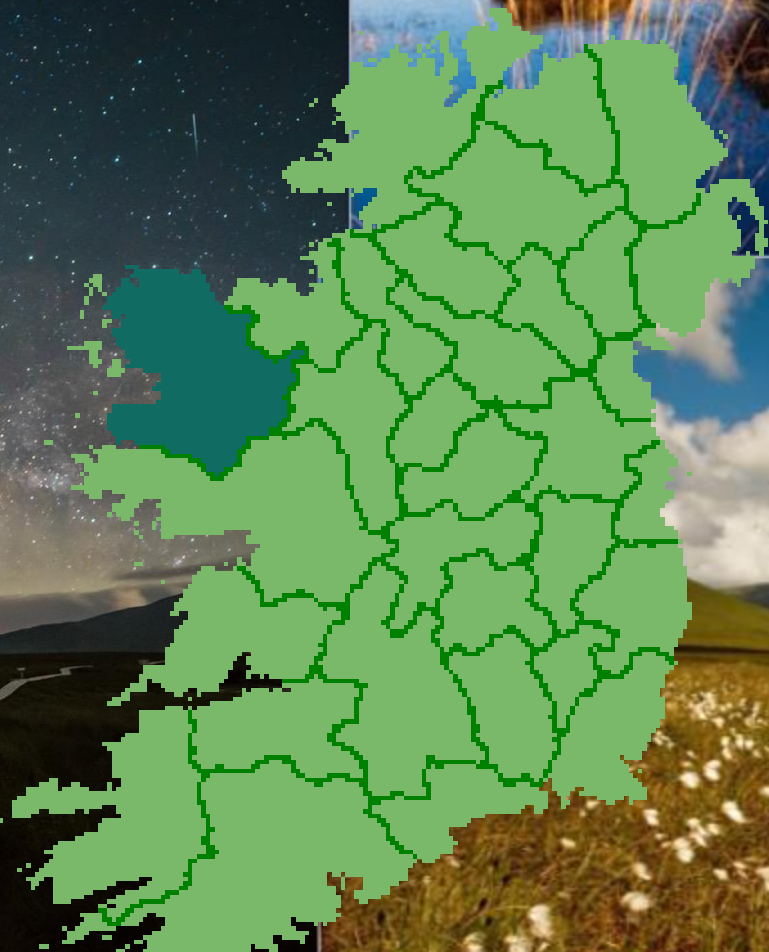
NPWS

An tSeirbhís Páirceanna
Náisiúnta agus Fiadhúlra
National Parks and Wildlife
Service

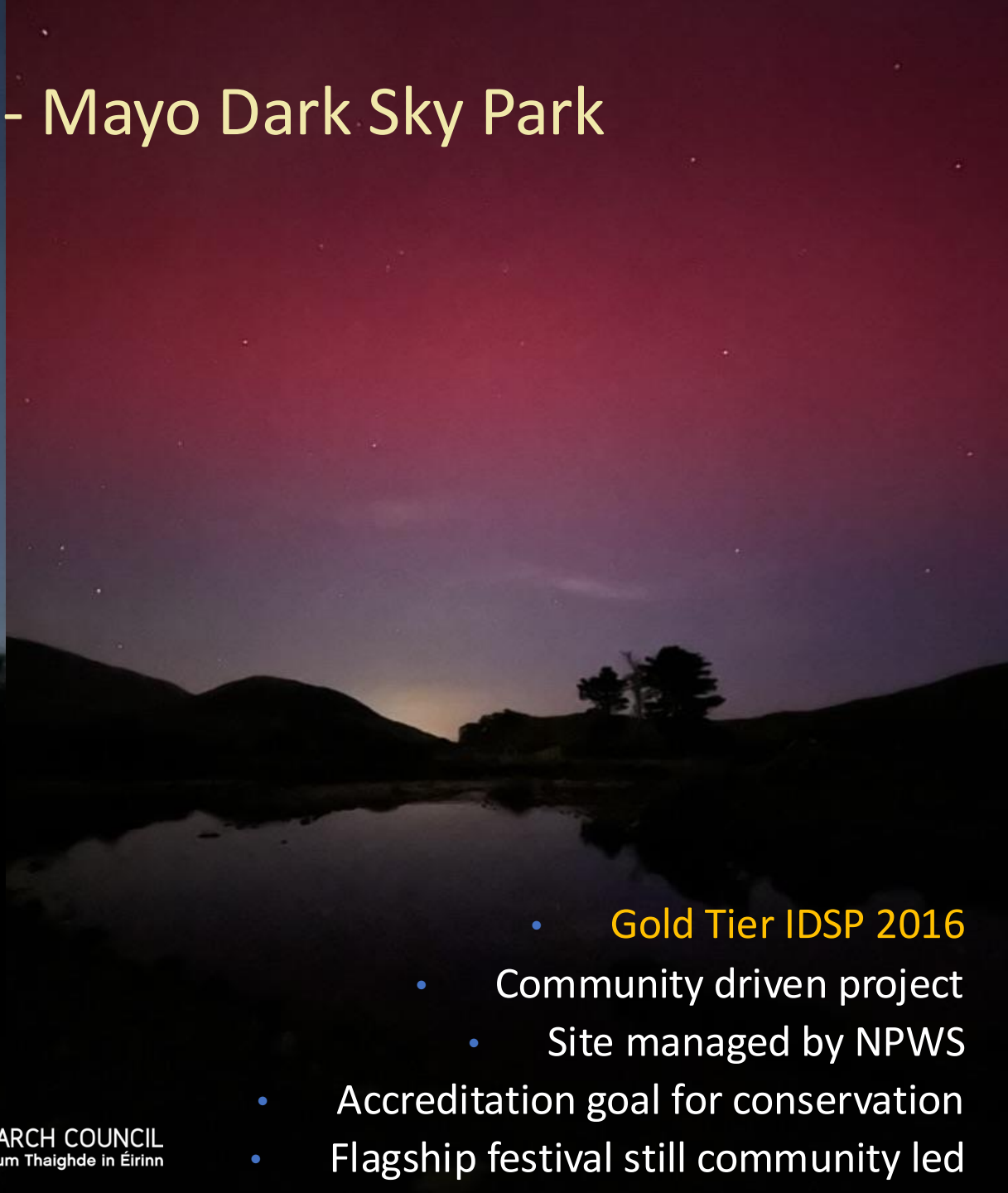
Half the Park is After Dark

Wild Nephin National Park - by Day

Mayo Dark Sky Park - by night



Wild Nephin National Park - Mayo Dark Sky Park



- Gold Tier IDSP 2016
- Community driven project
- Site managed by NPWS
- Accreditation goal for conservation
- Flagship festival still community led



Photo Josh Matthews

Photo by Josh Matthews



Photo Josh Matthews

Photos by Josh Matthews

Mayo Dark Sky Impacts

- Pioneered Dark Sky Tourism Development
- Over 400 DS Ambassadors/ Champions trained
- Policy Contributions for Regional & National
- Host of European Dark Sky Symposium 2019
- **ALAN 2025 Light Pollution Conference**
- Outsider EcoHero & International Dark Sky Awards
- Living Laboratory Irish Research (1st PhD)
- Innovations in dark sky friendly lighting projects
- Strategic Development Plan for Observatory & Planetarium (mobile facility first step)
- **Goal for Dark Sky County / Reserve**

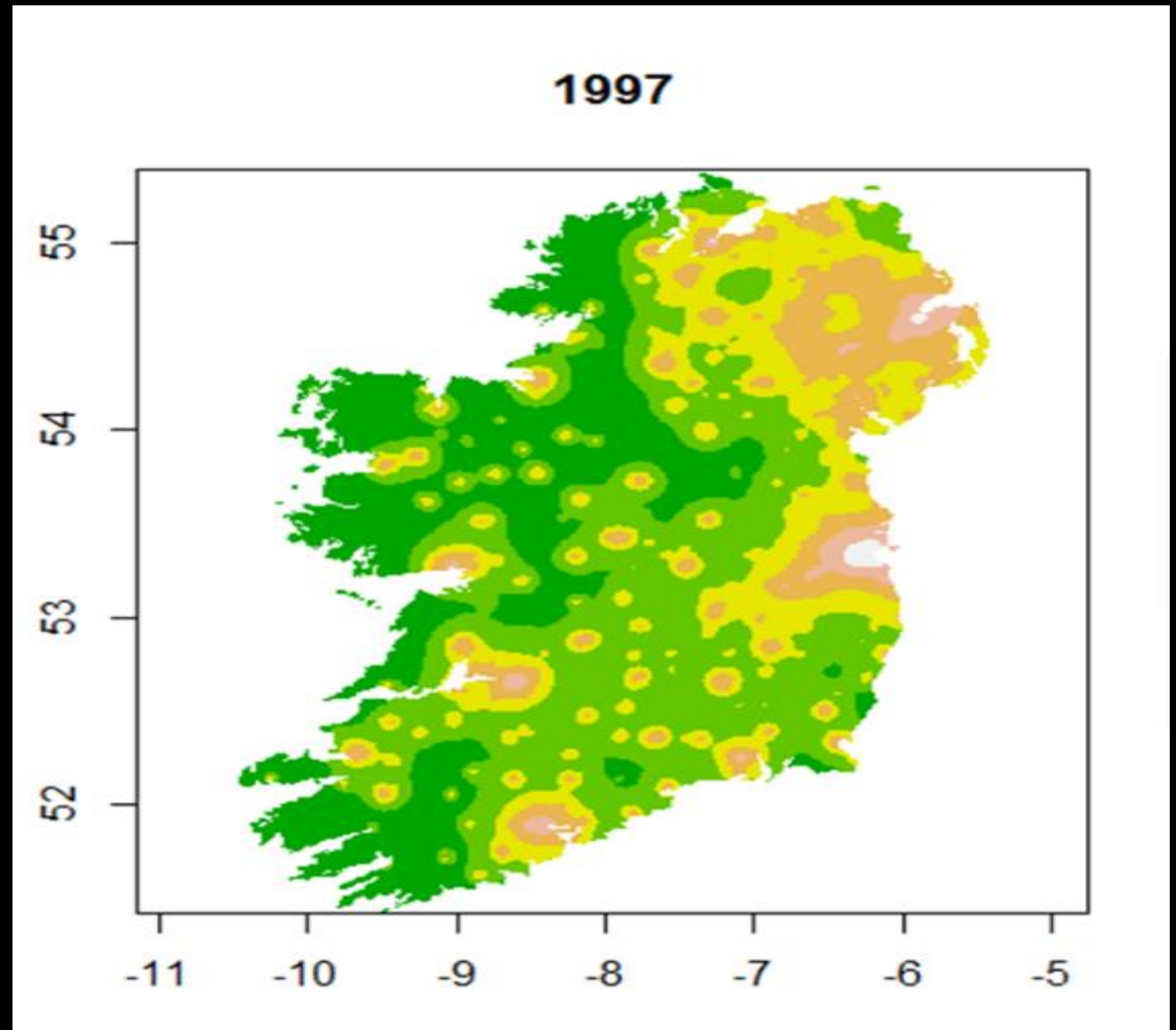


Growth of Light Pollution in Ireland

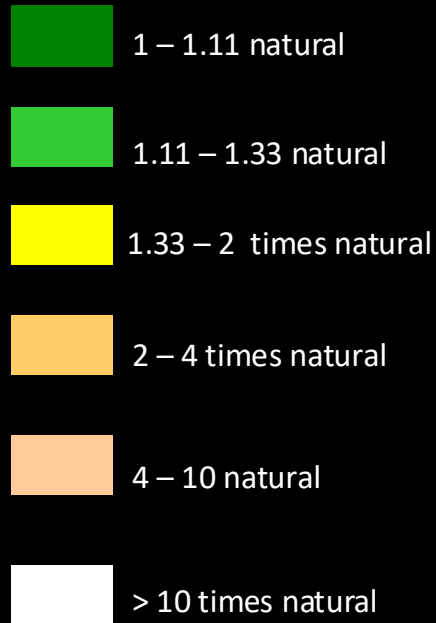


Note – these values are for the zenith, and conditions near the horizon will be worse

Source; Brian Espey - Trinity College Dublin



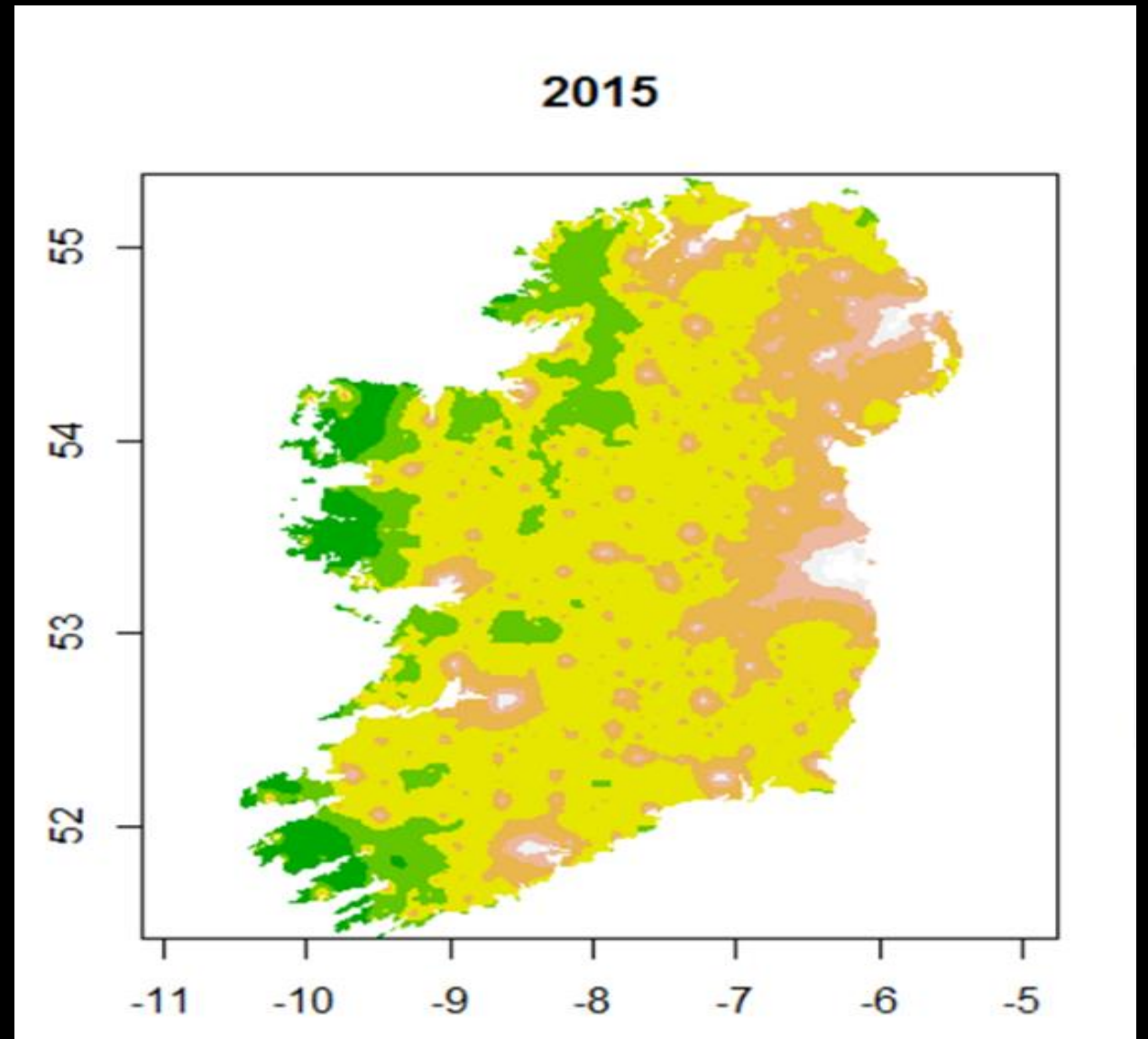
Light Pollution & Shifting Baseline Syndrome



<- No Milky Way in zenith

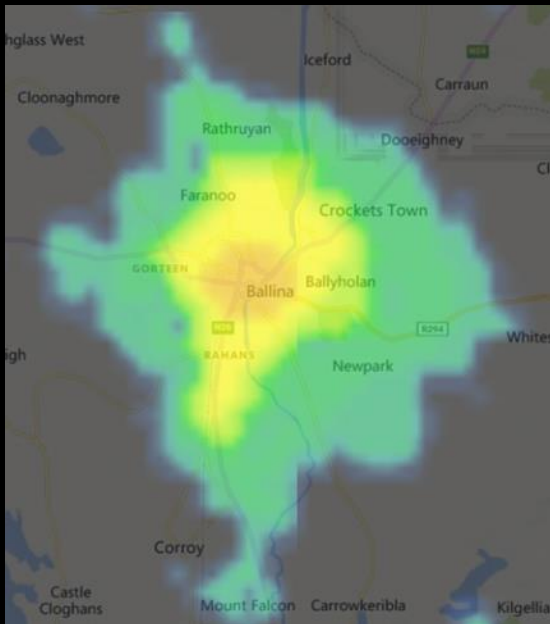
<- No dark adaption – colour vision is active

Source; Brian Espey - Trinity College Dublin



Mayo : Ground up Solutions

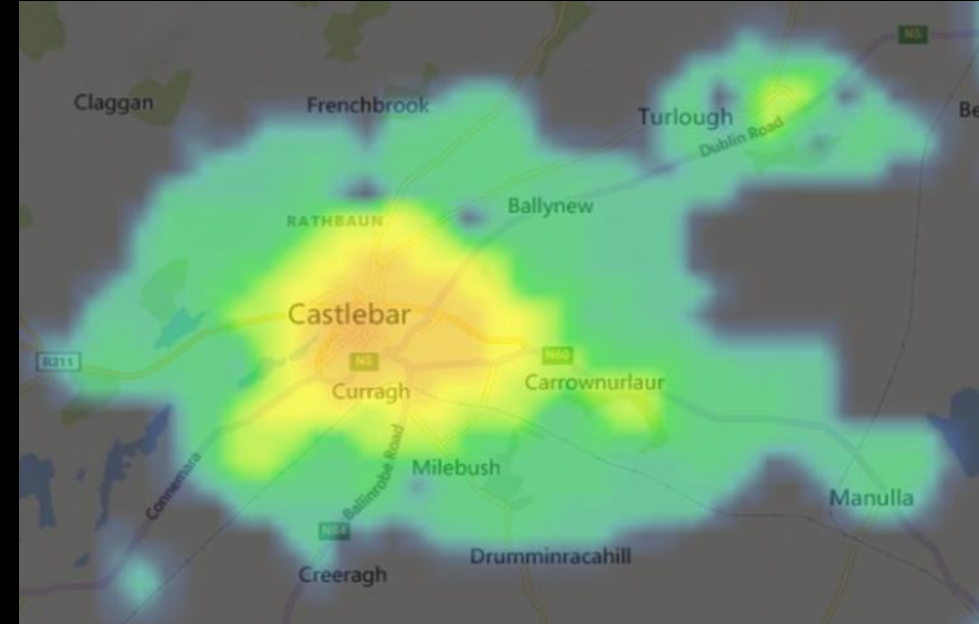
- It is not enough to protect dark sky parks
- Urgent need to re-engineer ecologically dark corridors
- Working on Mayo County Council Light Pollution Policy
- Plan to expand to Dark Sky COUNTY/ Reserve status
- Action through Education | Policy | Industry | Community
- Transferability across other counties/country



Ballina



Westport



Castlebar

Mayo Dark Sky Reserve

- Map kindly created by Ben Theabadeau
- (Joyce Country & Western Lakes GeoPark)

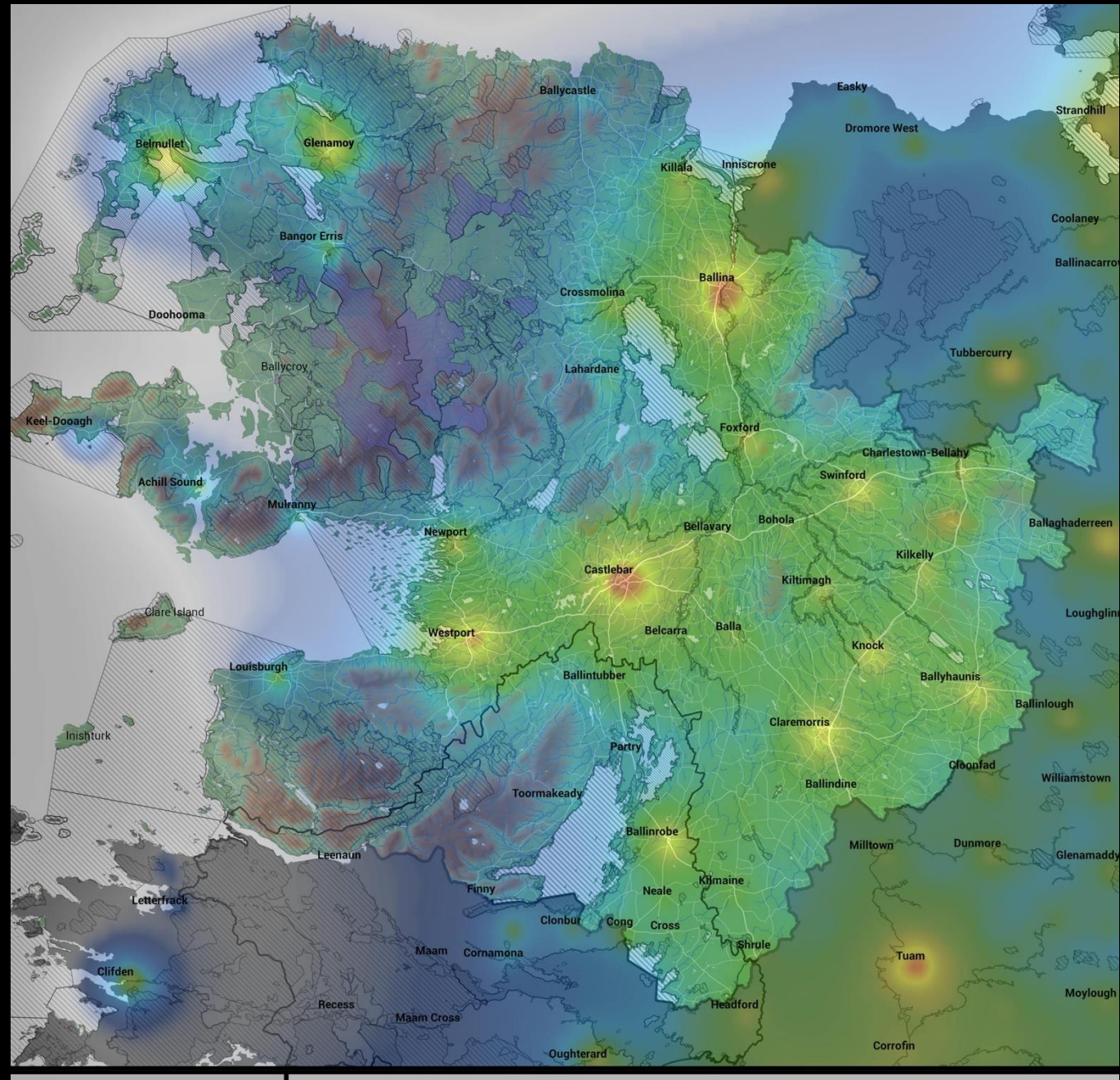
Legend

-  Protected Areas (SAC, SPA, NHA)
-  Wild Nephin National Park
-  JCWLGeopark
-  County Mayo boundary
-  Roads
-  Rivers

All data collected from open source databases.











Light Pollution data is from Light Pollution World Atlas 2015 by Falchi et al., 2016









Falchi, Fabio; Cinzano, Pierantonio; Duriscoe, Dan; Kyba, Christopher C. M.; Elvidge, Christopher D.; Baugh, Kimberly; Portnov, Boris; Rybnikova, Nataliya A.; Furgoni, Riccardo (2016): Supplement to: The New World Atlas of Artificial Night Sky Brightness. V. 1.1. GFZ Data Services. <https://doi.org/10.5880/GFZ.1.4.2016.001>



Citizen Science Solution based examples from ground up...

• **Night Lights for Auditing – 20 minute tutorial - <https://lichter.nachtlicht-buehne.de>**

| | | |
|---|-------------------------------------|---|
|  | Lights on poles | > |
|  | Traffic lights | > |
|  | Private windows | > |
|  | Commercial windows | > |
|  | Outdoor lights mounted on buildings | > |
|  | House numbers and doorbells | > |
|  | Lit facades | > |
|  | Flood lights | > |
|  | Bollards | > |
|  | Orientation lights | > |

| | | |
|---|--|---|
|  | Orientation lights | > |
|  | Canopy lights | > |
|  | Illuminated signs with exterior lights | > |
|  | Self luminous signs | > |
|  | Video screens | > |
|  | Light strings | > |
|  | Garden decoration lights | > |
|  | Other | > |

Sky Quality Recordings / Data collection



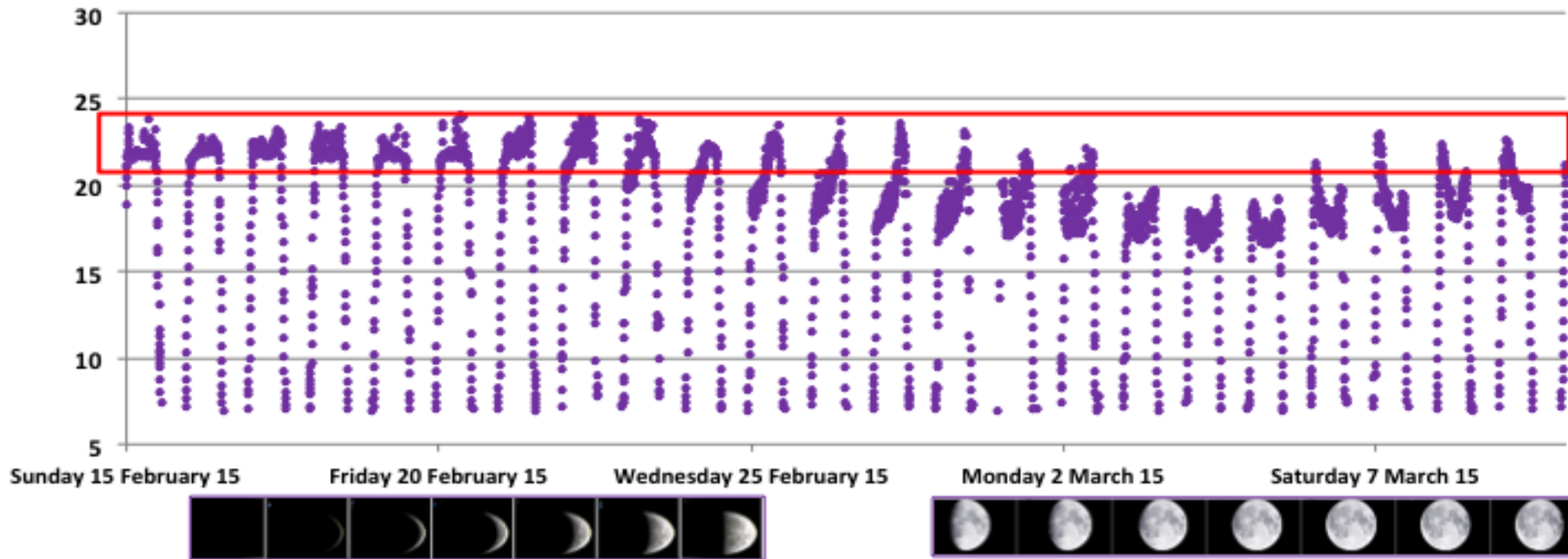
- Useful for community engagement
- Sky Quality Meters – convert light into Magnitudes Per square arc second
- “Magic” Number exceeding 21.75 is an indicator of Gold Tier Quality.
- Light Meters purchased from Canada
- 2 Types – fixed and handheld (picture)
- Readings taken every 5 mins dusk – dawn
- Over a 12 month period to show consistent sky quality

What did data records show?

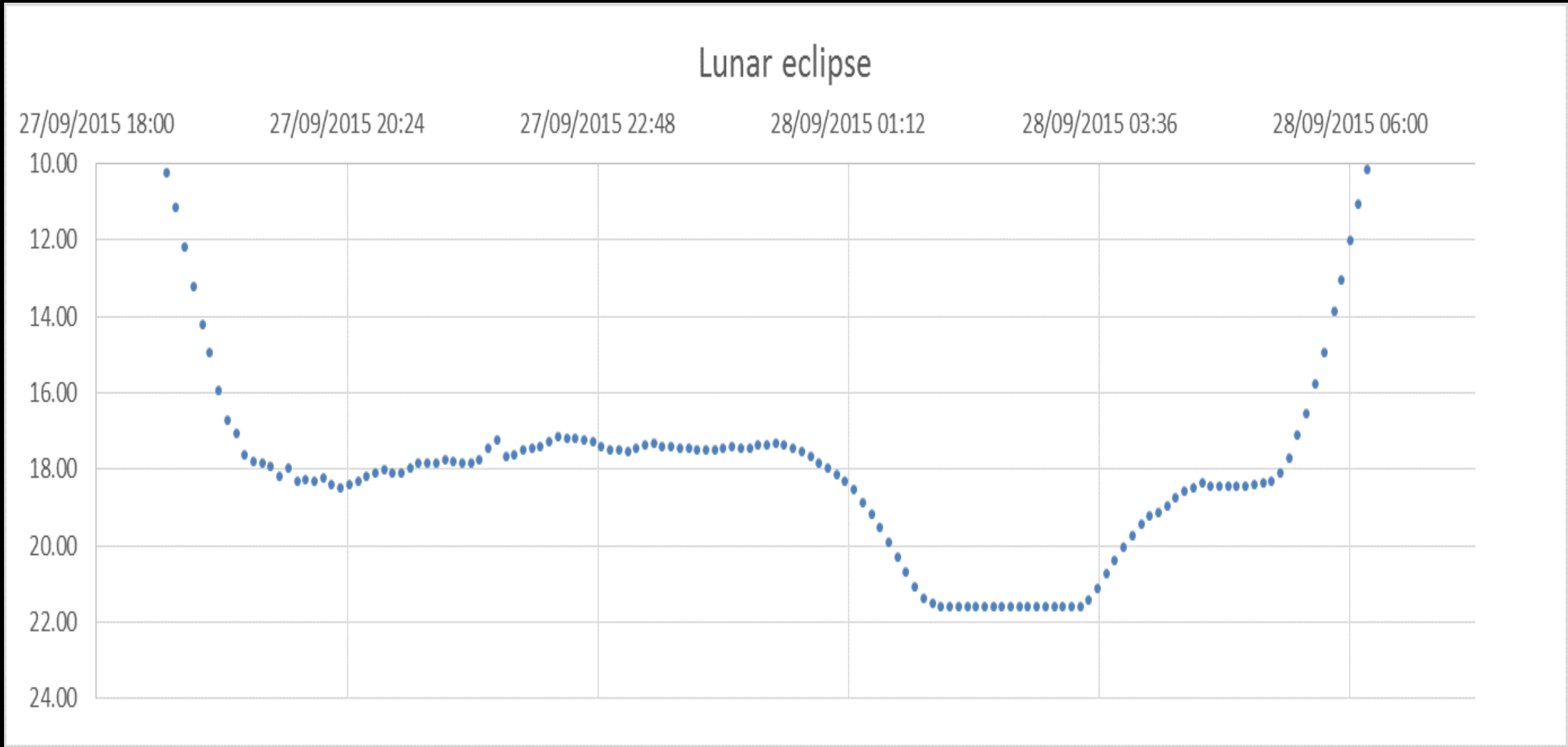
Site 1 - Letterkeen Bothy SQM readings 14 Feb- 10 March 2015

SQM
Measurement Mag/Arc

New Moon (darkest moon) fell on 18
February 2015. Darkest SQM readings
coincide accordingly.

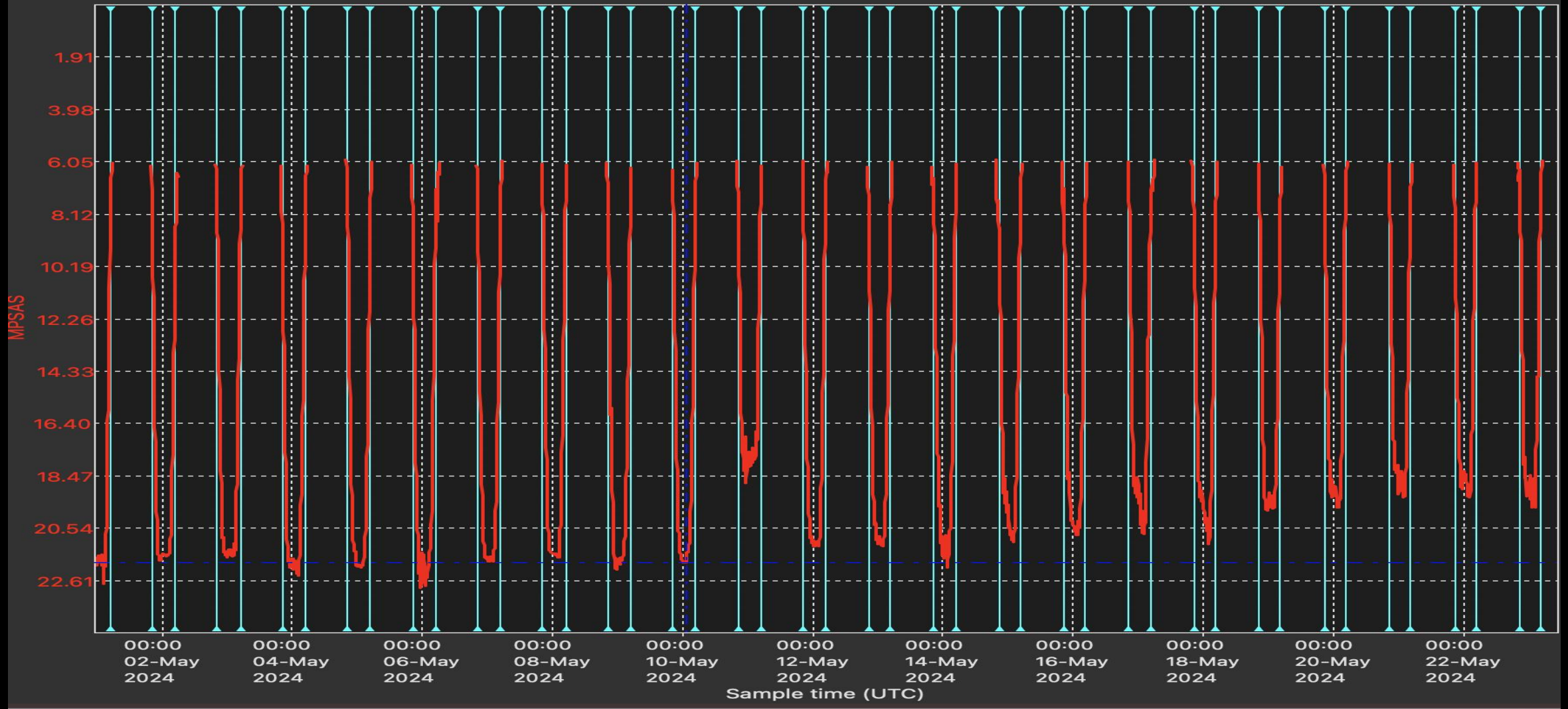


Interesting readings during lunar eclipse...

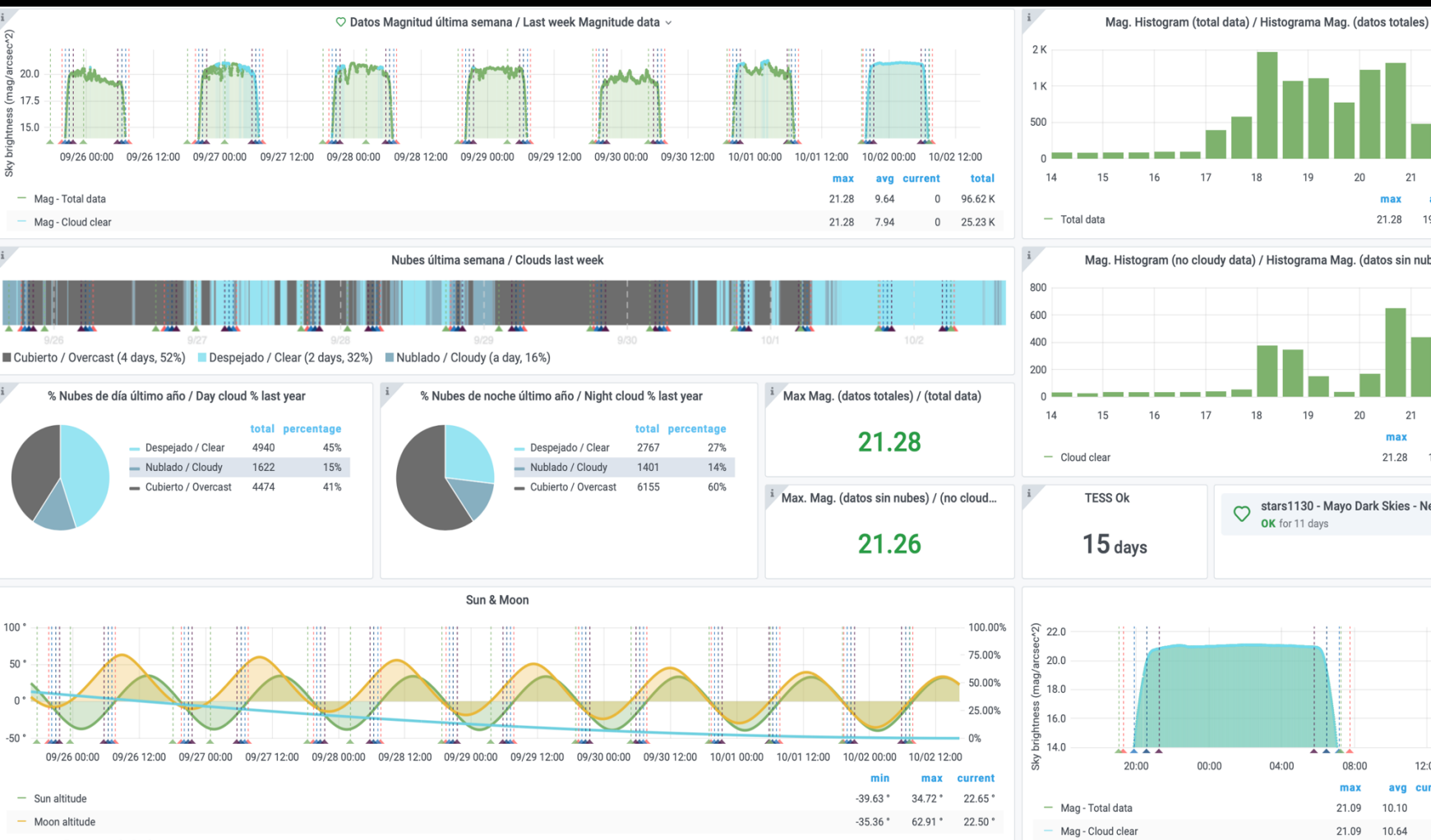


Interesting readings during Aurora 10 May...

ge/OneDrive-NationalUniversityofIreland,Galway/Mayo DSP Dev Officer Docs/DS Monitoring/SQM 2024/20241001_134507_.dat

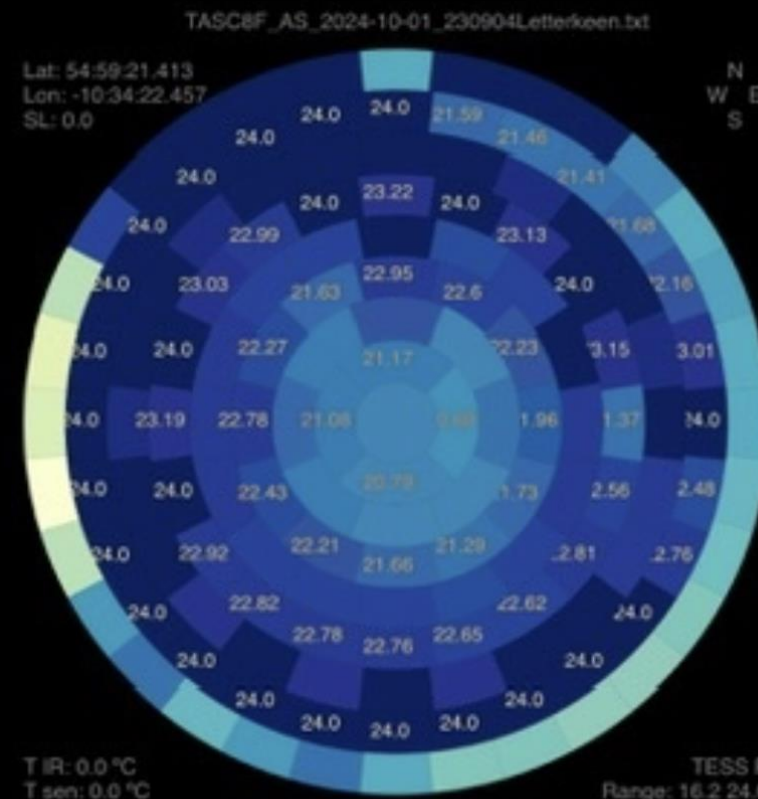


TESS dashboard example



Mag: 20.98 TSens: 6.65
 Alt: 90.0 T IR: -12.53
 Az: 0.0 Bat: 3.62

MV



Supports Sky Quality Cam data

Community Constellations for Culture Night

Wild Nephin National Park/
Mayo Dark Sky Park

Tóchar Dáithí Bán



Outdoor Classroom



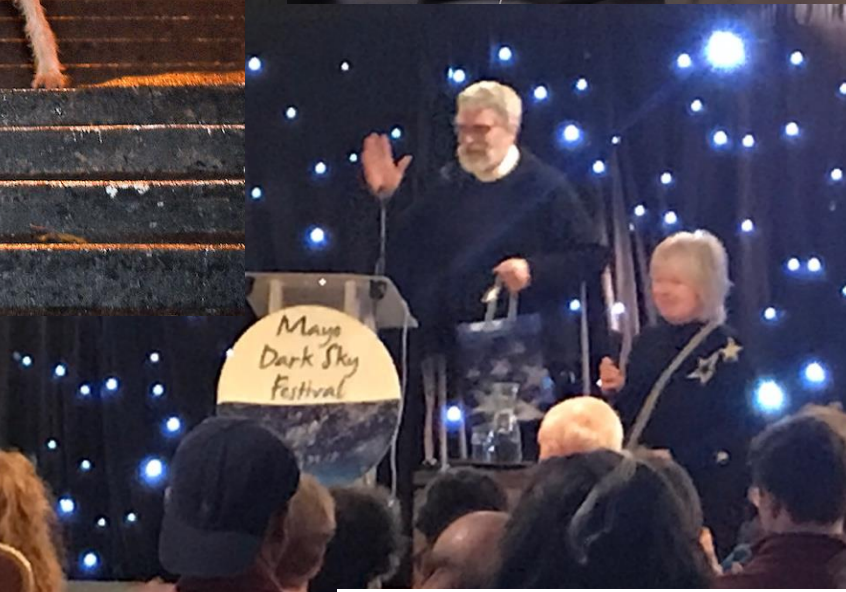
Visitor Centre



Church

Community Centre





Newport Lighting Project



An Chomhairle Oidhreachta
The Heritage Council

dark source



Comhairle Contae Mhaigh Eo
Mayo County Council

Ár dTodhchaí
Tuaithe
Our Rural
Future



Rialtas na
hÉireann
Government
of Ireland

Tionscadal Éireann
Project Ireland
2040

IN THESE REMOTE LANDS
HALF THE PARK
IS AFTER DARK™



MAYO DARK SKY PARK

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Tyler Nordgren Commissions



WILD NEPHIN

NATIONAL PARK, IRELAND

TWINNED MAY 2024



YOSEMITE

NATIONAL PARK, USA



NPWS

All Other Parks, Reserves, National Parks and Wildlife Service

SpaceArtTravelBureau.com



WILD NEPHIN ★ YOSEMITE

TWO PARKS ONE SKY



NPWS

All Other Parks, Reserves, National Parks and Wildlife Service

SpaceArtTravelBureau.com

Constellation of Cottages – Expand visitor offerings day and night within the National Park



*No one will protect what they don't care about,
No one will care about something they have never experienced.*

Sir David Attenborough

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