



Radiation event 11/12 Nov 2025

Klaus Sievers

Member, IFALPA ATS Committee

18 Mar 2026



ABOUT IFALPA


- ▶ Approaching 100 Member Associations world-wide
- ▶ In excess of 100,000 pilot members
- ▶ IFALPA Headquarters in Montreal, close to ICAO
- ▶ ‘Observer’ status with ICAO >> access and participation !

<https://www.ifalpa.org/about-us/>



A collection of public information available in near real time





Geomagnetic Storm Watches Due to More CME Action


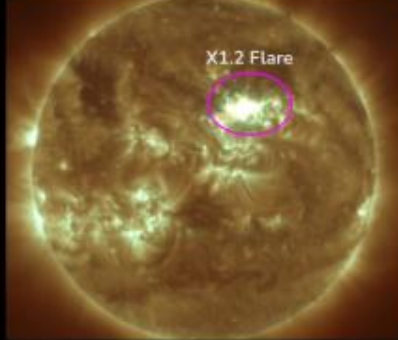
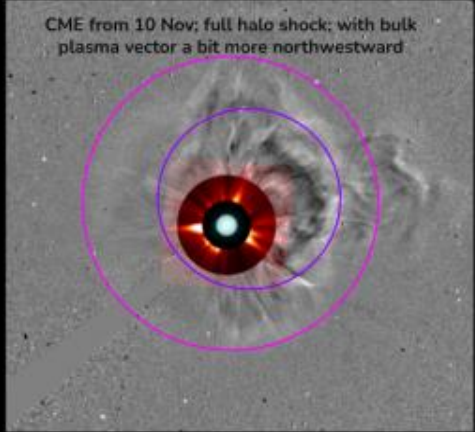
G2

G3

G1

Updated:
 Mon, 10 Nov, 2025
 21:26 UTC

WHAT: At Least Two More CMEs May Impact Earth 11-13 November

CME from 10 Nov; full halo shock; with bulk plasma vector a bit more northwestward

EVENTS:


Coronal Mass Ejections (CME) erupted from the Sun again on November 9th and 10th. The 9 Nov CME is anticipated to reach Earth later on Tuesday, 11 Nov; while the faster CME from 10 Nov is anticipated to arrive shortly afterward, early on Wednesday, 12 Nov.

EXPECTATIONS:

Analysis of these CMEs suggests arrival at Earth as flanking portion events. However, most model runs suggest enough Earth-directed components to warrant a G2 (Moderate) Watch for 11 Nov and a G3 (Strong) Watch for 12 Nov. There is low to moderate confidence for arrival timing of the first CME, and moderate to fair confidence for timing of the second CME.

EFFECTS:

Limited, minor effects to some technological infrastructure possible, but usually mitigatable. The aurora may become visible over many of the northern states and some of the lower Midwest to Oregon for G3 levels. The general public should consider monitoring our webpage for the latest information and updates.



National Oceanic and Atmospheric Administration
U.S. Department of Commerce

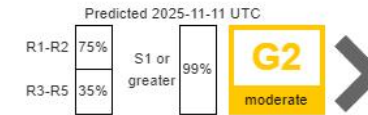
Safeguarding Society with Actionable Space Weather Information

Space Weather Prediction Center
Boulder, CO



Home > Dashboards > Aviation Community Dashboard

SPACE WEATHER CONDITIONS on NOAA Scales

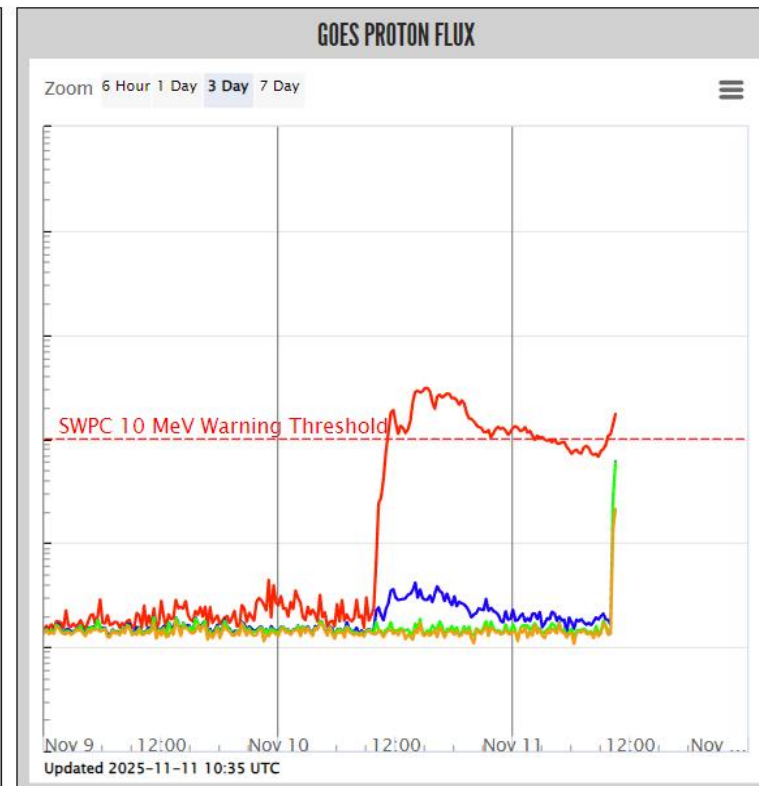
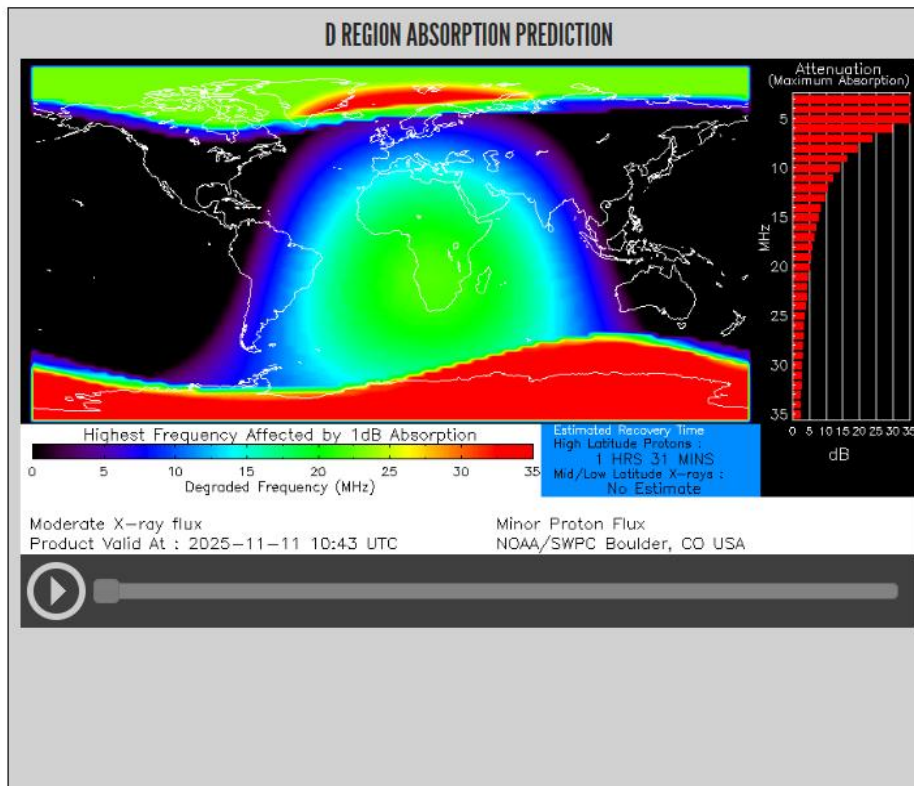


Solar Wind Speed: **413** km/sec

Solar Wind Magnetic Fields: Bt **5** nT, Bz **0** nT

Noon 10.7cm Radio Flux: **180** sfu

AVIATION COMMUNITY DASHBOARD



approx. 11z



SPACE WEATHER CONDITIONS on NOAA Scales

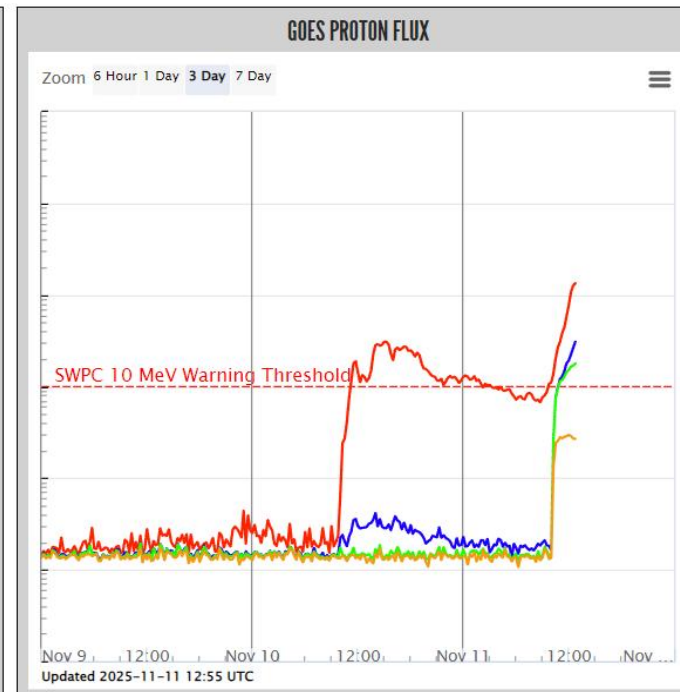
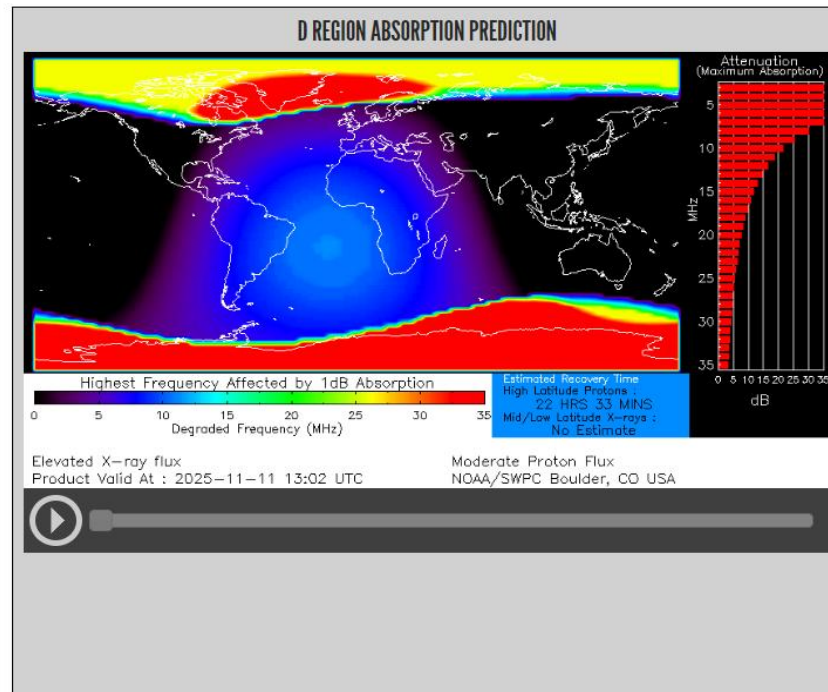


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AVIATION COMMUNITY DASHBOARD





Federated products from the Institute for Astronomy, Astrophysics, Space Applications & Remote Sensing (NOA)



HESPERIA Real Time Prediction Products

National Observatory of Athens

IAASARS, Space Weather Operational Unit

HESPERIA Products

HESPERIA REleASE

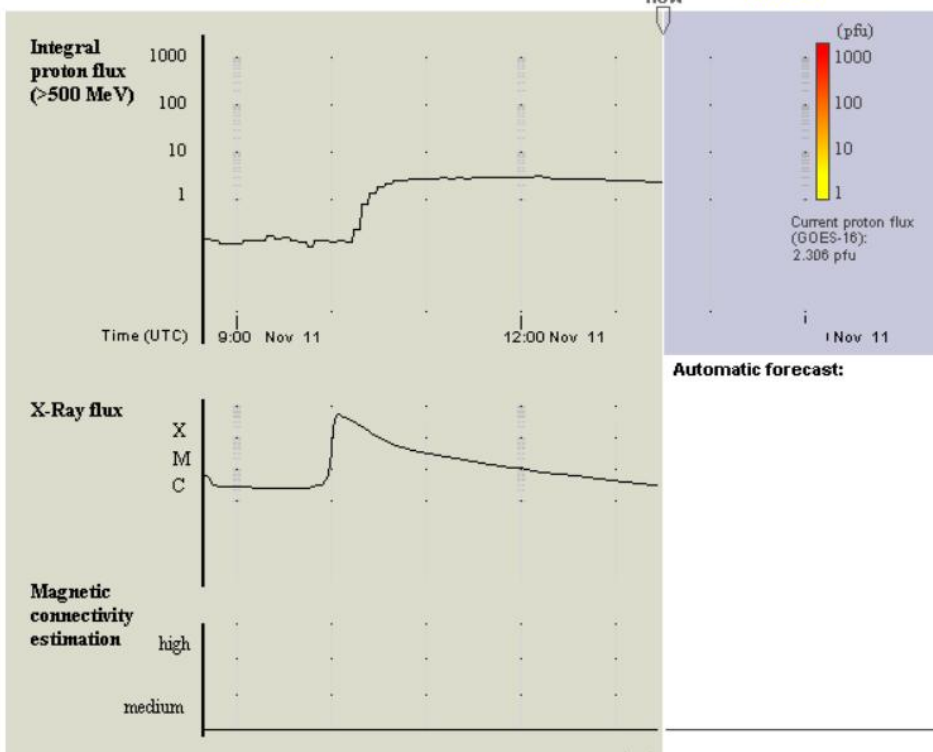
HESPERIA UMASEP-500

HESPERIA REleASE Alert

Data Retrieval Tool

Documentation

HESPERIA UMASEP-500 ver1.7

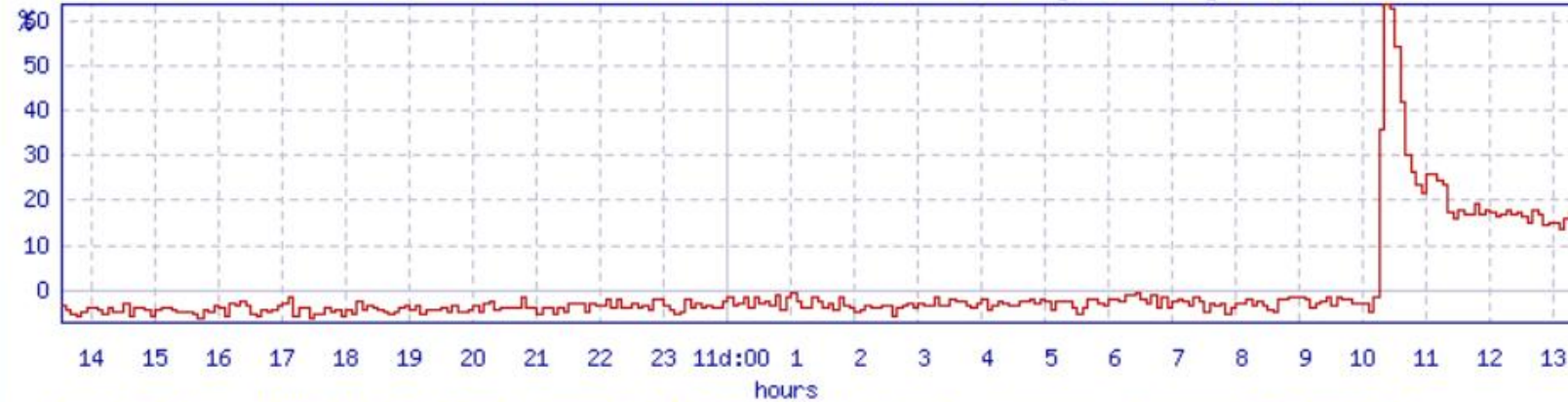




Oulu Neutron Monitor

Pressure corrected data

Last 24 hours (2025-11-10 13:30 - 2025-11-11 13:30 UT), 5-min averages, Average CR: 5596.78



Last 30 days (2025-10-12 13:30 - 2025-11-11 13:30 UT), Hourly averages, Average CR: 5656.21





Federated products from the NKUA Cosmic Ray Group (NKUA)

Welcome to the European Neutron Monitor Service



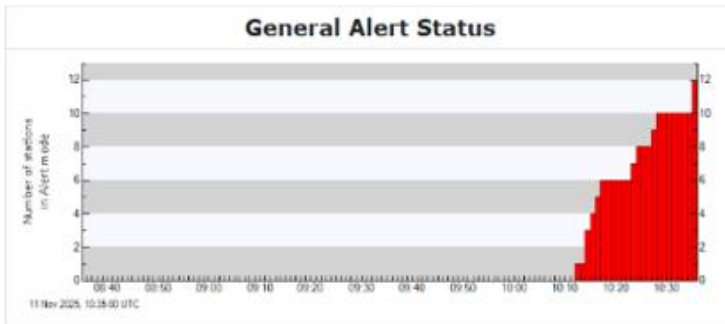
A.Ne.Mo.S

Athens Neutron Monitor Station (A.Ne.Mo.S.)



TUESDAY, 11 NOVEMBER 2025, 10:35:54 UTC
 STATUS NOW: **ALERT**

General Alert Status



Federated products from the NKUA Cosmic Ray Group (NKUA)

Welcome to the European Neutron Monitor Service



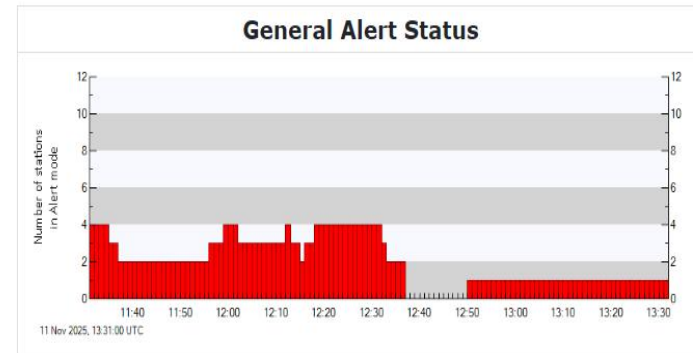
A.Ne.Mo.S

Athens Neutron Monitor Station (A.Ne.Mo.S.)



TUESDAY, 11 NOVEMBER 2025, 13:31:58 UTC
 STATUS NOW: **WATCH**

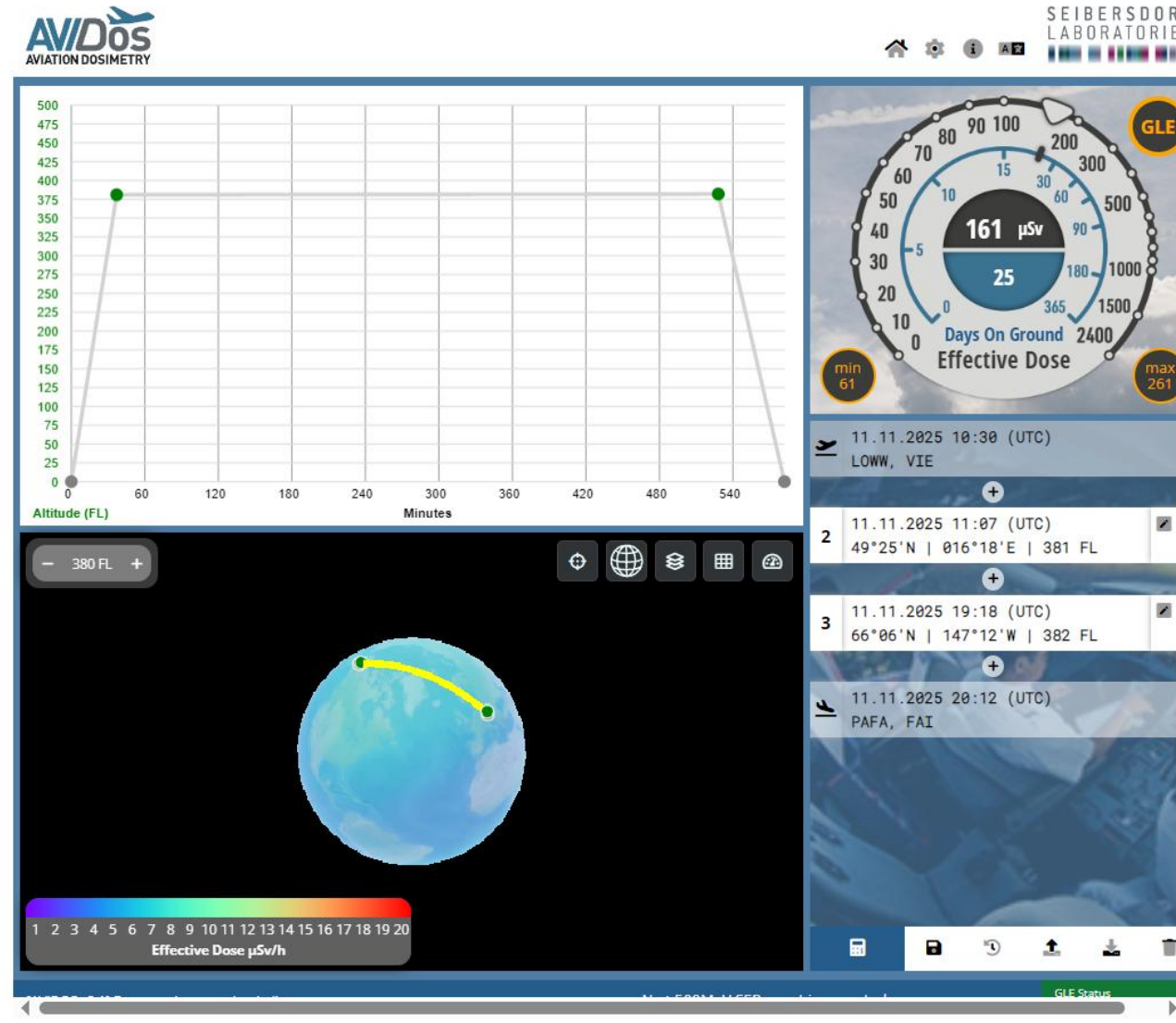
General Alert Status



Radiation exposure
On a flight from
Vienna to
Fairbanks.

Approx. 4x normal

Note: program
Was run in
2026, not in near
Real time in 2025



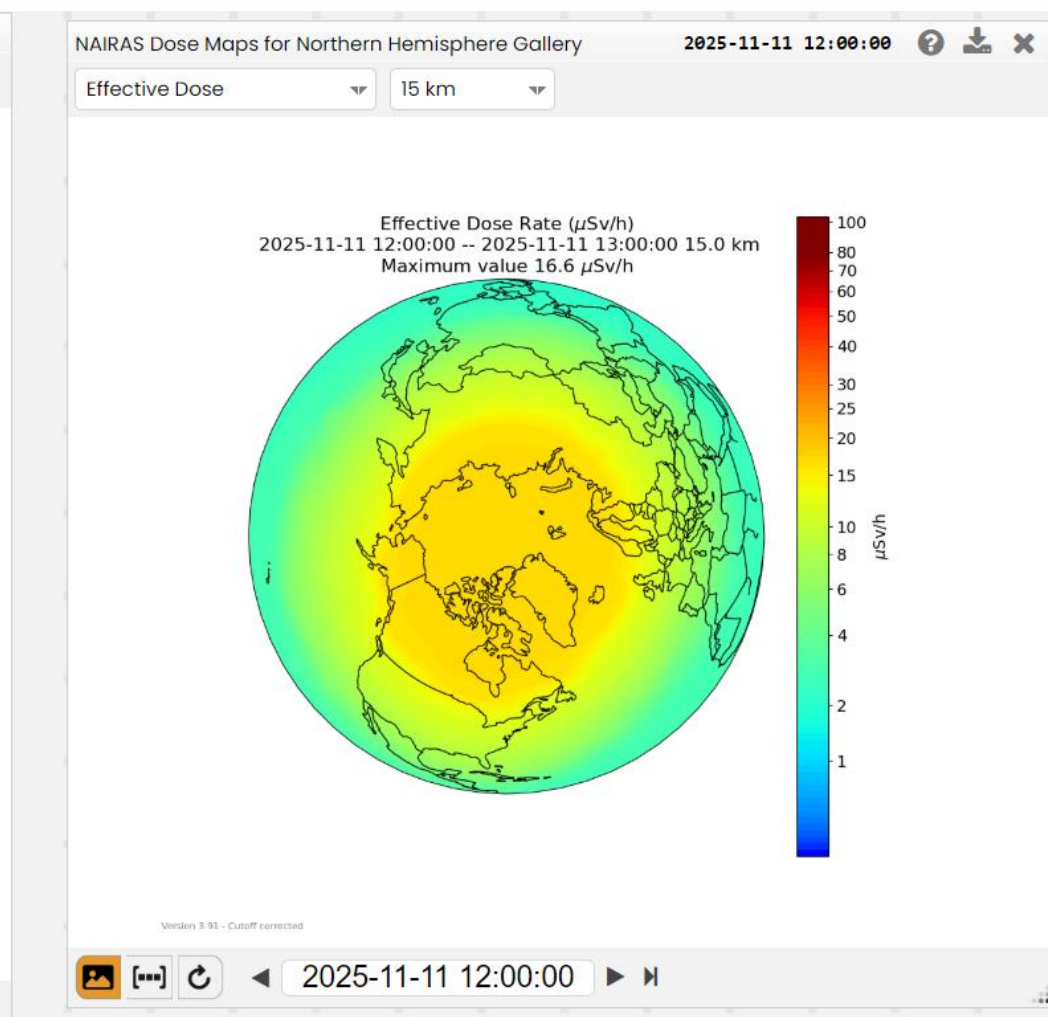
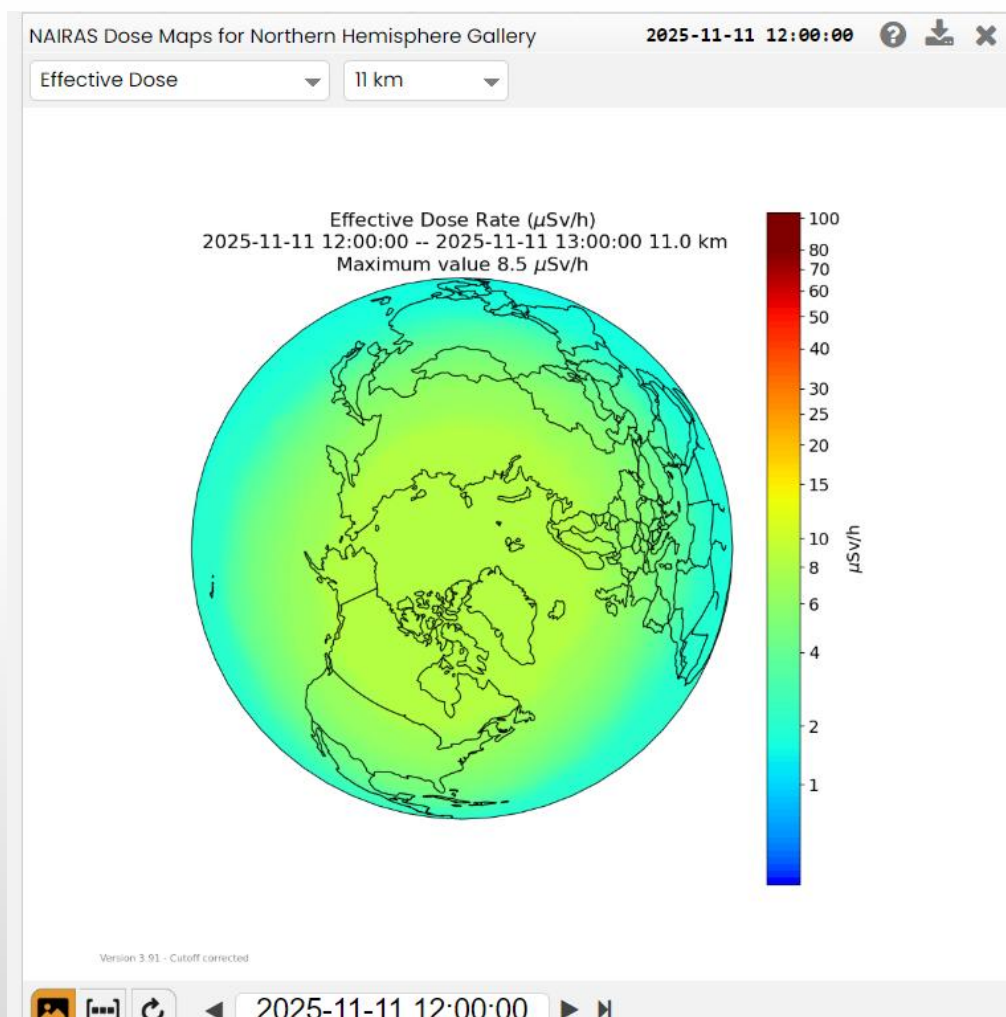


NAIRAS

12:00 UTC

11 km = FL 370
= 8.5 $\mu\text{Sv/h}$

15 km = FL 490
= 16.6 $\mu\text{Sv/h}$





10 hrs later...21z



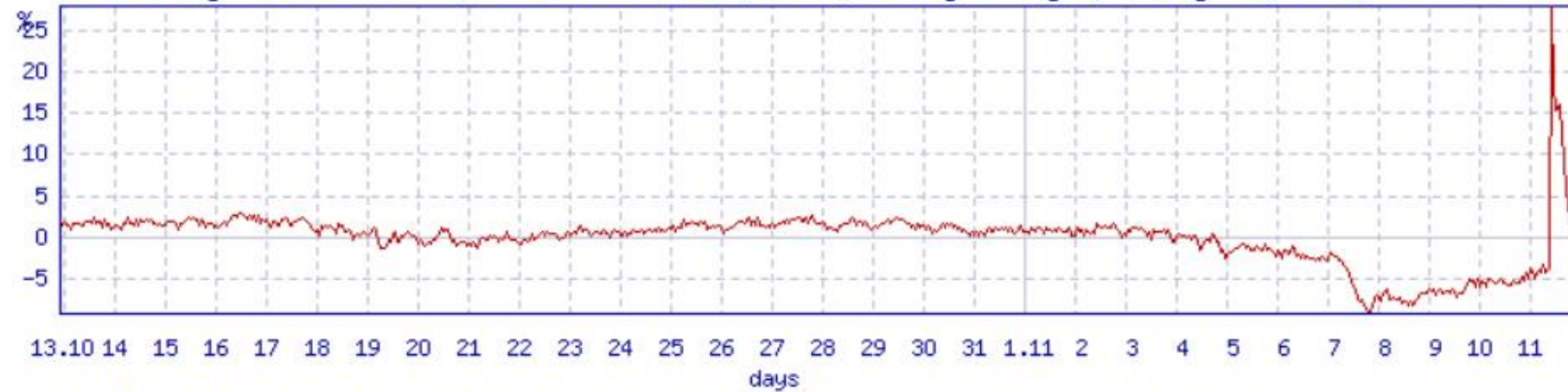
Oulu Neutron Monitor

Pressure corrected data

Last 24 hours (2025-11-10 21:30 - 2025-11-11 21:30 UT), 5-min averages, Average CR: 5844.58



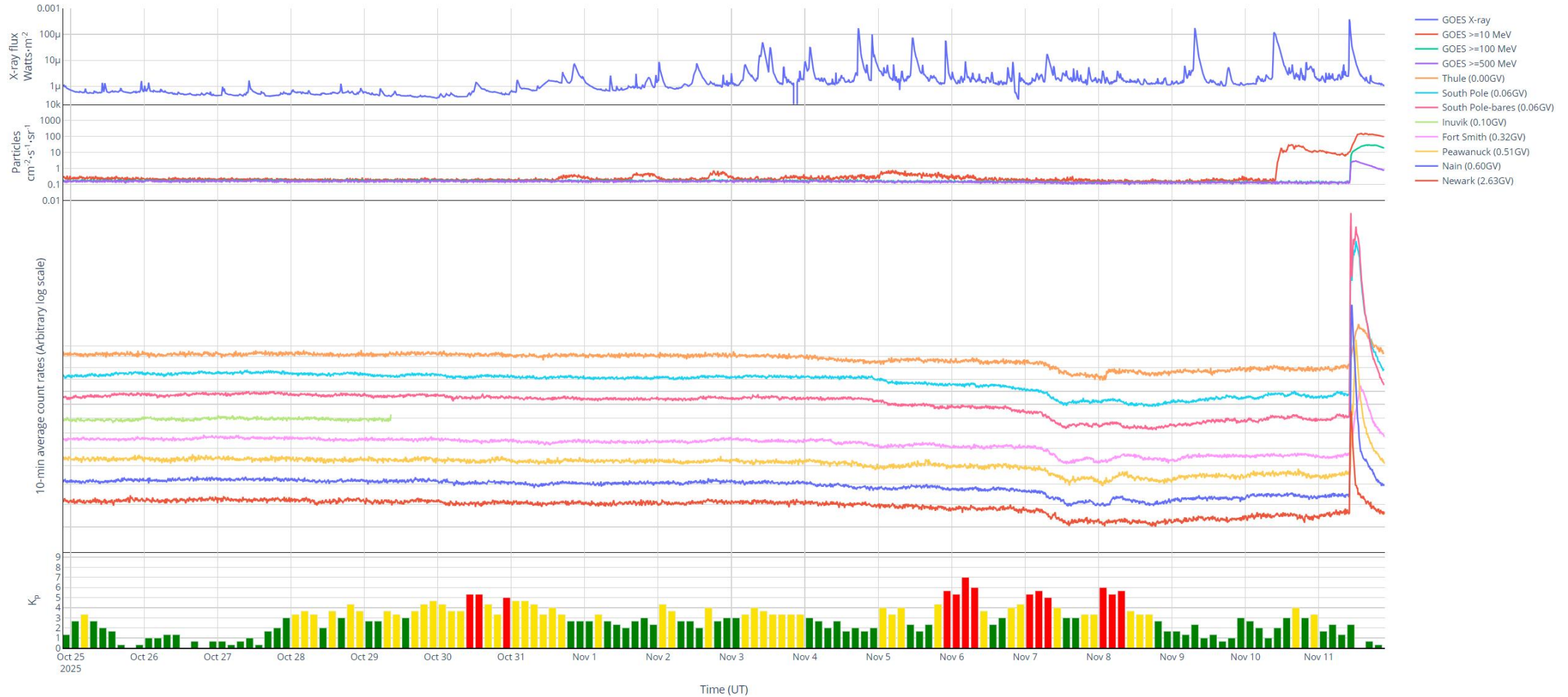
Last 30 days (2025-10-12 21:30 - 2025-11-11 21:30 UT), Hourly averages, Average CR: 5660.39





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BARTOL RESEARCH INSTITUTE
NEUTRON MONITOR PROGRAM

The Bartol Neutron Monitor Network -- Real-time data





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NEUTRON MONITOR PROGRAM**



- GOES X-ray
- GOES ≥ 10 MeV
- GOES ≥ 100 MeV
- GOES ≥ 500 MeV
- Thule (0.00GV)
- South Pole (0.06GV)
- South Pole-bares (0.06GV)
- Inuvik (0.10GV)
- Fort Smith (0.32GV)
- Peawanuck (0.51GV)
- Nain (0.60GV)
- Newark (2.63GV)

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- Newark (2.63GV)

South Pole (!) →

South Pole-b... (Nov 11, 2025, 10:30, 195.9895)

- Greenland
- S-Pole
- N - Canda / Alaska
- Canada
- USA

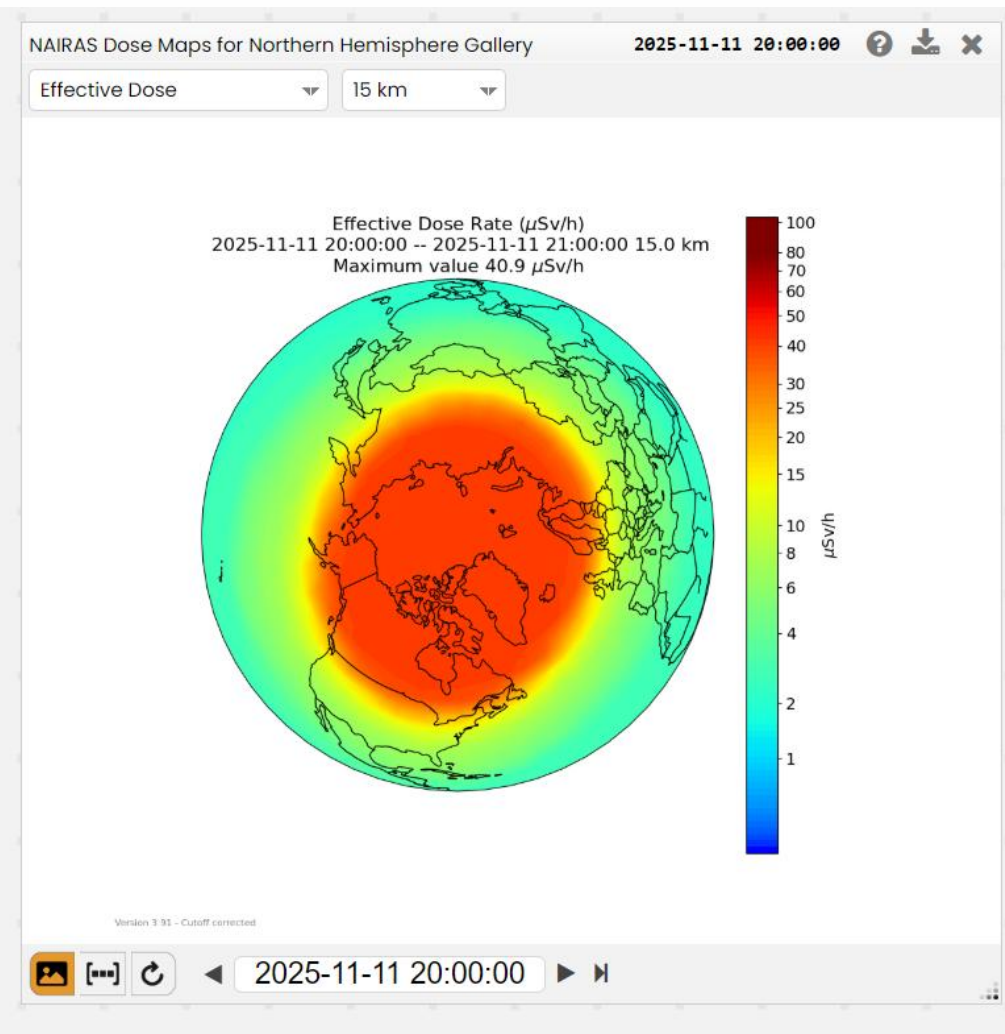
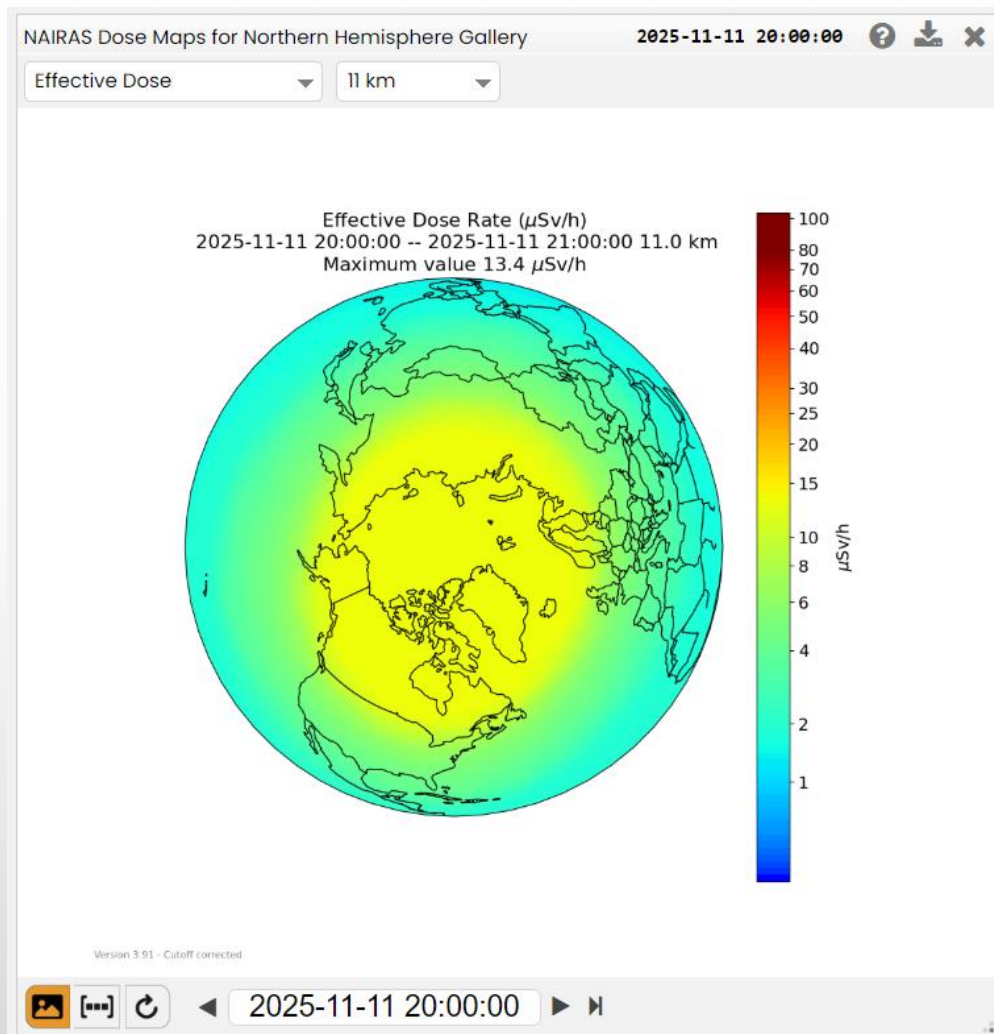


NAIRAS

20:00 UTC

11 km = FL 370
= 13.4 $\mu\text{Sv/h}$

15 km = FL 490
= 40.9 $\mu\text{Sv/h}$

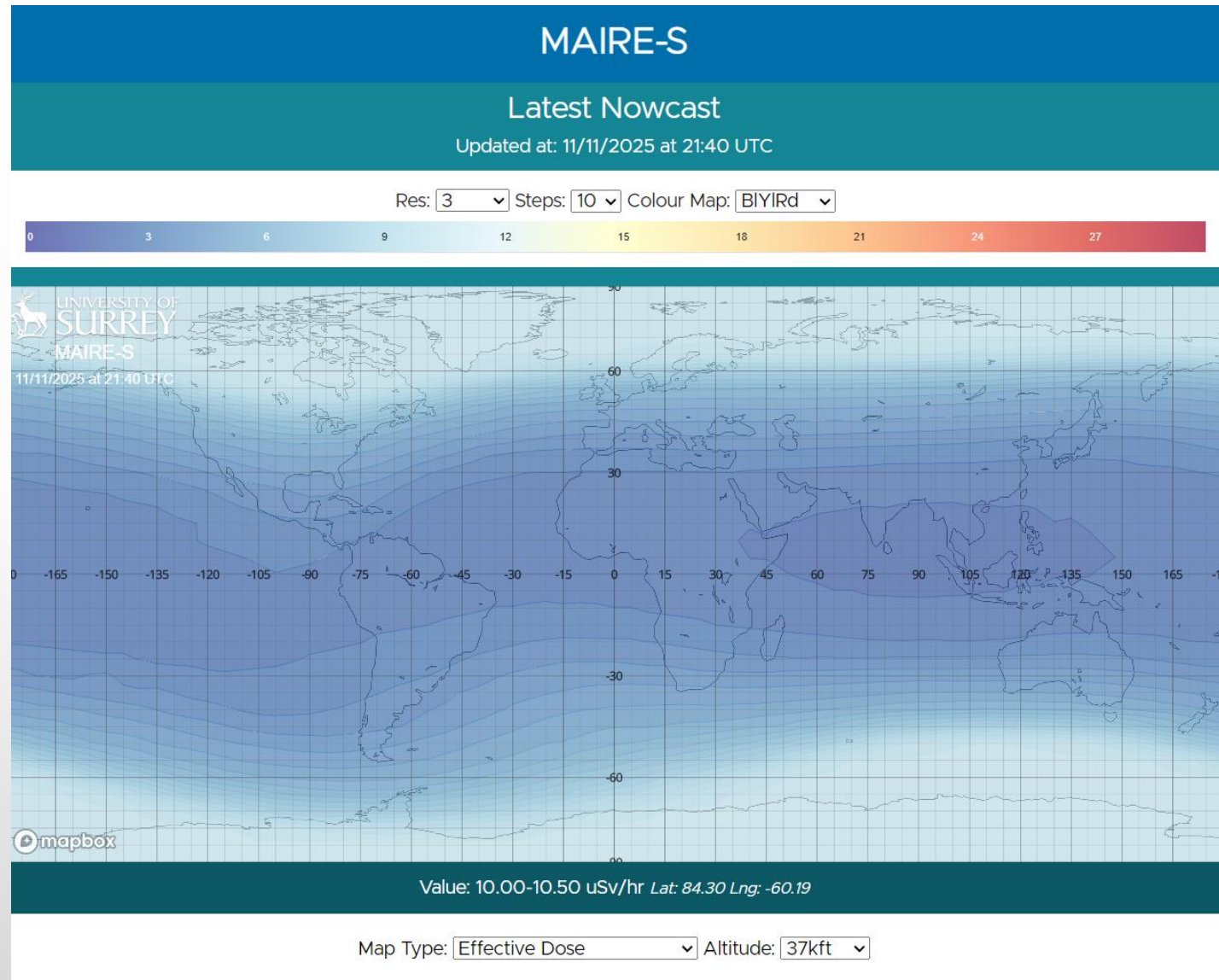




MAIRE-S

21:40 UTC

FL 370
= 10 - 10.5 $\mu\text{Sv/h}$

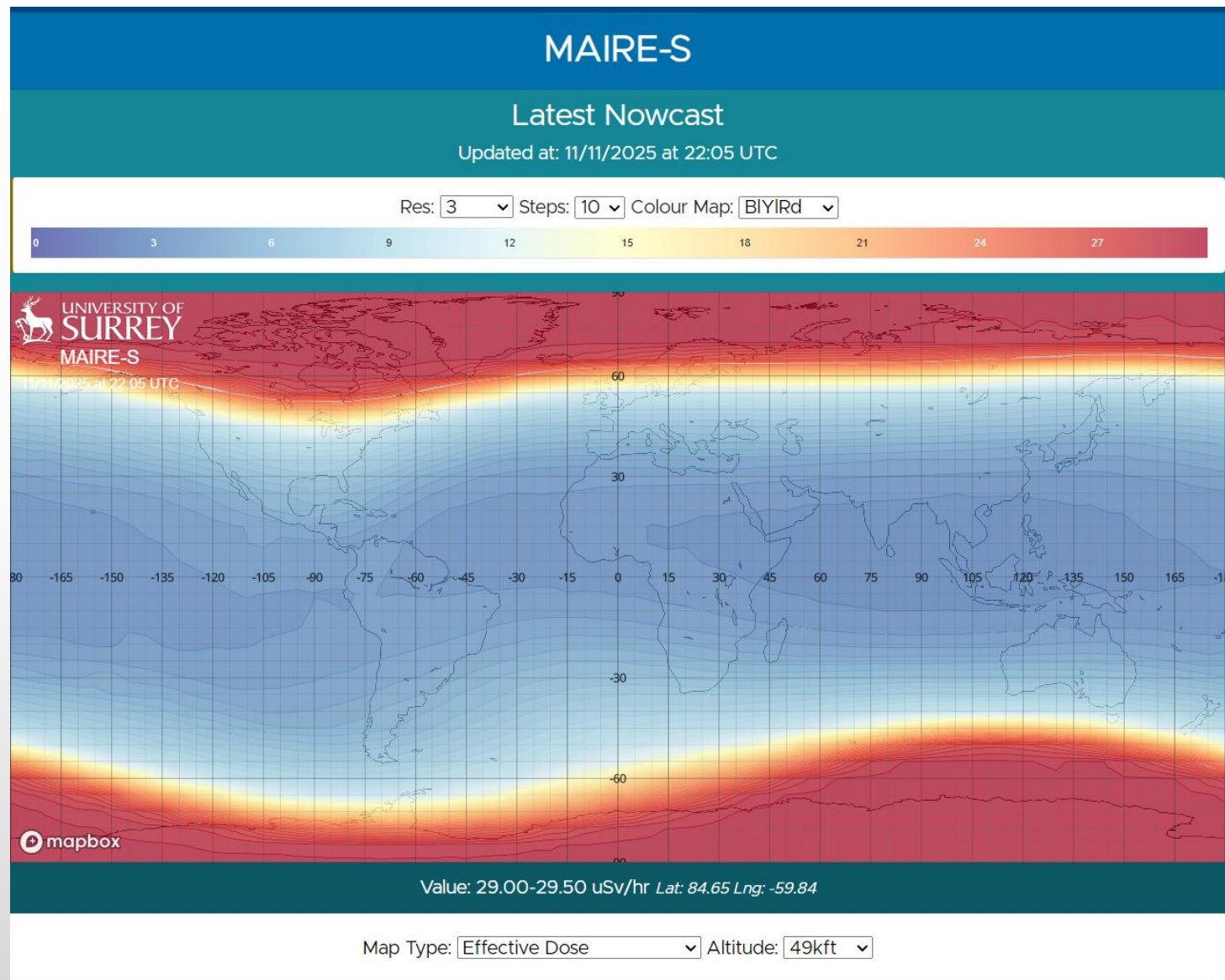




MAIRE-S

21:40 UTC

FL 490
= 29 - 29.5 $\mu\text{Sv/h}$





12 November, 05z



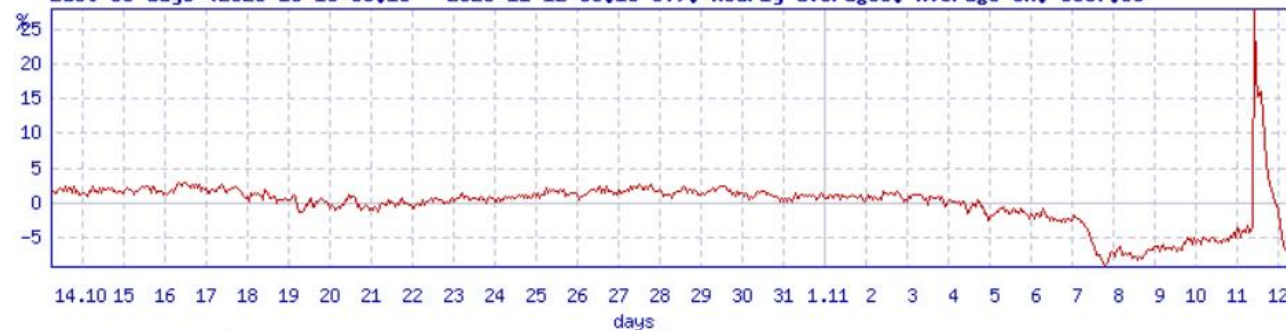
Oulu Neutron Monitor

Pressure corrected data

Last 24 hours (2025-11-11 05:15 - 2025-11-12 05:15 UT). 5-min averages. Average CR: 5867.4



Last 30 days (2025-10-13 05:15 - 2025-11-12 05:15 UT). Hourly averages. Average CR: 5657.69



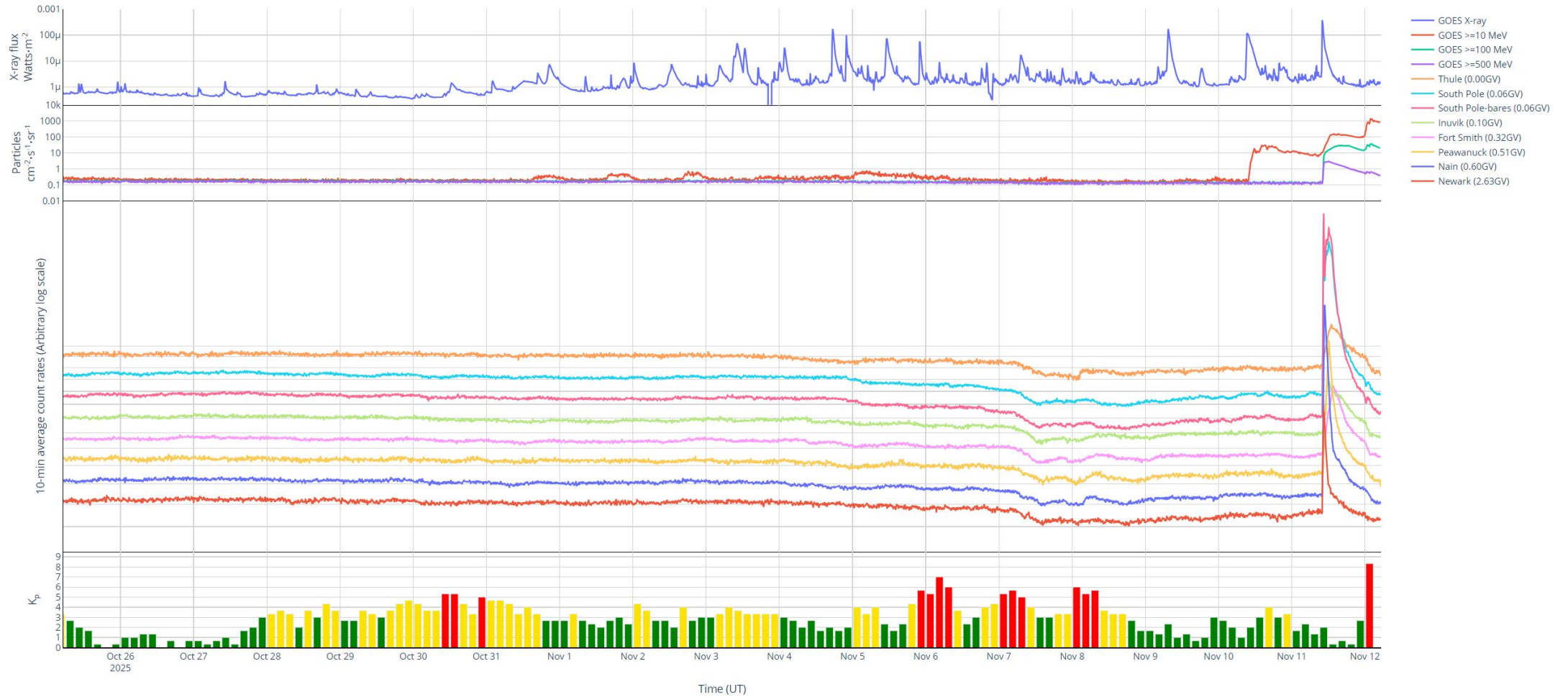
Complete Oulu data (1964-04-01 - 2025-11-12). Monthly averages. Average CR: 6186.31





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The Bartol Neutron Monitor Network -- Real-time data



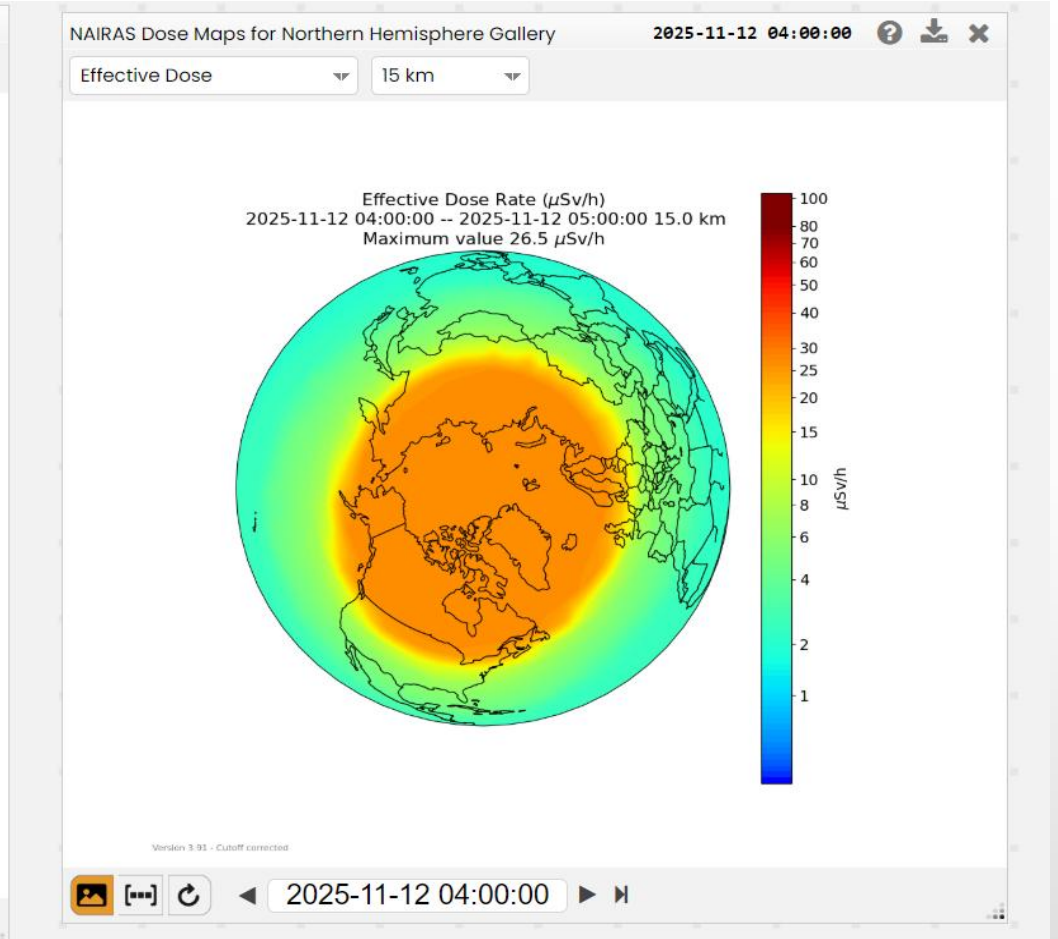
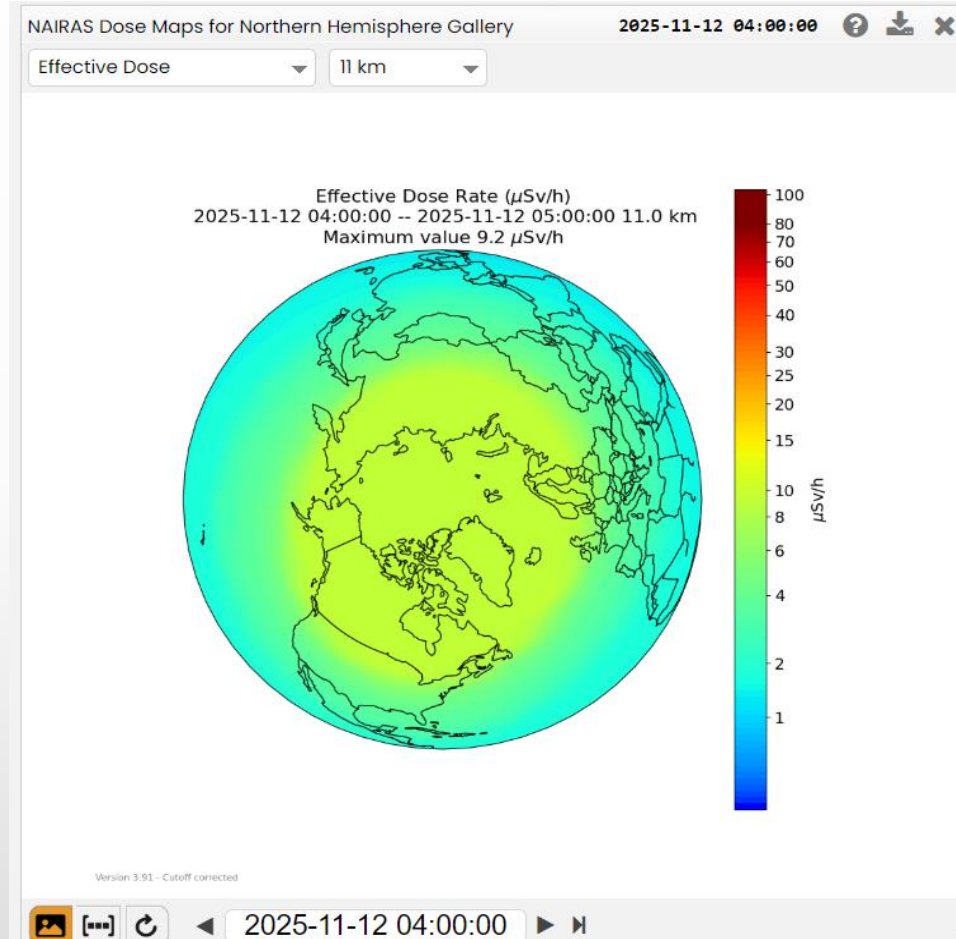


NAIRAS

12 Nov, 04z

11 km = FL 370
= 9.2 $\mu\text{Sv/h}$

15 km = FL 490
= 26.5 $\mu\text{Sv/h}$

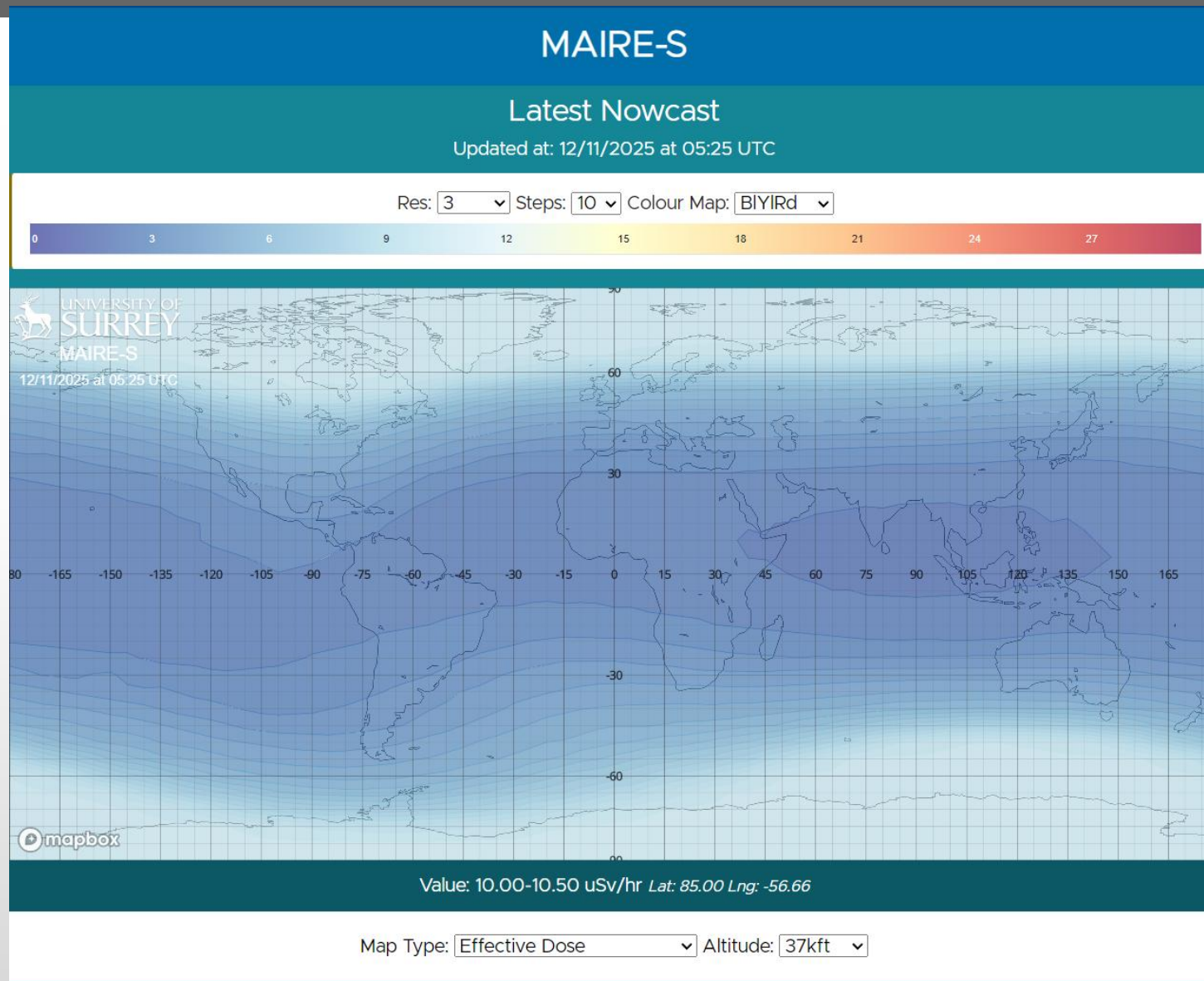




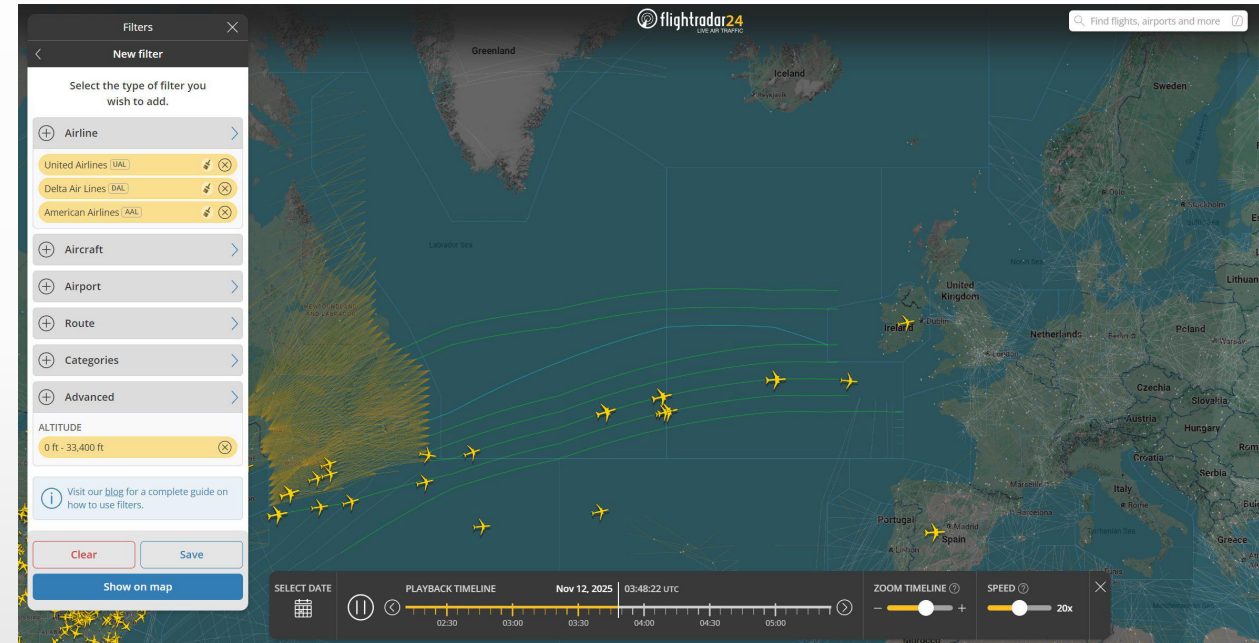
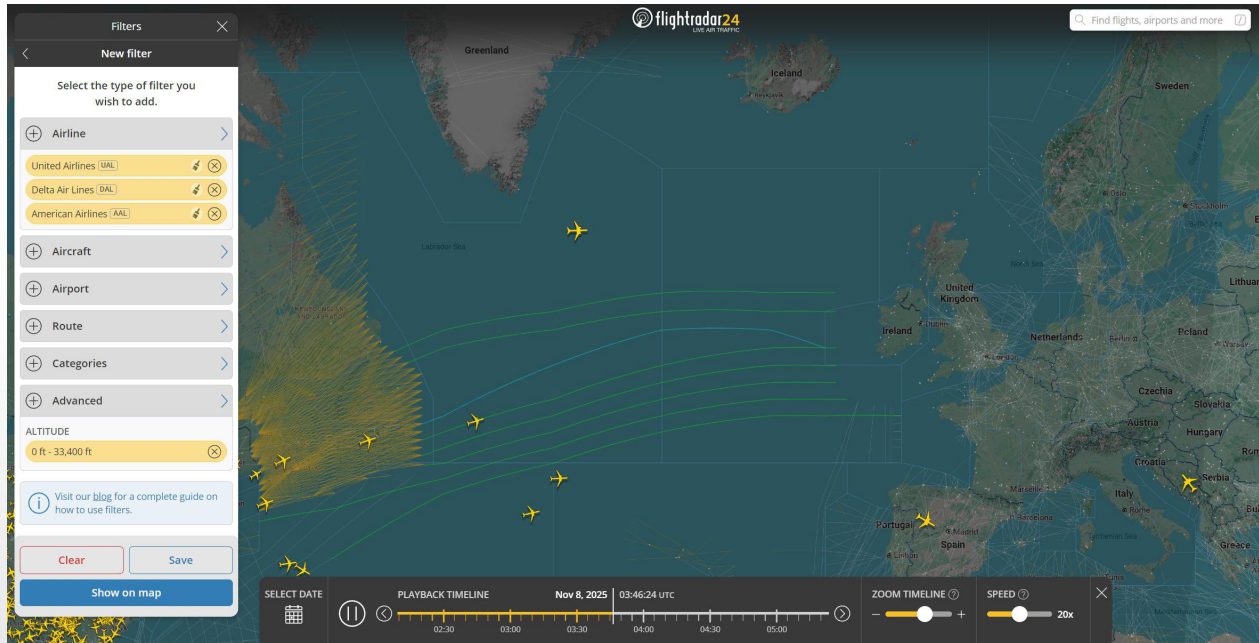
MAIRE-S

12 Nov, 05:25 UTC

FL 370
= 10 - 10.5 $\mu\text{Sv/h}$



Flights at FL 330 or below, as seen on flightradar24



United, American, DELTA: Nov. 5, 03:46 Nov. 12, 03:48z



Thank you

Klaus Sievers Klaus.Sievers@VCockpit.de



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