

***Animazioni  
di  
protuberanze solari***

# Principali ditte di telescopi H-alfa



**Lunt** diametri disponibili da 40mm a 200mm



**Coronado** diametri disponibili da 40mm 90mm



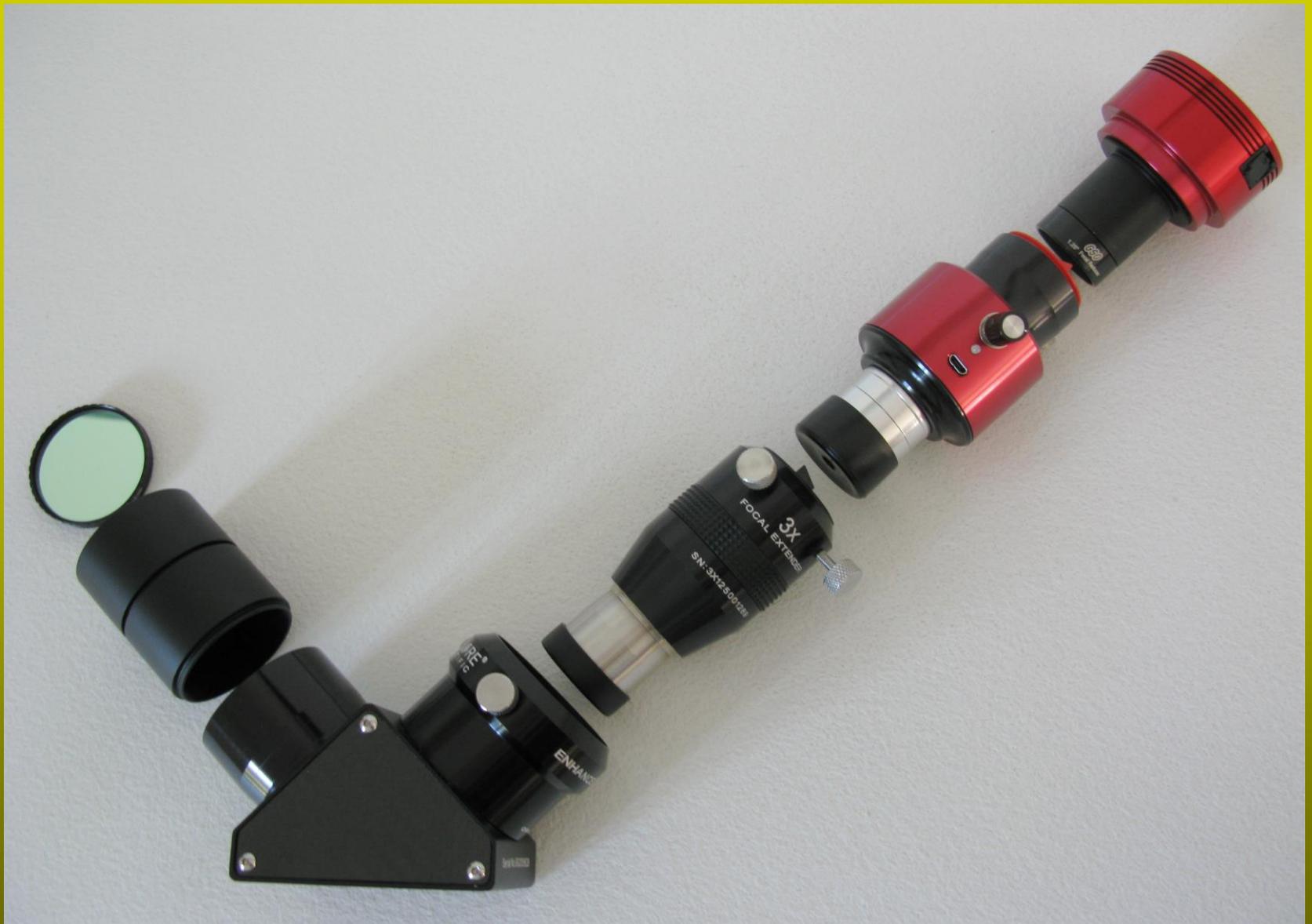
**Daystar** utilizzabile su rifrattori/riflettori  
(con D-erf aggiuntivo)



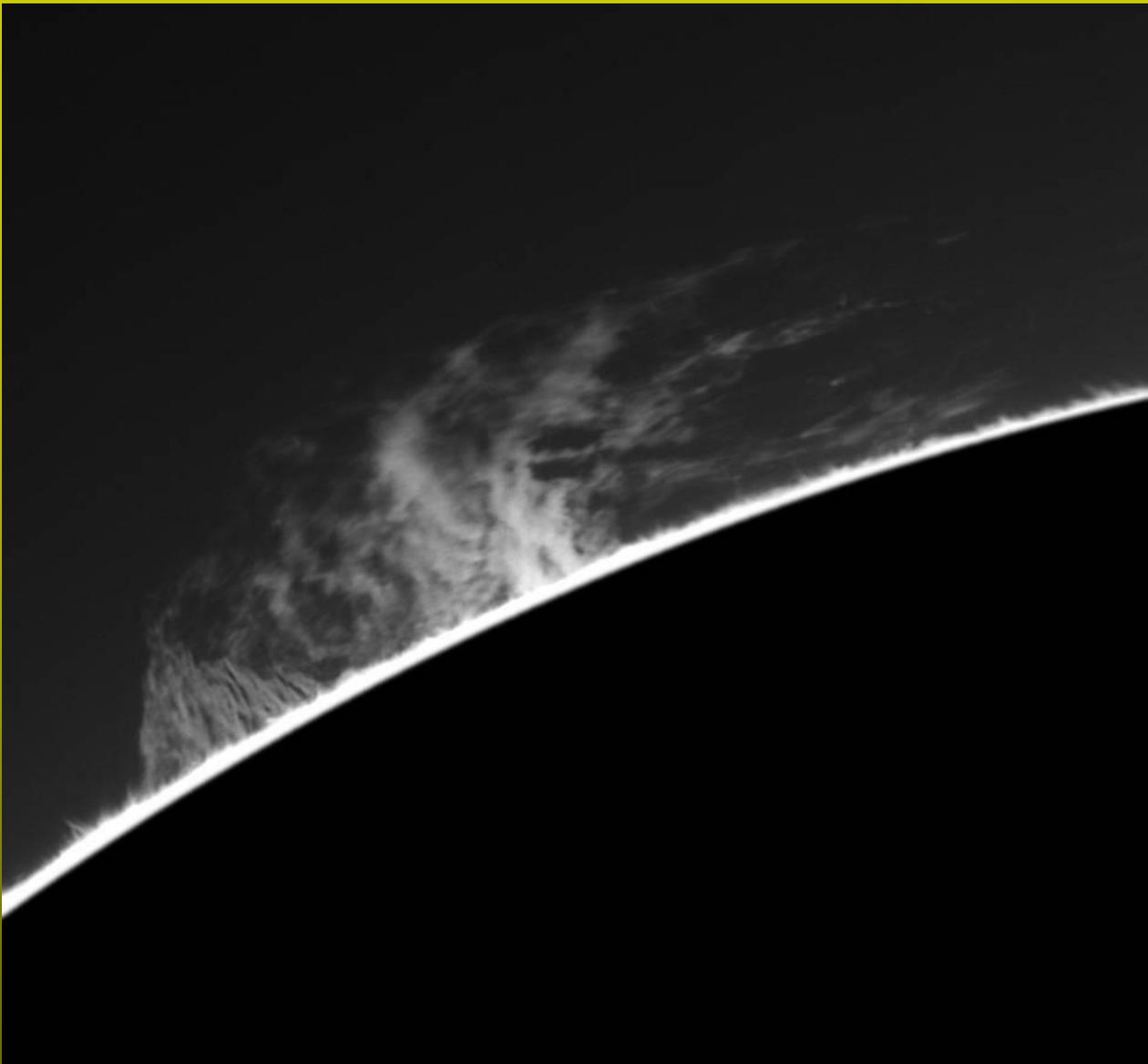
**disco solare**

**Lunt 60mm DS**

**fotocamera  
smartphone**



**treno ottico utilizzato su rifrattore acromatico  
Explore Scientific 127mm f6.5**



protuberanza ripresa il 14 agosto 2021

# ripresa dei filmati

SharpCap (v3.2.6442) - ZWO ASI178MM (via USB3) - C:\video astro

File Cameras Options Capture Tools Scripting Help

Start Capture Quick Capture Stop Capture Pause Snapshot Live Stack Target Name: FX: None Zoom: Auto

Camera Control Panel

**Capture Profiles**

Load Save Save As... Manage...

**Capture Format and Area**

Colour Space MONO16

Capture Area 1000x600

Binning 1

Output Format SER file (\*.ser) Auto

ROI Selection

Pan: 1048

Tilt: 740

**Camera Controls**

Exposure 36,3 ms LX Mode

Quick Picks Auto

Gain Auto 123

Frame Rate Limit Maximum

Flip None

Turbo USB Auto 60

High Speed Mode Off

Hardware Off

Previewing: 452 frames (1 dropped) in 0:00:16,5, 27,6 fps

Memory: 1 of 260 frame buffers in use

16:11 28/08/2021

# somma immagini filmato

The screenshot displays the AutoStakkert! 3.1.4 (x64) software interface. The main window is titled "AutoStakkert! 3.1.4 (x64) - free for non-commercial use © Emil Kraaikamp 2009-2018". The interface is divided into several panels:

- 1) Open:** Contains file navigation controls like "All", "Filter", and "Image Stabilization" options (Surface, Planet (COG), etc.).
- 2) Analyse:** Features a "Quality Estimator" with a "Quality Graph" showing a green line fluctuating around a 50% threshold. Below the graph are "Pause" and "Cancel..." buttons.
- Stack Options:** Includes format selection (TIF, PNG, FIT), "Number of frames to stack" (300, 50, 200, 100), "Frame percentage to stack", and checkboxes for "Sharpened", "RGB Align", and "Save in Folders".
- Advanced Settings:** Contains "Drizzle" options (Off, 1.5 X, 3.0 X) and "Resample" (2.0 X).
- 3) Stack:** A button to initiate the stacking process.
- Preview Window:** Shows a star field with a red alignment box. It includes controls for "Image Size" (Width: 1040, Height: 640), "Display Options" (Draw AP's, Brightness), "Scaling (FIT / SER)", and "Export Frame(s)".

The Windows taskbar at the bottom shows the Start button, task view, and several open applications including a file explorer, a word processor, and the AutoStakkert! application. The system tray on the right indicates the time is 16:15 on 28/08/2021.

# somma immagini filmato



AutoStakkert! 3.1.4 (x64) - free for non-commercial use © Emil Kraaikamp 2009-2018

File Memory Usage Colour Advanced Image Calibration Help

**1) Open** Expand Limit

Threads 2 / 2 AVX2

Mem. usage 57,4 % (used 0,7 GB, available 0,5 GB)  
adaptive buffering Done!

**Image Stabilization**

Surface Planet (COG)

Disable Stabilization  
Improved Tracking  
Expand Cropped

**Quality Estimator**

Laplace Δ  
Noise Robust 3  
Very high SNR data

Local (AP)  
Global (Frame)

**2) Analyse**

Reference Frame

Double Stack Reference  
Auto size Manual size

Quality Graph

100% 100%

Pause Cancel...

08\_40\_19Z.ser Done

Frames 1

Image Size Width 1040 Height 640  
offset -11, -12 remember

Display Options  
Draw APs  
Brightness 1 x

Scaling (FIT / SER)  
Auto  
Range 16 bit(A)

Export Frame(s)  
Current All  
As displayed here

F# 395 [1/410]  
top 0,0 %  
Q 100,0% 70274,2  
gray

Zoom 80%

Alignment Points  
770 APs Clear

Manual Draw

Click in image to add an alignment point  
AP Size  
40  
24 48  
104 200

Auto AP  
Min Bright 5  
Place AP grid

Replace  
Multi-Scale

#F 410 16 bpp 08\_40\_19Z.ser Done 1/1



# elaborazione foto

2020-04-25 AstroSurface\_Infinity 08\_40\_19Z\_lap13\_ap770.tif

Files Configure Edit Image Tools Filters Geometry Channels Convert / Export Mix / Merge Analyze / Register Dark / Flat MathPix About

**VIEWER**  
Auto Invert Reset  
0 Offset Gain 1.00 Mono 16  
XY= 1030 : 51 I= 0

**ZOOM**  
0.83 +  
<> 1X  
? -

**ADJUST**  
Rotate Levels 8-16 bits W-Balance Gain RGB Undo - R  
Crop BW-Point Noise ColorNoise Saturation Clear >  
Resize Exposure H-Contrast RGB align Deconv-RL Wavelets

**Wavelets-Deconvolution 16 bits**  
Main | RGB |  process ROI Open File

**RGB Options**  
 Apply align RGB Load P  
 Apply RGB levels Save P  
 Apply color saturation  
 Noise prefilter (pix)  
0 0.5 1.0 1.5 2.0 2.5 3.0  
 Preview

**Deconvolution RLucy**  
Iterations 0.80 +  
0 1 2 3 4 5 6 PSF pix - 0  
0 0 Offset ADU Gain 1 1.00

Wavelets Resolution --> Very fine

**Sharpen HF**  
63 +  
- 0

**Sharpen LF**  
3 +  
- 0

**Reduce Noise : end filter**  
N1 N2 X1 X2 3 +  
- 0

# allineamento

ImPPG

File Edit Settings View Tools About

Lucy-Richardson deconvolution

Sigma: 1,3000

Iterations: 50

Prevent ringing

reset disable

Unsharp masking

Sigma: 1,3000

Amount: 1,0000

Adaptive

reset

Image alignment

Add files... Sort Remove all

Input image files

- C:\video astro\19\_08\_2021\Capture\elaborate\001.bmp
- C:\video astro\19\_08\_2021\Capture\elaborate\002.bmp
- C:\video astro\19\_08\_2021\Capture\elaborate\003.bmp
- C:\video astro\19\_08\_2021\Capture\elaborate\004.bmp
- C:\video astro\19\_08\_2021\Capture\elaborate\005.bmp
- C:\video astro\19\_08\_2021\Capture\elaborate\006.bmp
- C:\video astro\19\_08\_2021\Capture\elaborate\007.bmp
- C:\video astro\19\_08\_2021\Capture\elaborate\008.bmp

Sub-pixel alignment

Crop to intersection

Pad to bounding box

Stabilize high-contrast features

Align on the solar limb

A general-purpose method. Keeps the high-contrast features (e.g. sunspots, filaments, prominences, craters) stationary.

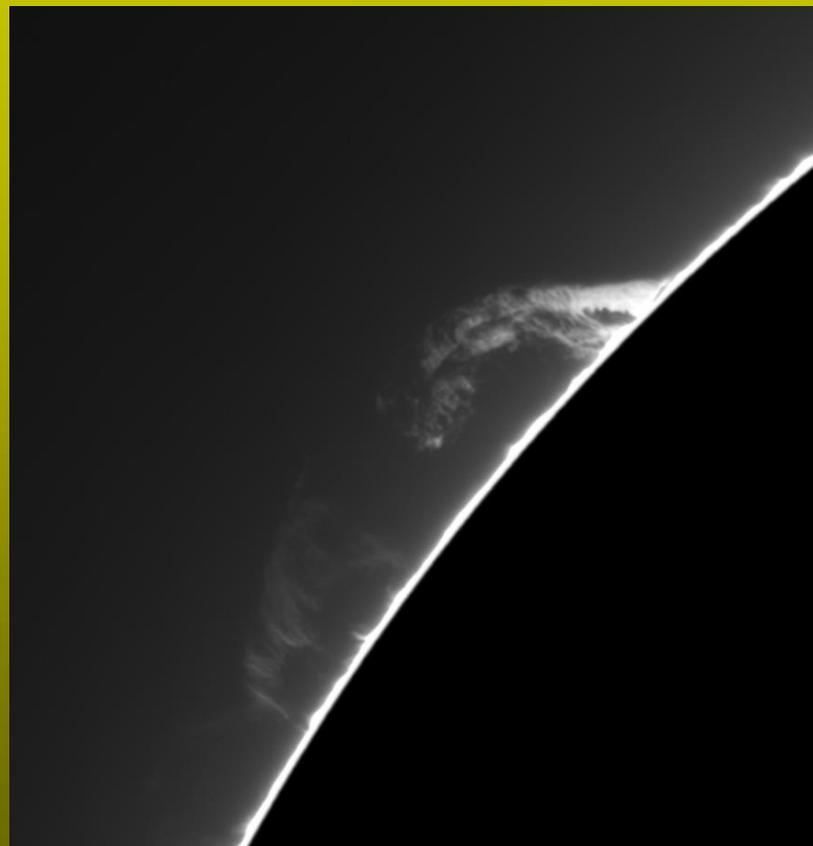
Output folder: C:\video astro\19\_08\_2021\Capture\allineate Browse

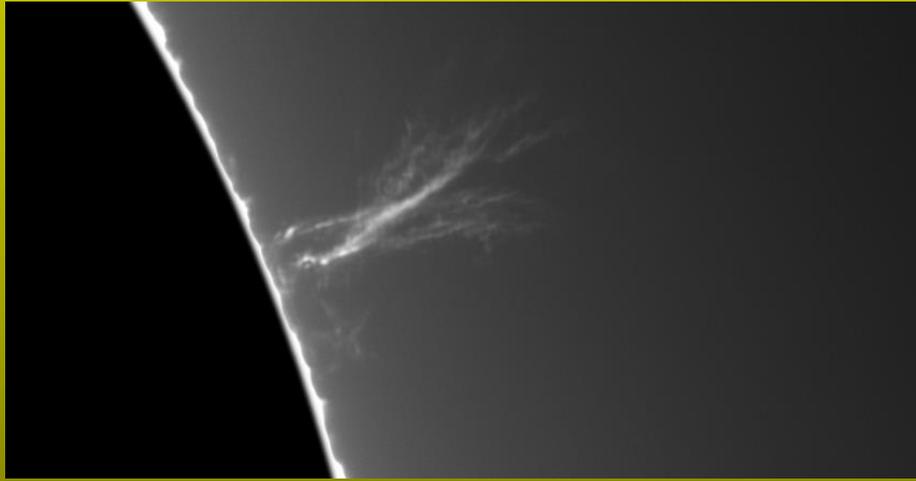
Processed files will be saved under names appended with "\_aligned".  
Number of channels and bit depth will be preserved.

Start processing Cancel

Idle

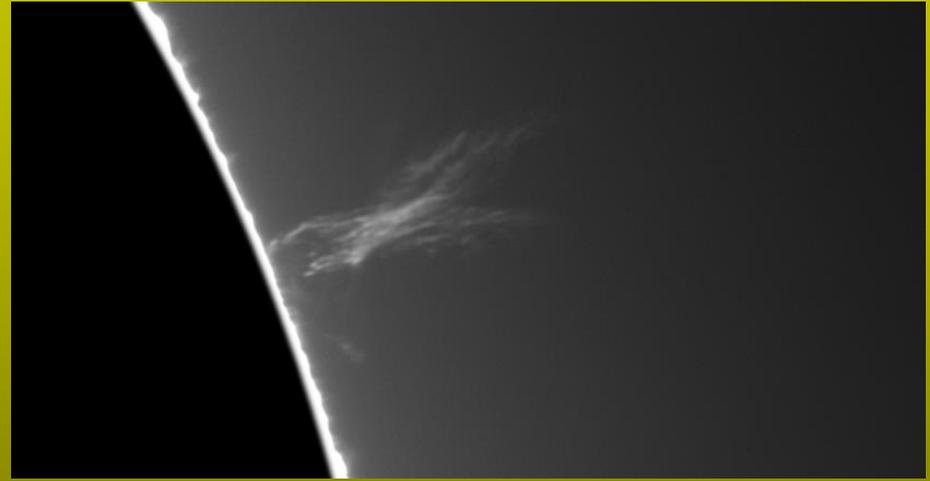
# mascherare il disco solare





**fotogramma 01**

**UT 7:47**



**fotogramma 55**

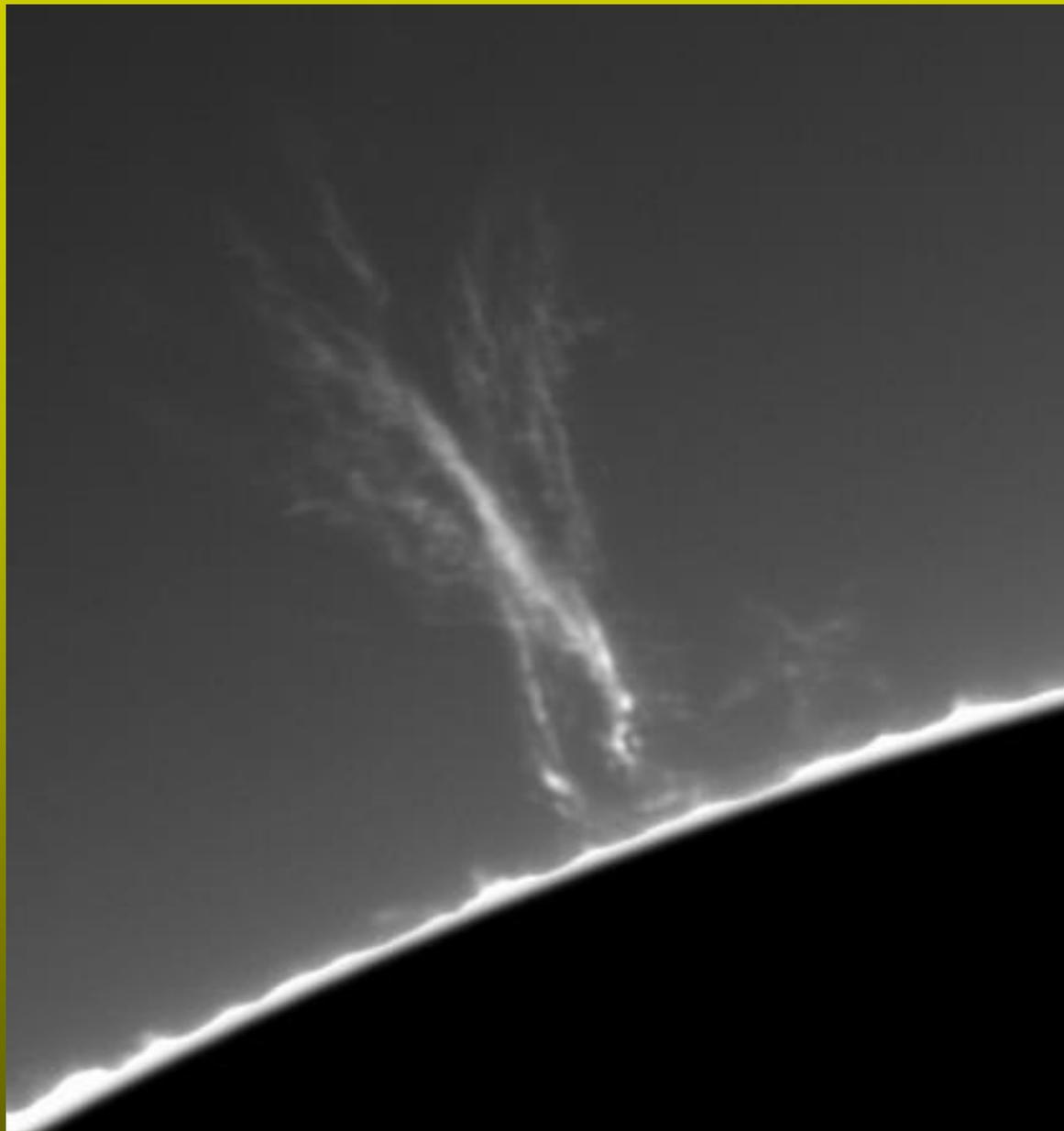
**UT 8:41**

# creazione della gif

The screenshot shows a Windows desktop environment. In the foreground, the 'AnimateGIF' application is open, displaying a list of image paths and animation settings. The application window includes a 'Remove frame' and 'Clear frames' button, a 'Loop animation' checkbox, a 'Frame delay' of 100 ms, and a 'Quality' slider set to 'Balanced'. A progress bar shows 0% completion. The 'Animate' button is visible at the bottom.

In the background, a file explorer window is open, showing a directory of image files. The address bar indicates the path: D:\Archivio foto\Foto astronomia\Sole 2020.3.11\allineate jpeg. The file list contains 26 files, all named '001' through '026', with a size of approximately 30-32 KB and a type of 'Immagine JPEG'.

Nome	Dimensione	Tipo
001	30 KB	Immagine JPEG
002	30 KB	Immagine JPEG
003	32 KB	Immagine JPEG
004	30 KB	Immagine JPEG
005	32 KB	Immagine JPEG
006	30 KB	Immagine JPEG
007	32 KB	Immagine JPEG
008	30 KB	Immagine JPEG
009	31 KB	Immagine JPEG
010	30 KB	Immagine JPEG
011	31 KB	Immagine JPEG
012	31 KB	Immagine JPEG
013	31 KB	Immagine JPEG
014	30 KB	Immagine JPEG
015	31 KB	Immagine JPEG
016	32 KB	Immagine JPEG
017	30 KB	Immagine JPEG
018	31 KB	Immagine JPEG
019	30 KB	Immagine JPEG
020	31 KB	Immagine JPEG
021	30 KB	Immagine JPEG
022	30 KB	Immagine JPEG
023	32 KB	Immagine JPEG
024	31 KB	Immagine JPEG
025	30 KB	Immagine JPEG
026	31 KB	Immagine JPEG



19.8.2021 55 filmati da 20sec a 20 fps  
pausa di 40 sec