

Hoe maak ik een waarneemlijst?

websites

Stellarium

Telescopius (complex maar handig om lijstjes te maken)

The Sky Live

hemel.waarnemen.com

SkEye

AstroPlanner

SkyTools

Deep-Sky Planner

Nina (astrofotografie)

kometen

supernovae

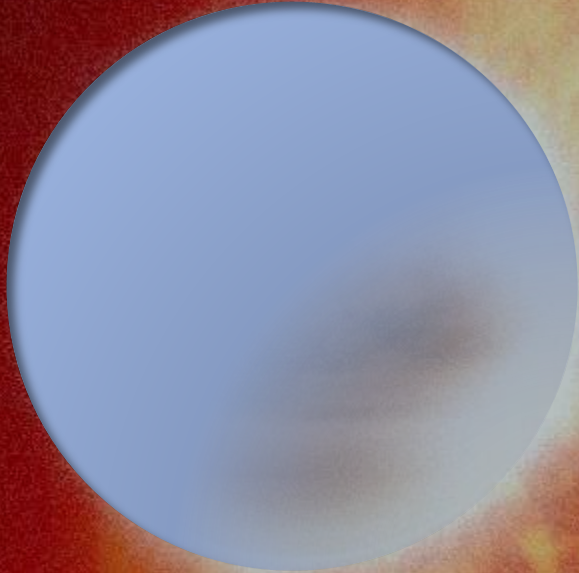
DeepskyLog



Projects 2024 – 2025

Daniel Abts

YGGDRASIL



DOEL

Dieper inzicht in de fysica van structuren en dynamica ervan in de fotosfeer en chromosfeer

- digitale beeldbewerking : verhoging contrast en resolutie
- Dynamica : film
- Zijaanzichten
- Tomografie van de zonne atmosfeer

WAARNEMING VOORBEREIDEN

Opportuniteit =

09h CET ----- 13h CET

1^e uur

2^e uur

Volgende uren

- Onderwerp kiezen + technologie :
Spaceweather.com + SDO pics/filmpjes

“oude” vlekken ?

“delta class” magnetisch veld ?

studie : granulatie – spiculae -

protuberansen

- Jetstream
- Isobaren : wind + richting
- Locatie kiezen

ZON

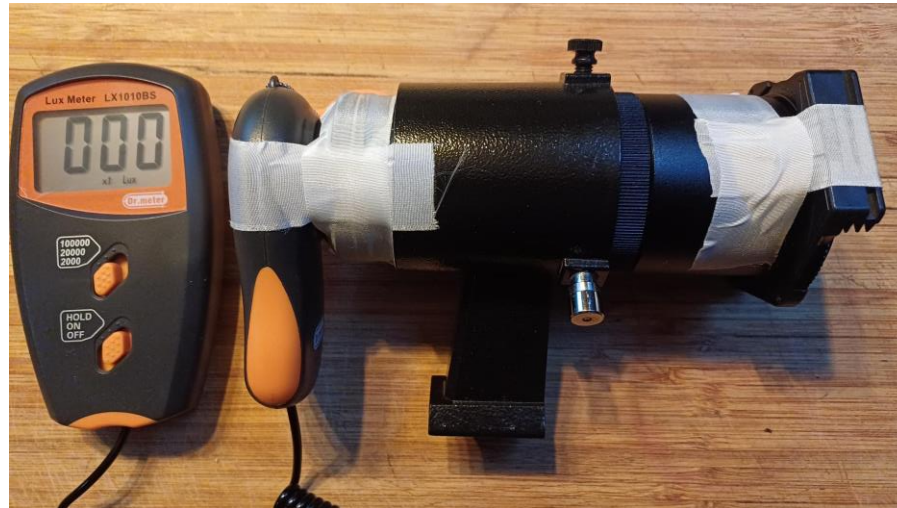
Seeing



1) Solar Scintillation Monitor :
turbulentie => **SCHEIDEND VERMOGEN**

<https://www.analog-astronomical-device.ch/solar-scintillation-monitor>
(312 – 420 Euro)

2) VRB-Red Blue Green Solar Radiometer
Totale irradiatie in W/m^2
(78 Euro)



3) Polarisatie meting :
TRANSPARANTIE

- Meethoek : 25°
- Oude zoeker 50mm
- Cokin lin. polar + houder
- Luxmeter (44 Euro)

Setup C:\Users\scald\OneDrive\Documents

COM1
COM2
COM3
COM4

Autodetect
Connect
Disconnect

Select directory

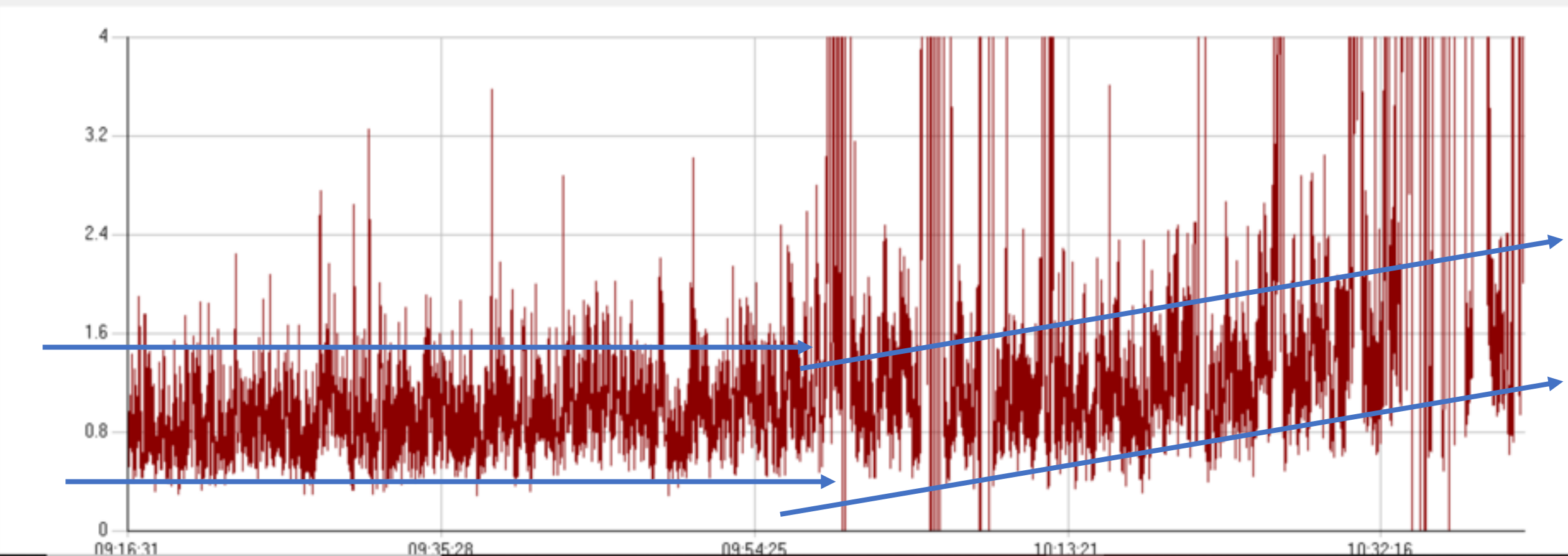
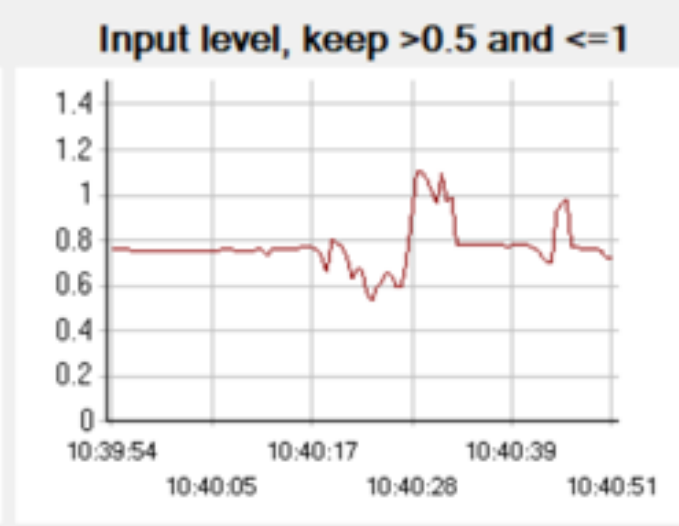
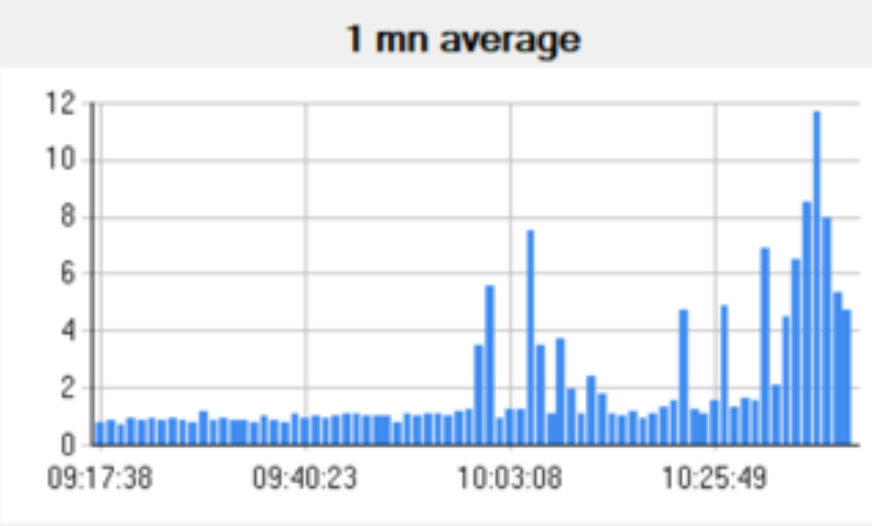
Results in log file

Chart type
Line Area Columns

Scale
Auto 10" 5" 2"

Reset Graph

Input 0.720
Seeing 9.210



			scheidend vermogen							
			Dawe's	Rayleigh			ASI174MM : 11,3 x 7,3 mm			
		Φ (mm)		393	540	656	f	zon Φ (mm)	f reduced	zon Φ (mm)
APM	ACR	80	1,5	1,20	1,70	2,10	328	3		
SCT		250	0,5	(0,4)	0,50	(0,7)	2500	22,5	1870	15
TS	ACR	150	0,8	0,70	0,90	1,10	890	8	445	4
ES	APO	127	0,9	0,80	1,10	1,30	950	8,6	470	4,2
Omegon	APO	80	1,5	1,20	1,70	2,10	500	4,5	250	2,3

ES APO 127mm f/7,5

Barlow 5x

Herschell wedge + ND0,9 – Continuum filter

ASI174MM



AR3842

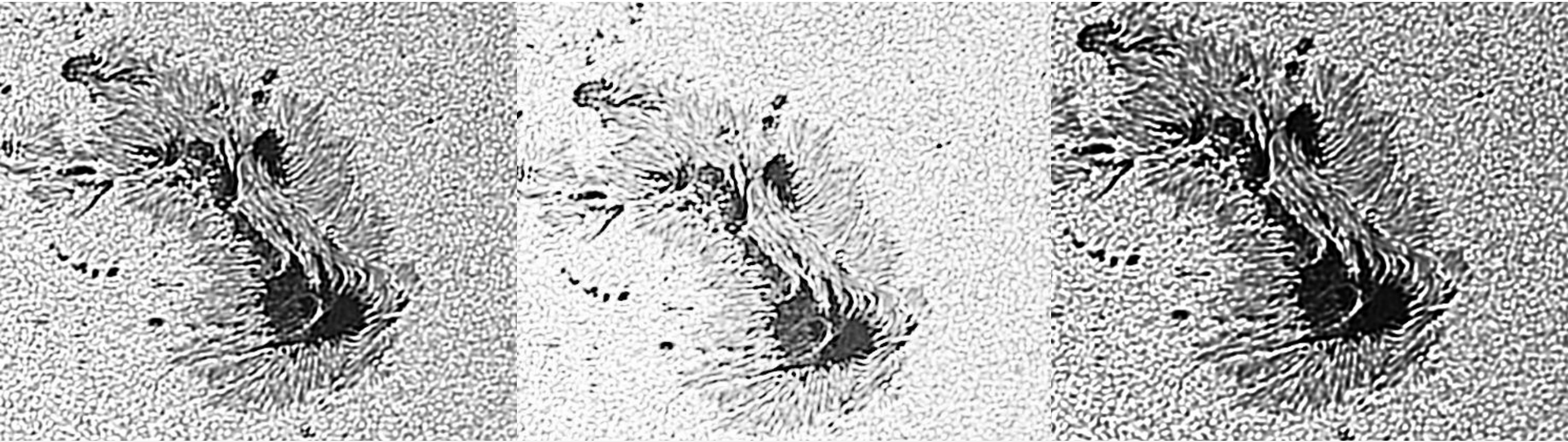
AR3843

AR3839

AR3844

ZON

Umbrina Fijnstructuur



UD clusters : stromings patronen = film

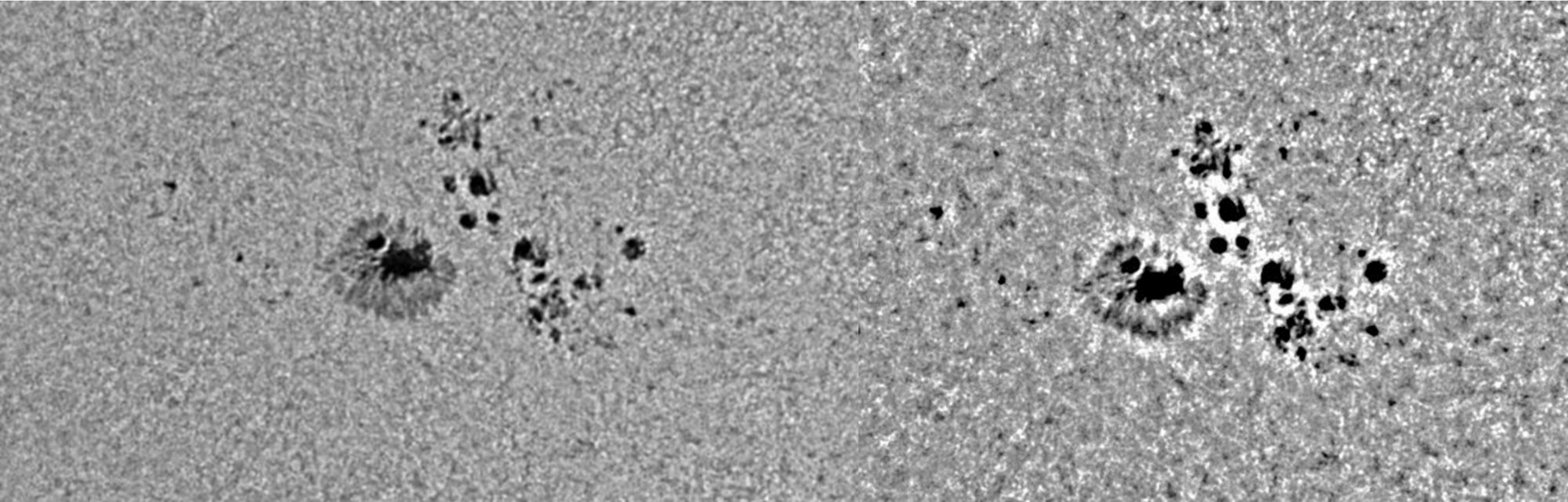
Digital image enhancing exploreren

Alles = bovenaanzicht. Zijaanzicht lichtbruggen bvb ?

Evolutie van een vlek : beperking = meteo

ZON

Bright Rings



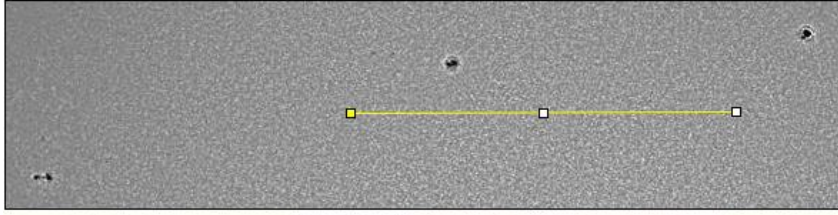
ES APO 127mm f/7.5 - Continuum filter
Standaard bewerking met ImPPG
Opvallend heldere granules in rechterdeel en aan penumbra links

Bewerking met ImPPG
“pushed” met sigma value van unsharp

ZON

Granulatie

584x145 pixels; 8-bit; 83K

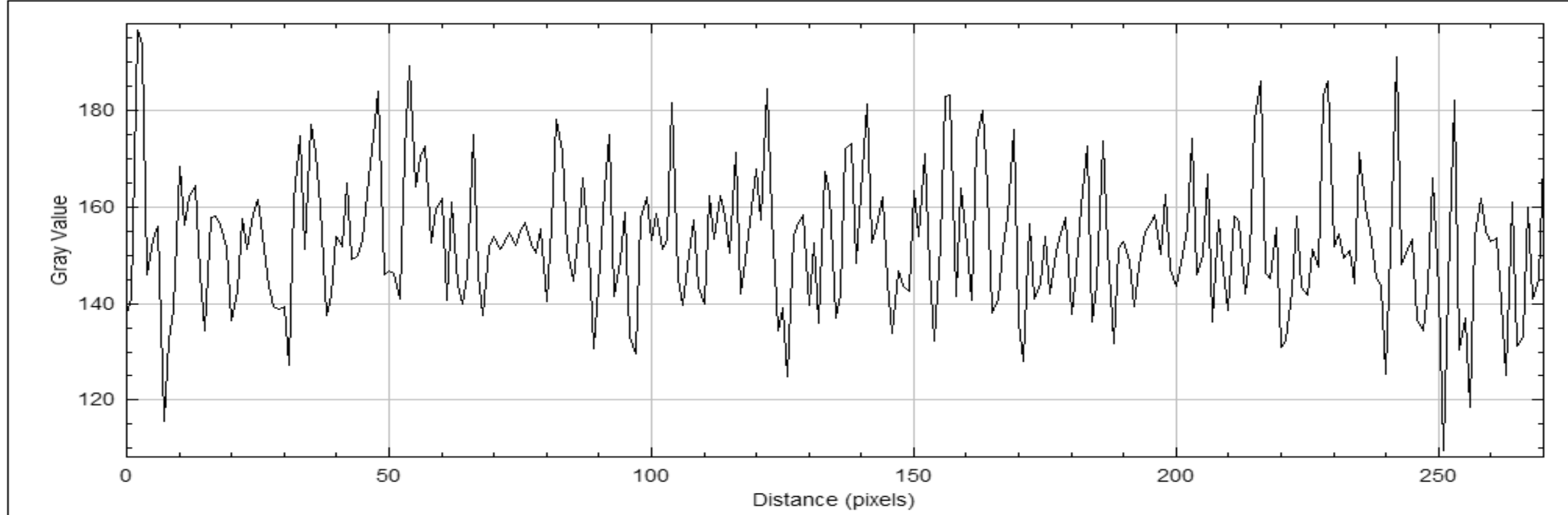


Zonne granulatie :

Interessant is dat we 2 banden hebben, 140-160 en 160-180.

Vinden we dit ook terug bij betere "seeing" ?

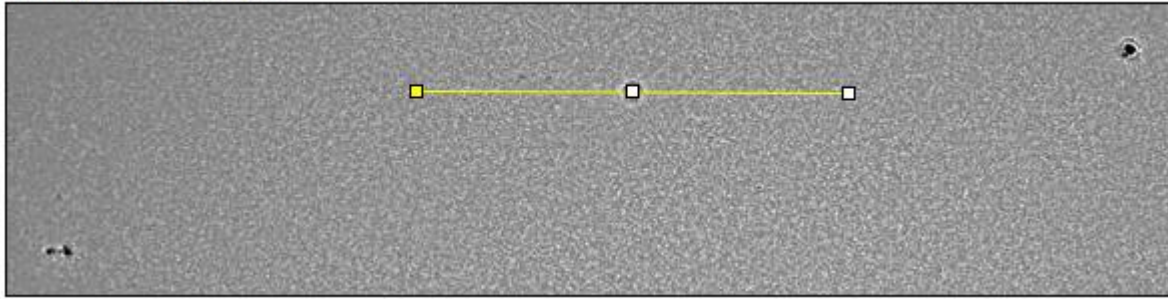
298.58x106.85 (1003x405); 8-bit; 397K



ZON

Granulatie

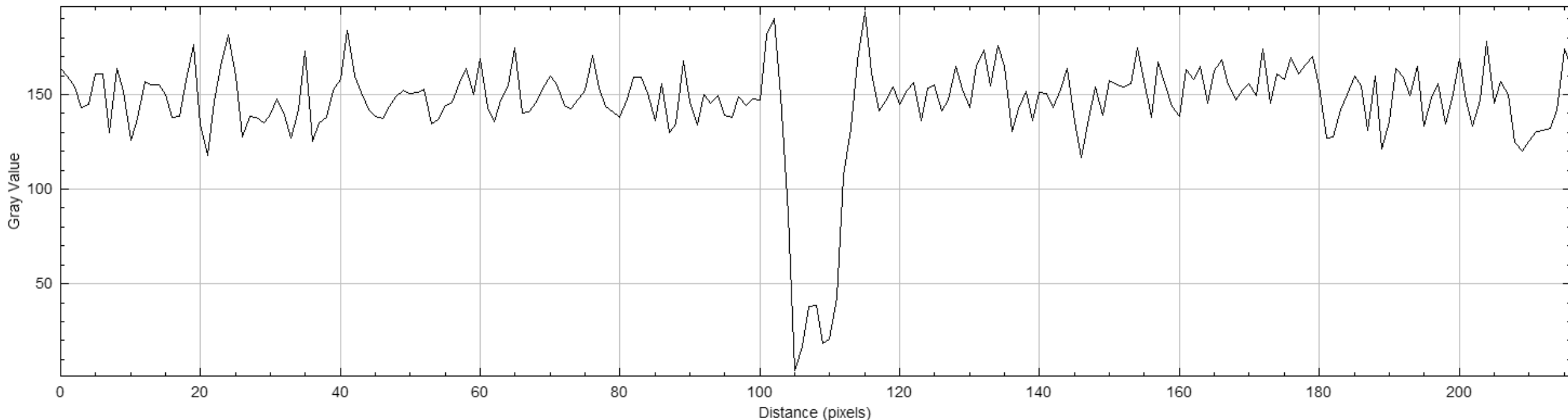
584x145 pixels; 8-bit; 83K



AR3603

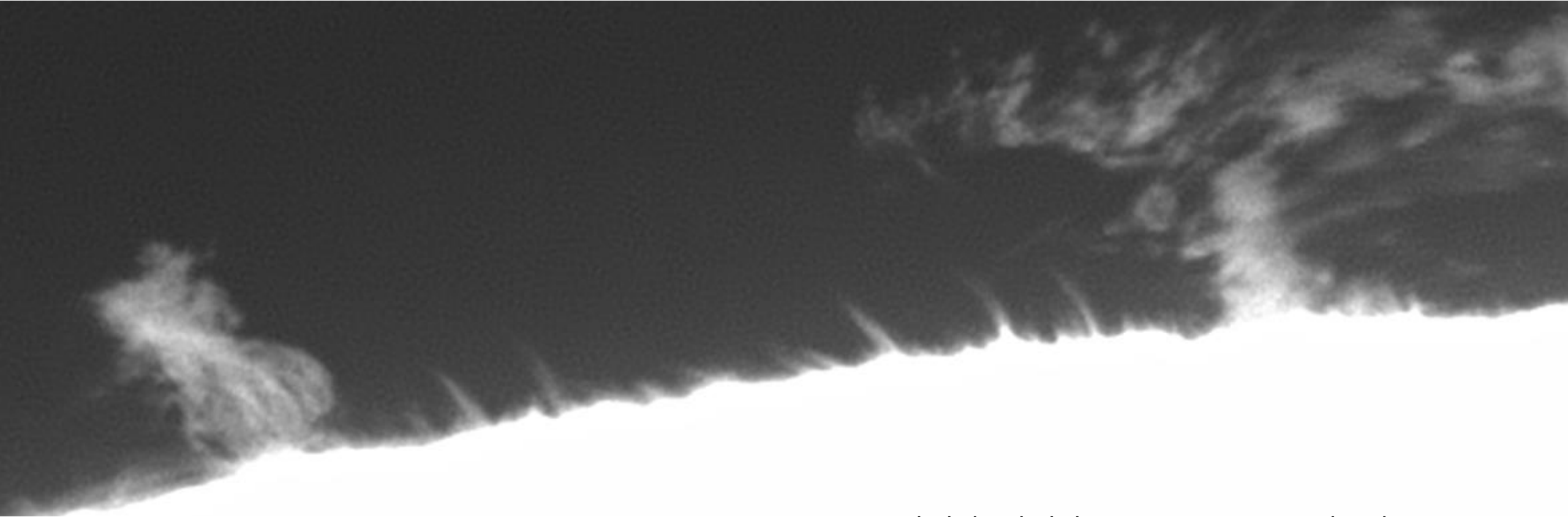
In literatuur vinden we dat de granules dichtbij een zonnevlek “gecomprimeerd” zijn. Op deze grafiek zien we granules van ca 3 pix dichtbij de vlek en verderaf gaat het naar 5 en 6 pix. Deze granules zijn ook minder helder dan de verderaf gelegen granules (temperatuur berekening ?)

230.84x232.55 (1493x405); 8-bit; 590K



ZON

SPICULAE

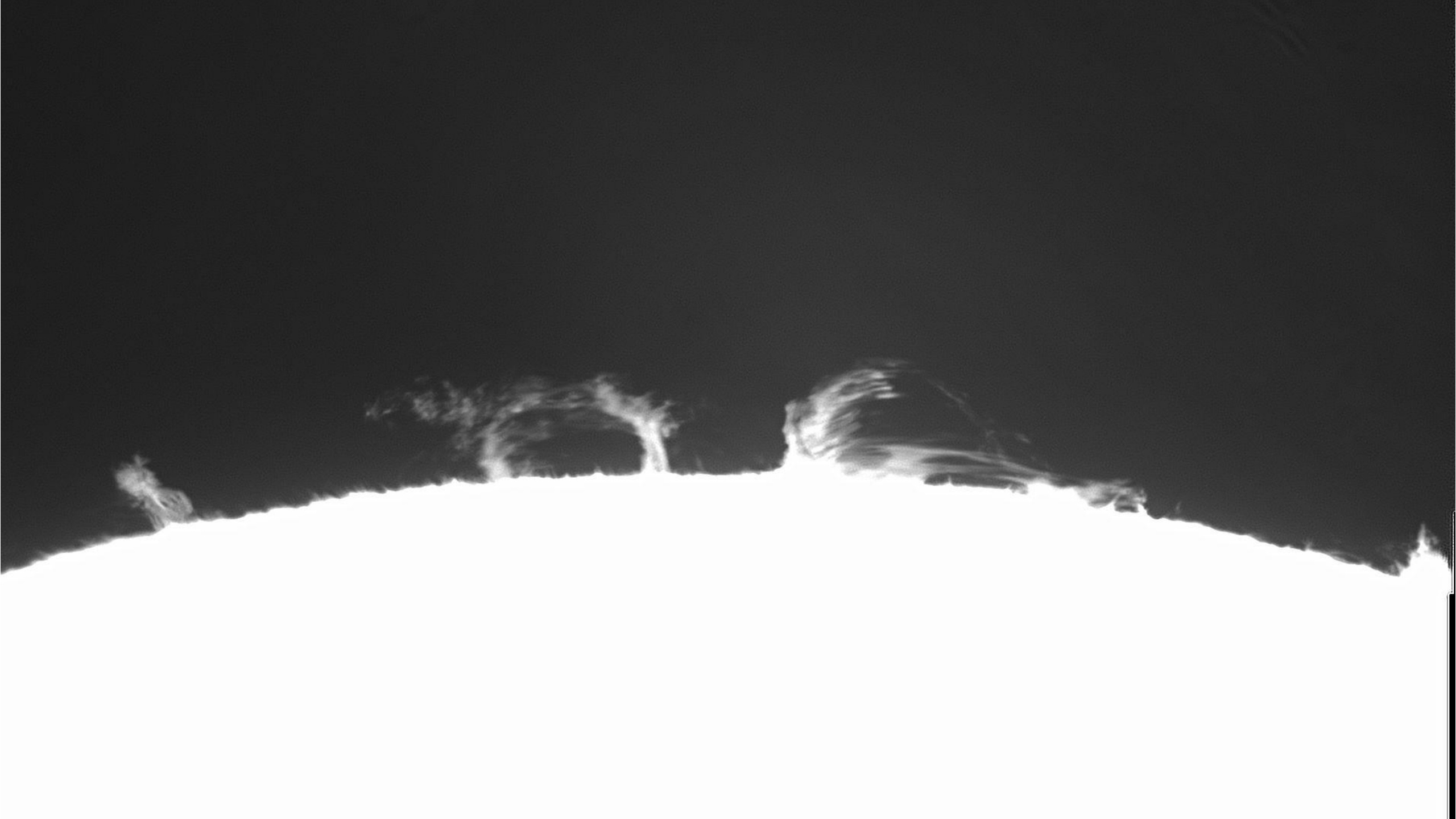


Overbelicht : belichting aanpassen om details te zien

Levensduur 5 – 10 minuten

=> film : periodiciteit

=> In het licht van Call K ?



ZON

Protuberans in Call K

07 april 2024

Protuberans in H-alfa emissie

Daystar Quark Gemini

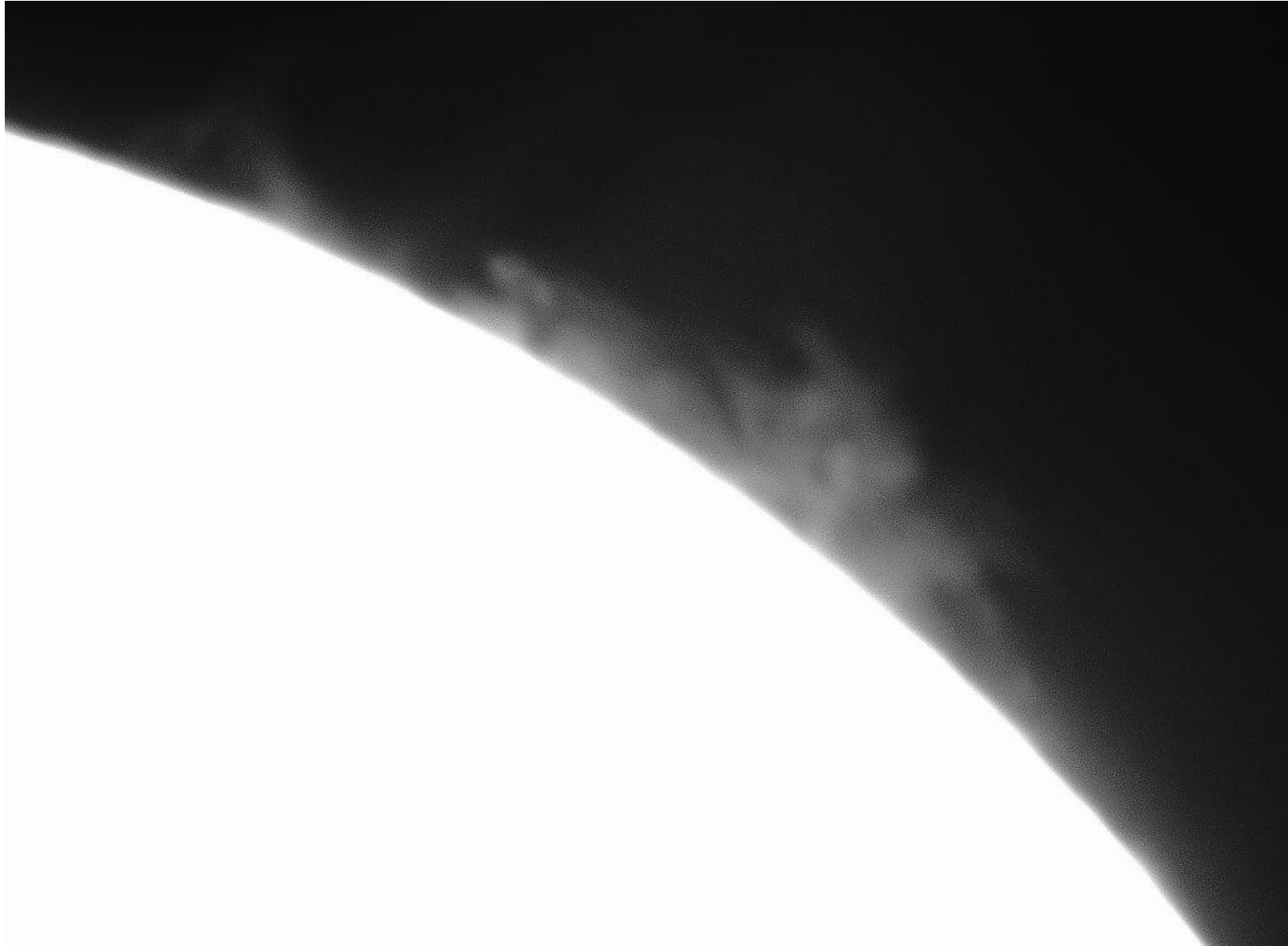
Chromosfeer

ASI174MM



ZON

Protuberans in Call K

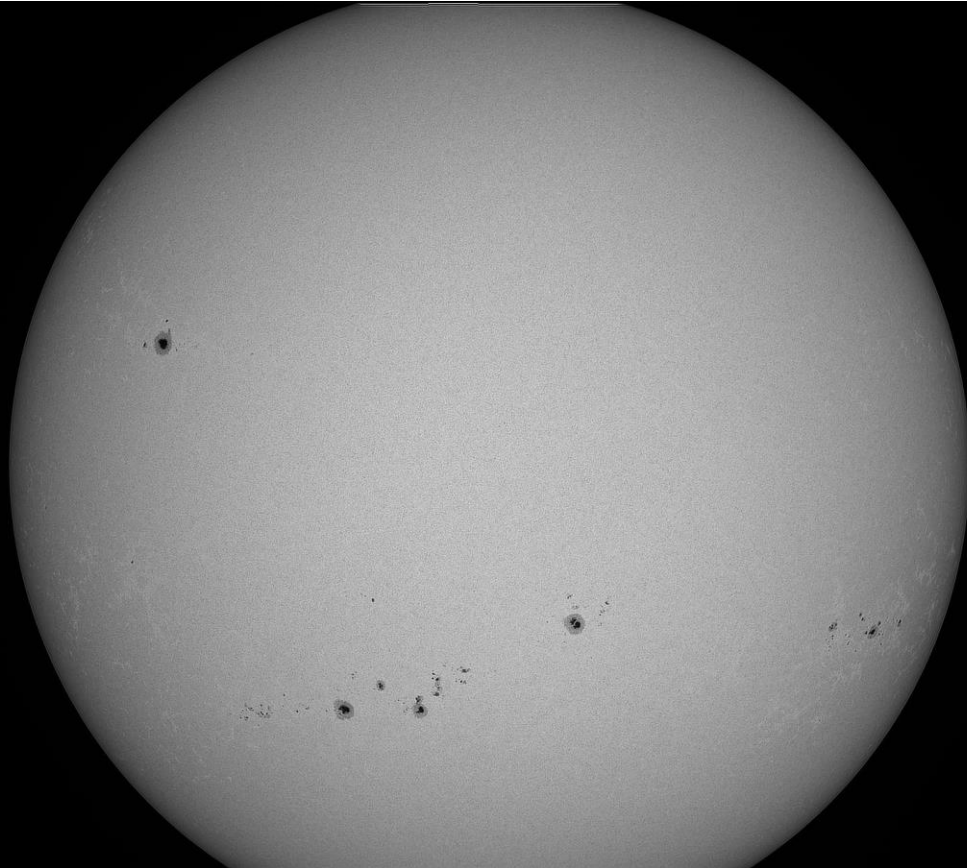


Call K lijn
Heel zwakke licht emissie
Reflecties

Lunt Call K
Barlow 2x
ASI174MM

ZON

K-line filter exploreer



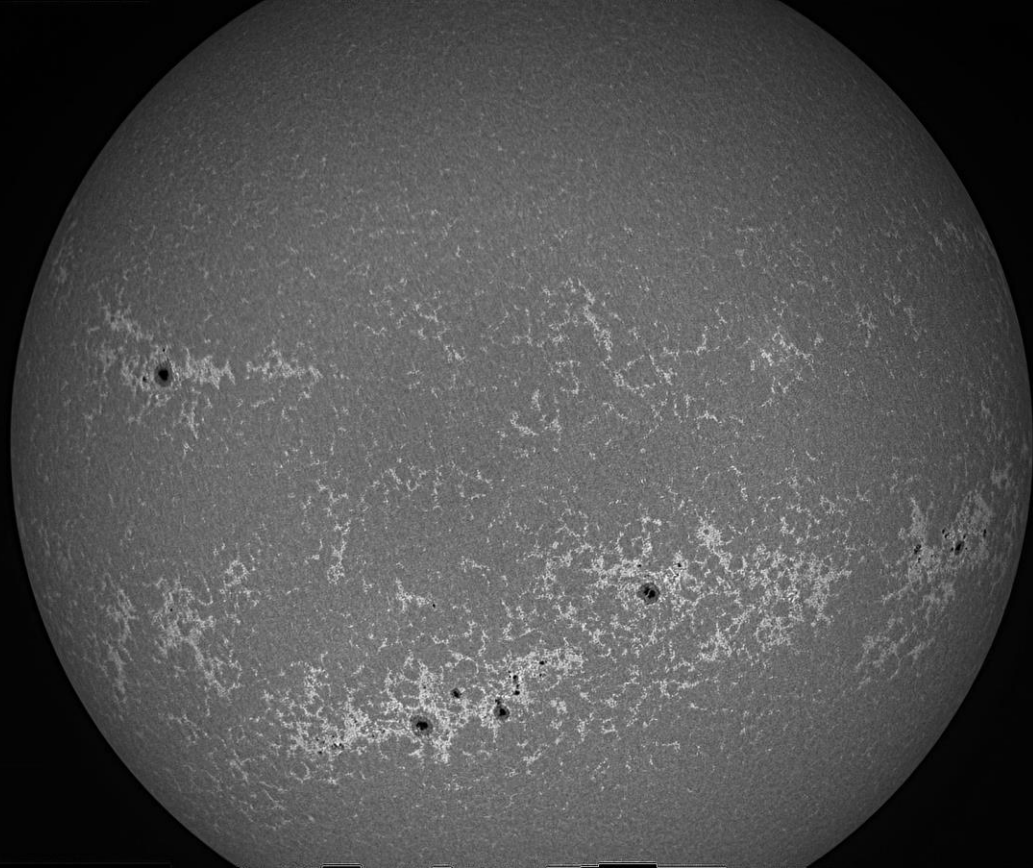
ES APO 127mm f/7,5
Lacerta Herschell wedge
Baader continuum filter



TS ACR 150mm f/6,5
Lacerta Herschell wedge
Baader Call K-line filter

ZON

K-line filter exploreer



ES APO 127mm f/7,5
Lunt Call K line filter B1200



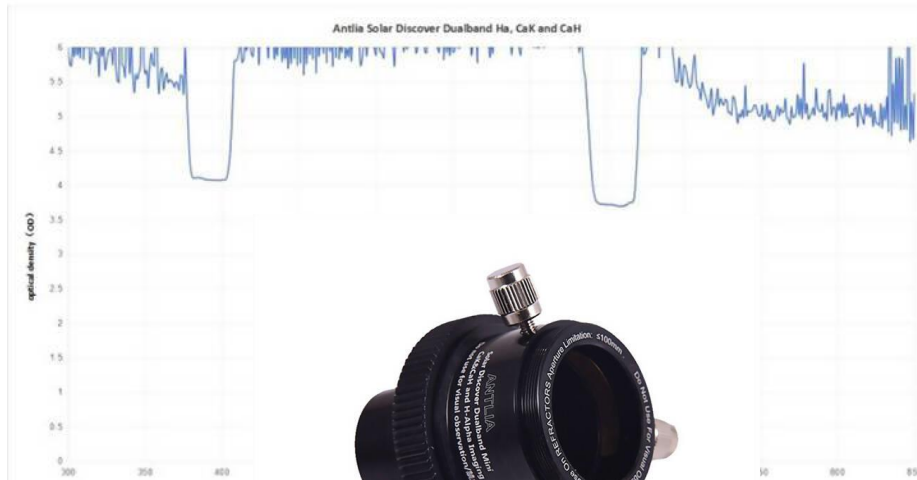
TS ACR 150mm f/6,5
Lacerta Herschell wedge
Baader Call K-line filter

ZON

K-line filter exploreer

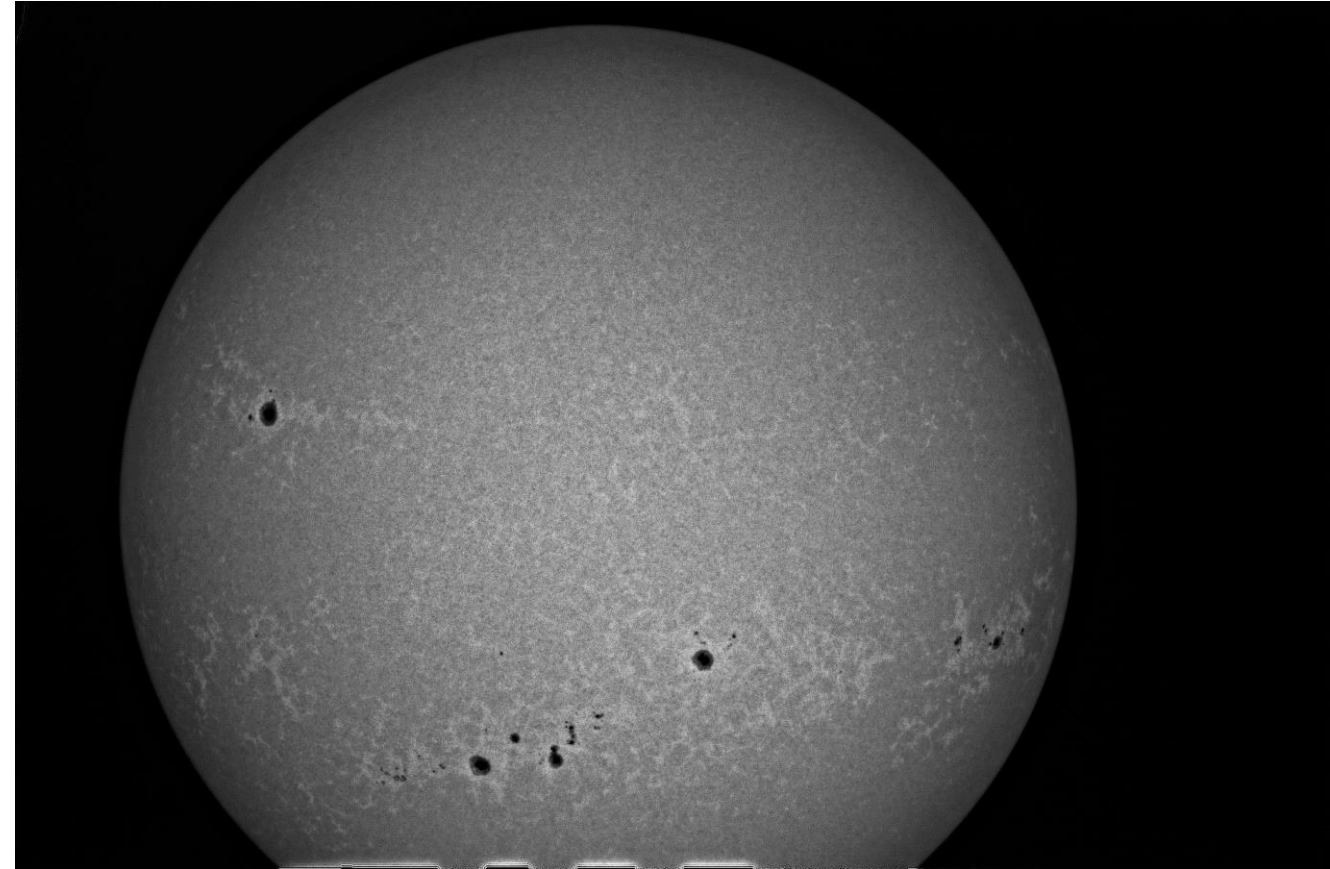


Baader Call K-line
FWHM 5 nm
285 Euro



NIEUW

Antlia Dual Call – H alpha
FWHM 50 nm
156 Euro



TS ACR 150mm f/6,5
Lacerta Herschell wedge
Baader Call K-line filter

ZON

Decameter Radiotelescoop

AR3664
H-Alpha
10 – 05 – 2024

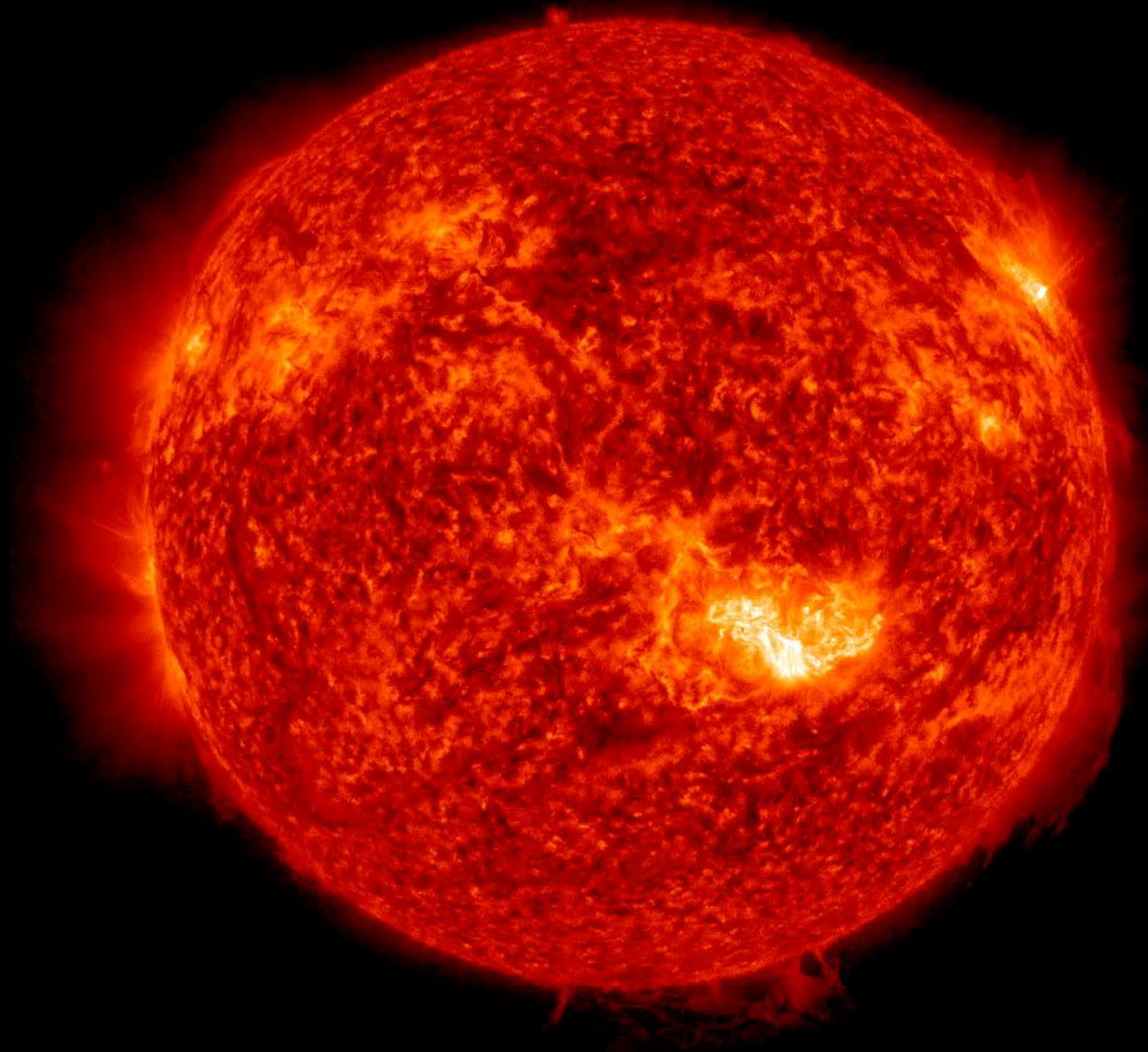
08h33 UT

ES APO 127mm f/7,5
Daystar Quark Gemini Chromo
ASI174MM

http://www.ukaranet.org.uk/uk_amateurs/bobgreef/



AR3664



AIA 0304 Å

singly ionized helium (He II)

This channel is especially good at showing areas where cooler dense plumes of plasma (filaments and prominences) are located above the visible surface of the Sun. Many of these features either can't be seen or appear as dark lines in the other channels. The bright areas show places where the plasma has a high density.

Where: Upper chromosphere and lower transition region

Wavelength: 304 angstroms
(0.000000304 m) = Extreme

Ultraviolet

Characteristic temperature: 50,000
K (90,000 F)

SDO/AIA 304 2024-05-09 00:08:42 UT

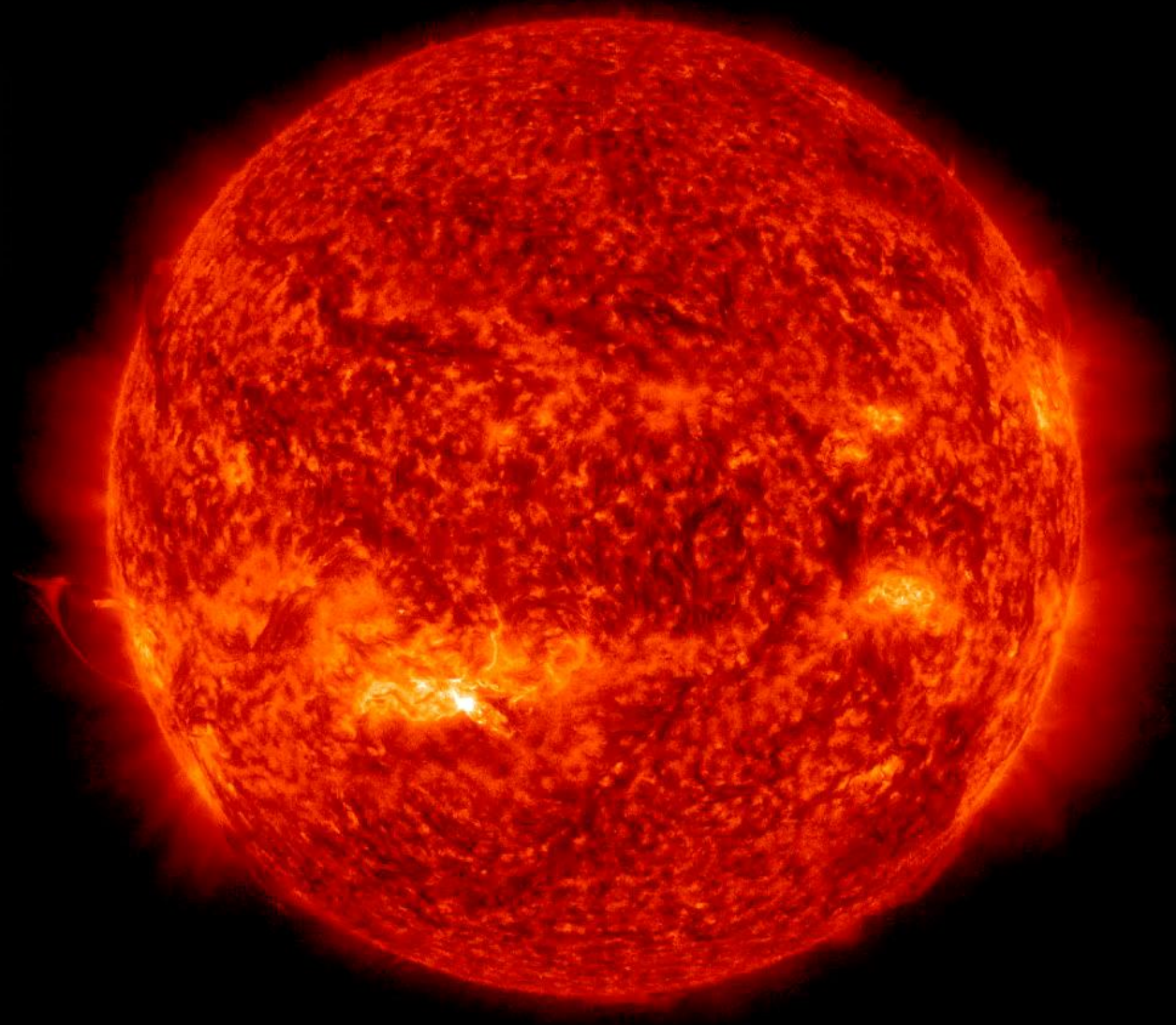
AR3825



Swedish Solar Telescope
La Palma

<https://www.space.com/16321-sun-tornado-solar-twisters-gallery.html>

SDO/AIA 304 2024-09-17 00:09:18 UT



AIA 0304 Å

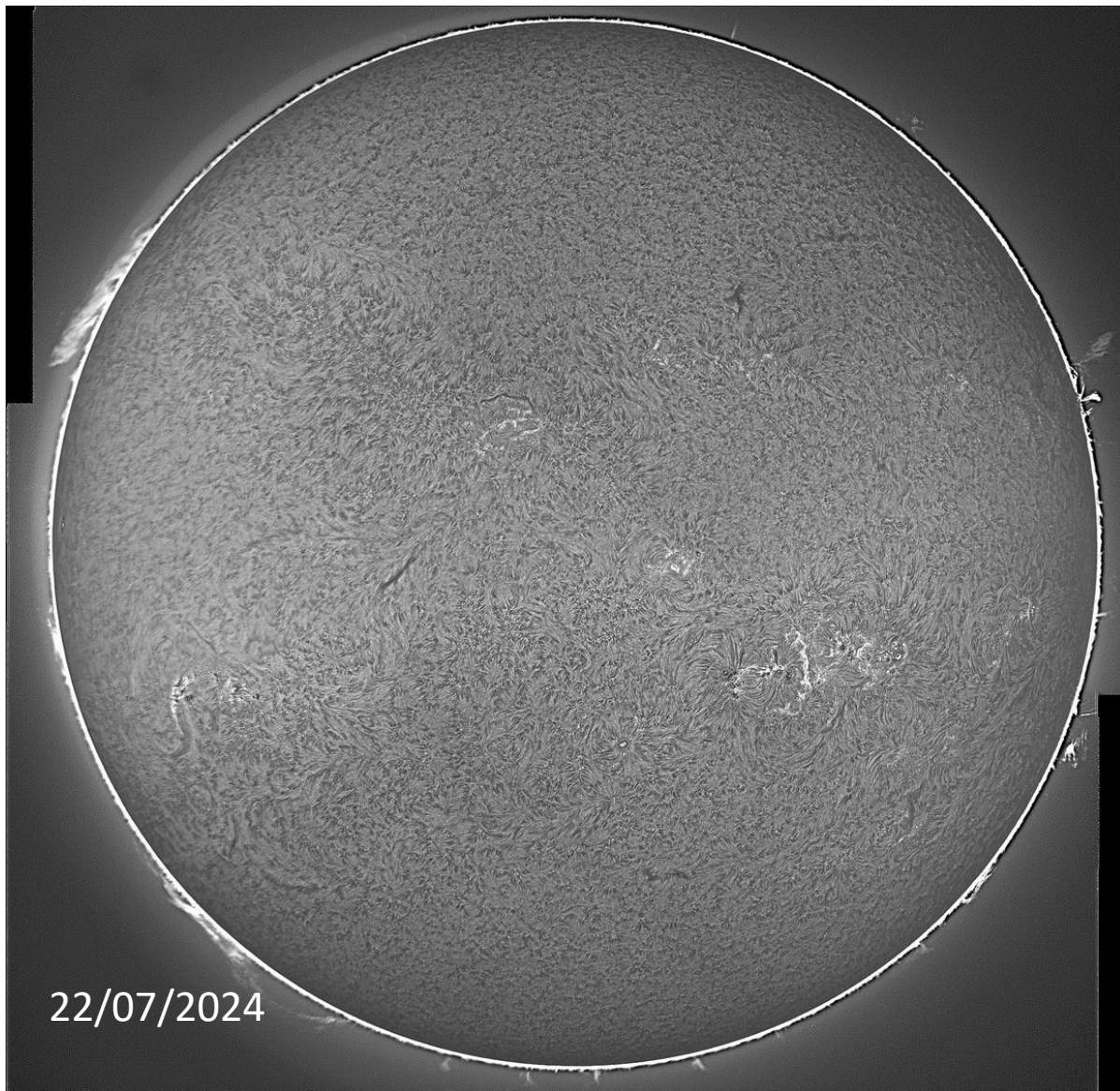
singly ionized
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Where: Upper chromosphere and lower transition region
Wavelength: 304 angstroms (0.0000000304 m) = Extreme Ultraviolet
Characteristic temperature: 50,000 K (90,000 F)

ZON

H-alfa fibril shear fields



FLOW ?
EFR ?

22/07/2024

ZON

MgI b2 exploreer

Filter :
517,28 nm
FWHM 0,04 nm

Breedte emissielijn :
0,075 nm

- Lage chromosfeer
- Striatie / flakes : magnetvelden in fotosfeer ?
- White dots

Scherpere beelden nodig !

ZON

Solar Newton voor Call K



C. Viladrich

Newton 30cm

Newton

20cm f/4



Convection in sunspot umbrae

Goode Solar Telescope (GST)

This movie shows the temporal evolution of a sunspot umbra as observed on 2015 June 22 by the **1.6-m Gregorian Solar Telescope at Big Bear Solar Observatory (BBSO)**. A broadband filter isolating **TiO** molecular lines around 705.7 nm was used to sample the photosphere. The images have a **pixel size of 24 km** on the solar surface.

Tiny bright umbral dots can be seen everywhere in the umbra. These are locations where convection take place, transporting energy from deep layers into the solar surface. They have short lifetimes compared with other features such as penumbral filaments and light bridges. Umbral dots usually show "dark" lanes in their interior, representing high opacity gas piled up at the top of the dots by upflowing motions. Since the opacity is larger there, we observe higher layers which are cooler and hence darker than their surroundings.

The movie also illustrates the evolution of light bridges and penumbral filaments. These features show conspicuous dark lanes, much in the same way as umbral dots. In addition, a white-light flare is captured, showing the propagation of a flare ribbon across the umbra.



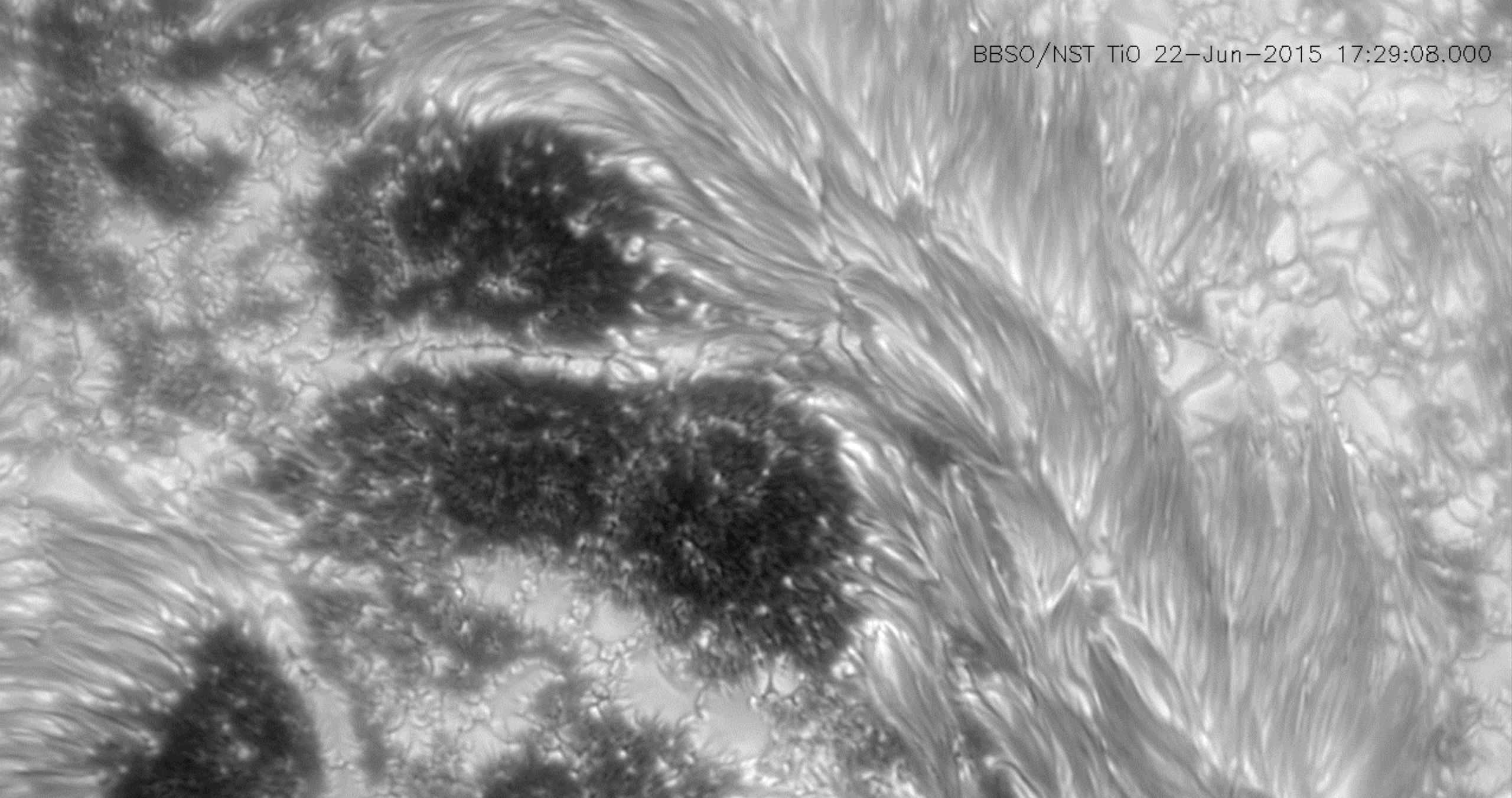
https://en.wikipedia.org/wiki/Big_Bear_Solar_Observatory

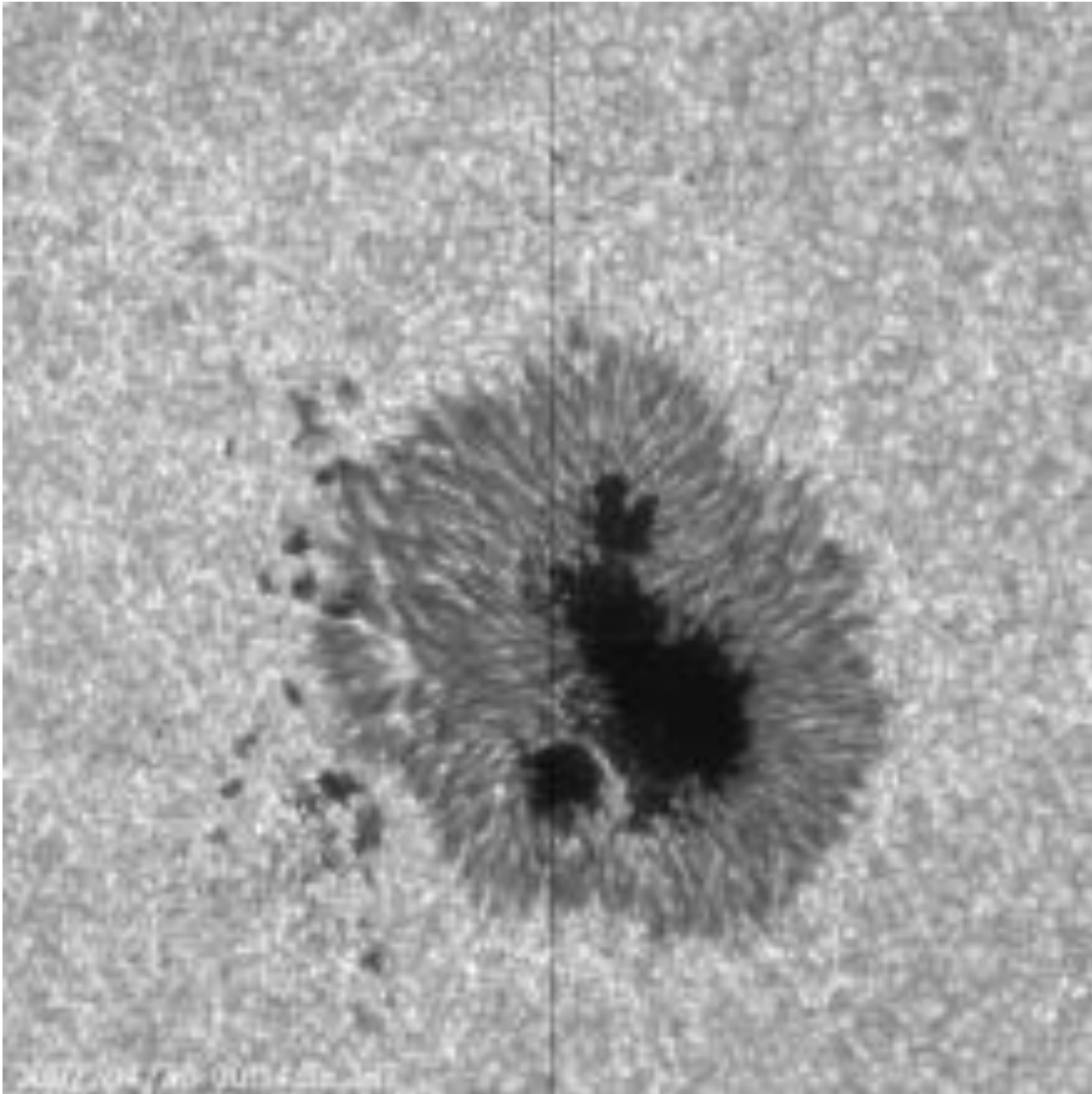
Movie credit: Wenda Cao (Big Bear Solar Observatory). BBSO operation is supported by New Jersey Institute of Technology and U.S. NSF AGS-1821294 grant

Publications: Liu et al., 2016, Nature Communications, 7, 13104
Jing et al., 2016, Nature Scientific Reports, 6, 24319

<https://est-east.eu/index.php?movie-convection-in-sunspot-umbrae>
<https://est-east.eu/index.php?movie-convection-in-sunspot-umbrae>

BBSO/NST TiO 22-Jun-2015 17:29:08.000





**Decaying sunspot
G-Band**

**Hinode satelliet
30/04/2007**



सूर्यनमस्कार
SURYA NAMASKAR