

Anne Bruvold
astronomer and science adviser

The Northern Lights Planetarium

past and present

Light Pollution in Norway

what is happening?

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The Northern Lights Planetarium past and present



Built in the late 1980's
Opened in May 1989
Closed 2000
Run as part of the
Science Centre since
2003

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The Northern Lights Planetarium past

- Established to as a bad weather/bright sky/all-year option for seeing northern lights
- Seating for 90 persons (two bus-loads)
- Main visitors group: tour-busses and other tourists, schools
- Number of visitors: up to 60 000 per year



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NORDNORSK VITENSENTER TROMSØ

The Northern Lights Planetarium past

- Main show was a locally produced film: **Arctic light**, covering both Northern lights, and arctic seasons
- Astronomy shows for locals and school groups
- First and largest planetarium in Norway, and northernmost in the world



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The Northern Lights Planetarium past



2003: The Science Centre
started using the building

2008: The technology in the
planetarium was digitalized

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The Northern Lights Planetarium past



2003: The Science Centre starts using the building

2008: The technology in the planetarium is digitalized

2009: the Science Centre receive funding for a larger building

The Northern Lights Planetarium past



2003: The Science Centre start using the building

2008: The technology in the planetarium is digitalized

2009: the Science Centre receive funding for a building

2011: the Science Centre building is opened

The Northern Lights Planetarium present



95 seats

Main show:

Extreme Aurora

18 674 viewers in 2023

Other planetarium programs

Films during weekends

Astronomy some weekends

Astronomy for schools

Meetings and conferences

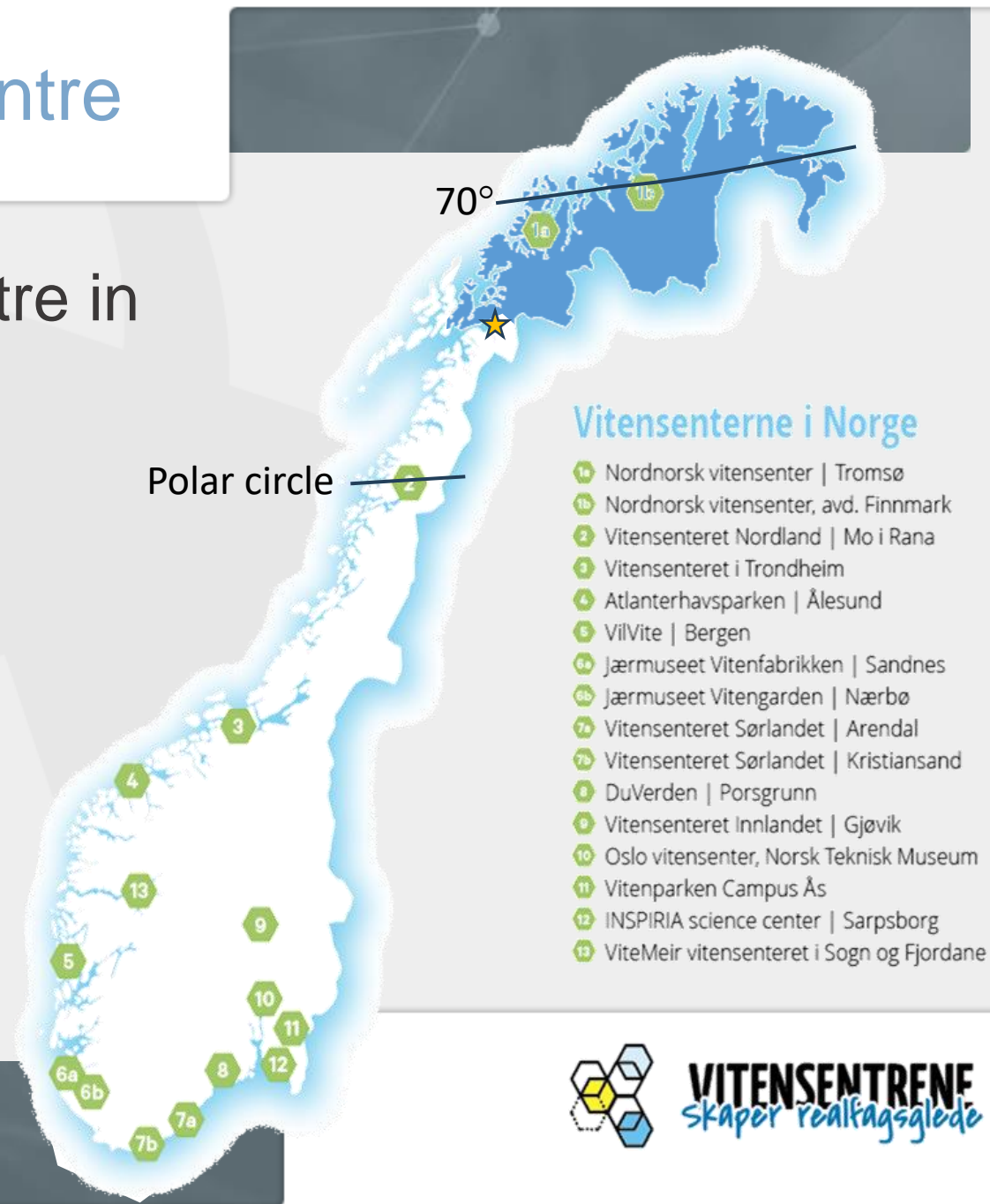
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Facts about the Science Centre

- The northernmost Science Centre in the world
- Location:
 - Tromsø
 - Alta
- Visitors in 2019: **59 987**
 - Schools: 37 %



Light Pollution in Norway

what is happening?

- Lights for safety
 - Streetlights in cities, towns and small villages
 - Lights at the entrance
- Lights for decorations
 - Lights just because...
- Light for outdoors activities during mid-winter
 - Skiing downhill and terrain



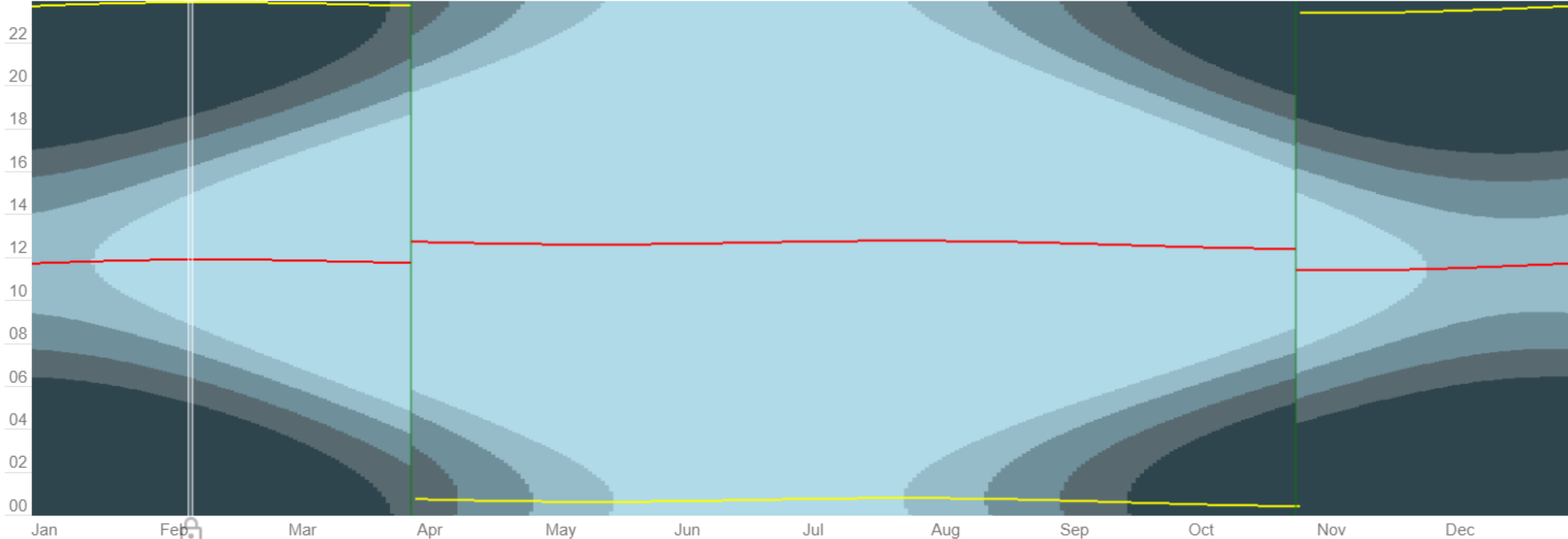
There is a lot of darkness this far north

timeanddate.com

2024 Sun Graph for Tromsø

Rise/Set Times

Day/Night Length



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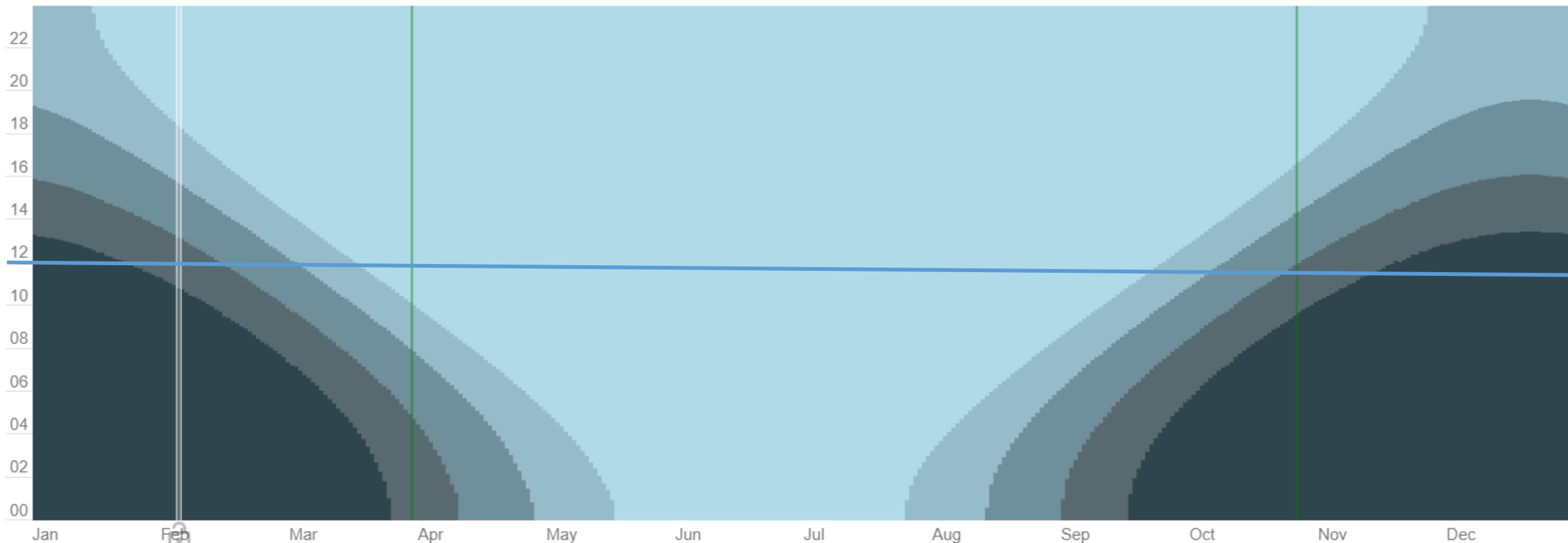
There is a lot of darkness this far north



2024 Sun Graph for Tromsø

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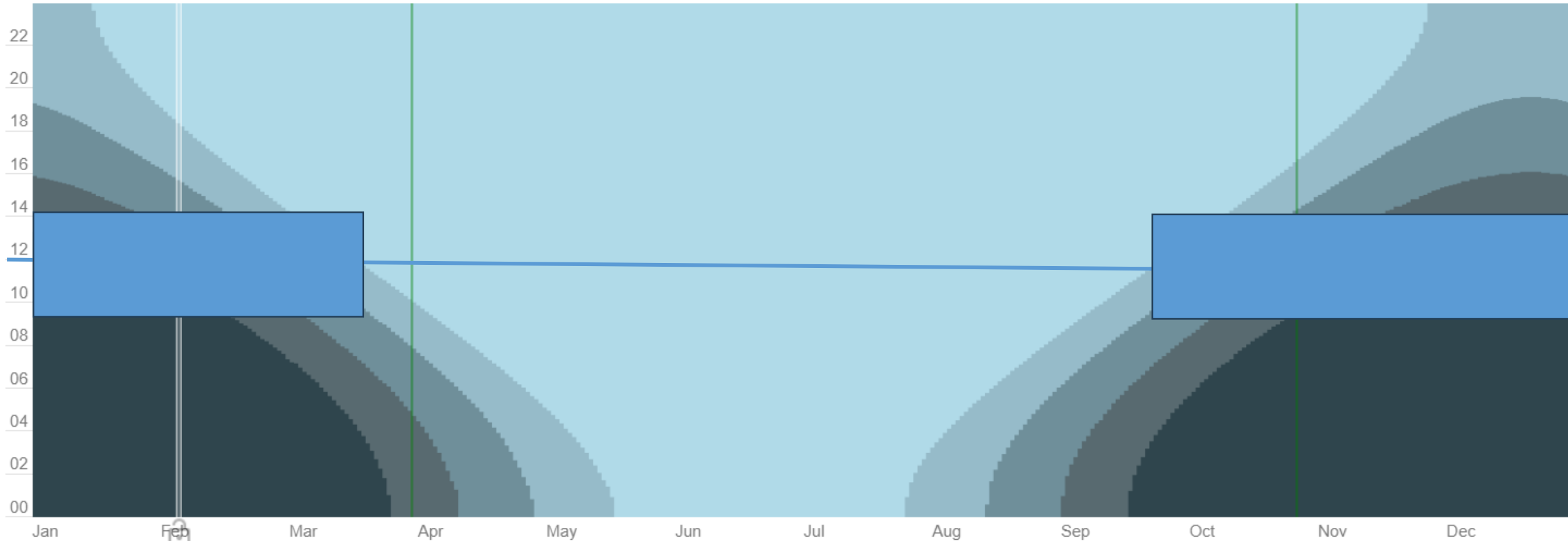
There is NOT a lot of darkness this far north
the light is just unevenly distributed



2024 Sun Graph for Tromsø

Rise/Set Times

Day/Night Length



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Norwegians love skiing and spending time in their cabins



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Things are nicer when lit up

- Out-doorlighting is more available, but is this nesecery?



Avareness of light-pollution is growing



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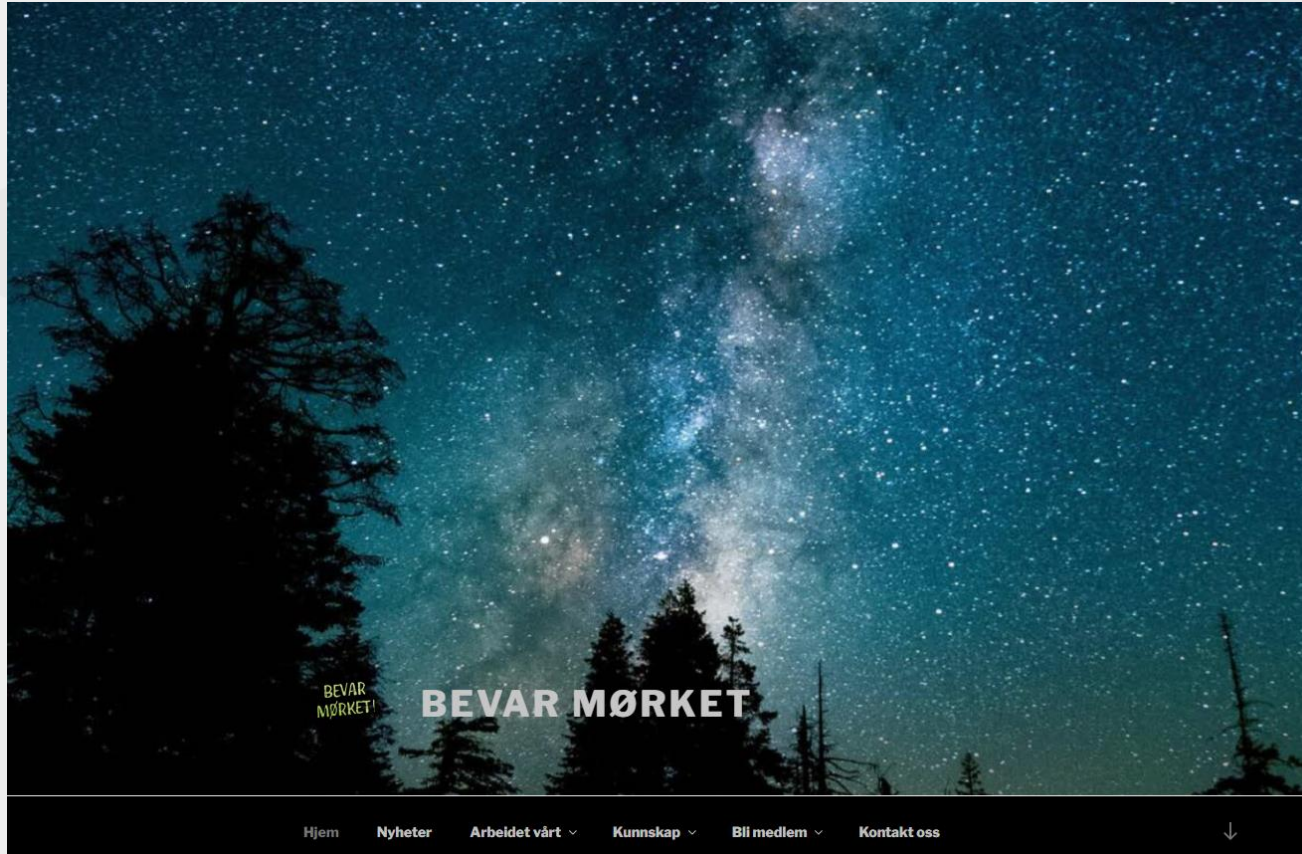
There is a progress



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Bevar mørket



Alt arbeidet som Bevar mørket står for er organisert i grupper, med ulike temaer og ansvarsområder. Alle jobber for å dele informasjon om lysforurensning og hvordan vi sammen kan skape omgivelser som tar vare på det naturlige mørket.

Gruppene heter:

Belysning i arkitektur og landskap

Vegbelysning

Forum for elektrikere og installatører

Helse og naturpåvirkning av lysforurensning
(Bli med å lage Norges første) Stjernebygder og Stjernebyer

Nasjonal regulering av lysforurensning.

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Future dark sky location?



Øvre Passvik
nasjonalpark

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Earth hour

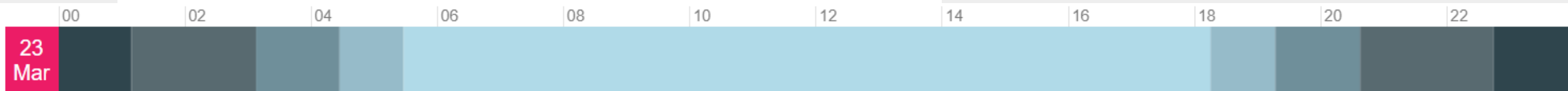
turning off the light for one hour



23. mars, 2024 kl 20.30

[/ Engasjer deg](#)

EARTH HOUR: DEN STØRSTE



Night:
00:00 - 01:09
22:44 - 00:00

Astronomical Twilight:
01:09 - 03:07
20:37 - 22:44

Nautical Twilight:
03:07 - 04:27
19:16 - 20:37

Civil Twilight:
04:27 - 05:28
18:15 - 19:16

Daylight:
05:28 - 18:15

Solar Noon/Midnight:
— 11:50
— 23:50

Total: 02:25

Total: 04:05

Total: 02:40

Total: 02:02

Total: 12:47

Arctic lights extremes

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Kilder

- Tiltakskatalog for transport og miljø, Transportøkonomisk institutt
 - <https://www.tiltak.no/e-beskytte-eller-reparere-miljoet/e2-luft-og-vannforurensning/ redusere-lysforurensning/>
- Statens vegvesen
 - <https://www.vegvesen.no/fag/fokusomrader/klima-miljo-og-omgivelser/lysforurensning/hvordan-begrense-lysforurensning/>
- Forskersonen.no/forskning.no
 - <https://www.forskersonen.no/energi-kronikk-lysforurensning/det-er-pa-tide-a-slutte-med-lysforurensning-i-norge/2090296>
 - <https://www.forskning.no/forurensning-fugler/forskere-frykter-at-trekkfugler-dor-av-utmattelse-pa-grunn-av-lysforurensning/1859708>