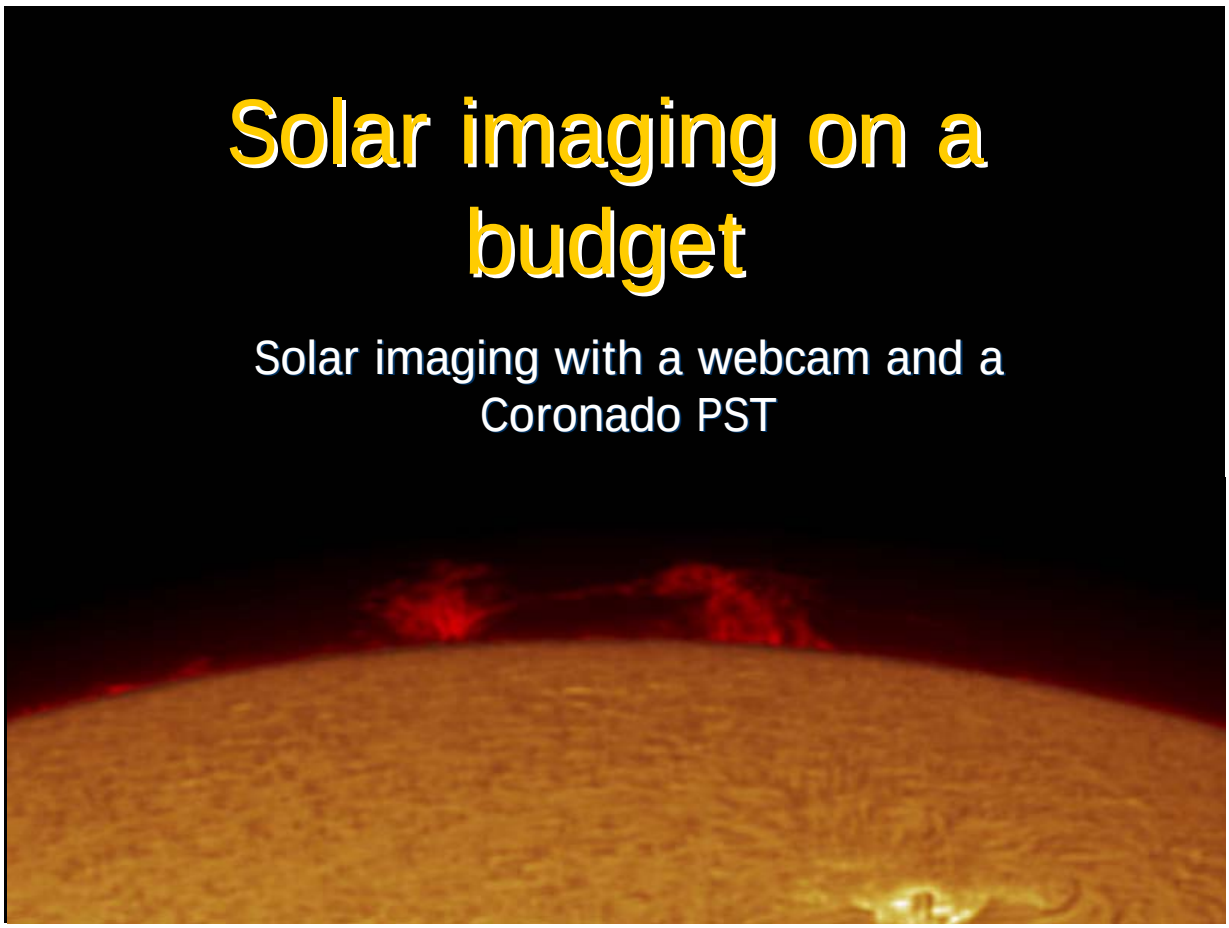
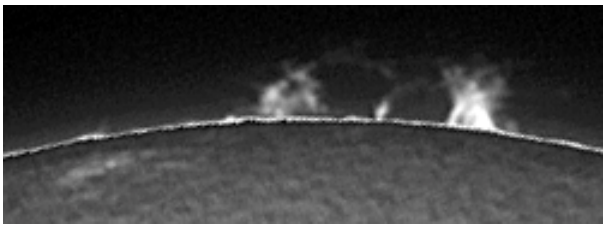


This is just a reaching hand for those who wants to do some solar imaging with a webcam. It's just the way I do it, not the ONLY way! So, trying and learning is the best way to solve the solar imaging puzzle…

What do you need?

- Coronado PST
- Motor driving equatorial mount
- Philips ToU-webcam
- 2X Barlow lens
- A good computer
- The necessary software
- Sunshine…lots of it
- And last but not least: a cold beer on a hot summer day! ;)



The setup

Set up the PST and level at north. It is important
to track the Sun on an equatorial driven mount to
keep the Sun centered on the ccd-chip.

I have mine
piggybacked on
an 8" SCT. >>

The webcam

Cheap webcams suitable for solar-imaging:

- **Philips ToUcam PRO I, II**
- **Philips Vesta PRO**
- **Quickcam PRO 4000**

I use a black & white RAW
modded ToU-camII (SC3). >>

My cam has a nosepiece.
Otherwise, use
a MOGG adapter for
connecting the webcam
to the PST. >>

Getting into focus

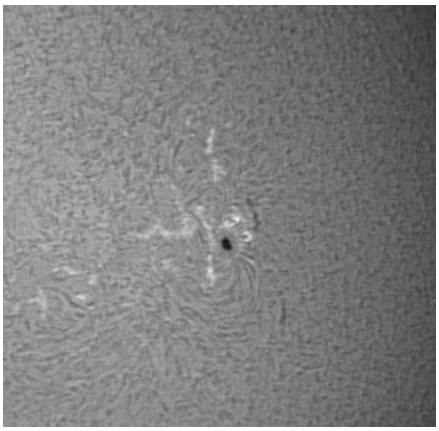
To get into focus with a PST and webcam, you need the frontlens of an 2X barlow:

Then, the PST works @ f/15

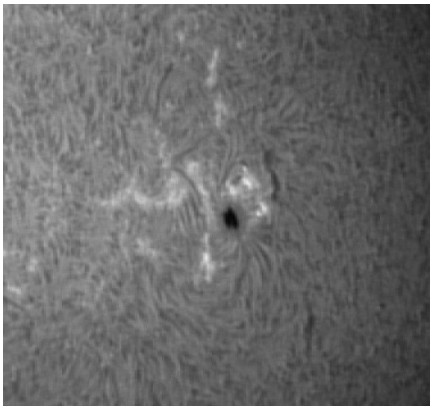
My PST also comes in good focus with a Tele Vue 2,5X Powermate:

Then, the PST works @ f/25

Sunspot 933



@ f/15



@ f/25

Get out of the Sun to get good focus…

Two ways to get good focus on your computerscreen:

get your room as dark as possible or…

use a cardboard box!

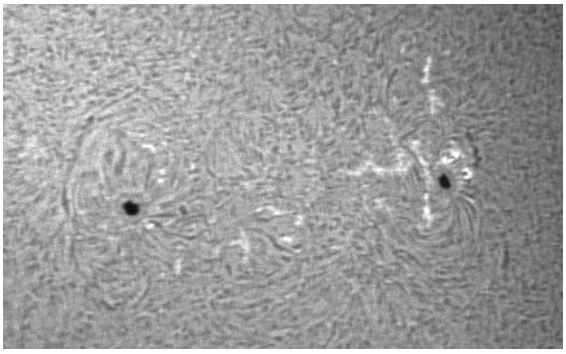
Software

Some useful software for imaging and processing:

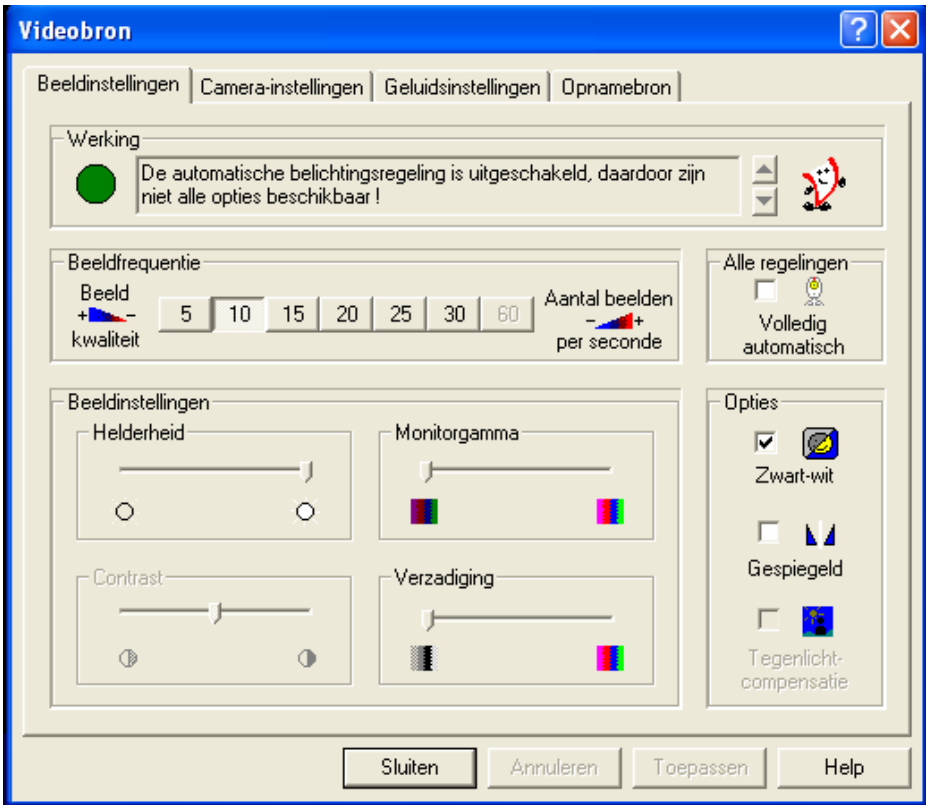
- Original webcam drivers
- Registax V4
- http://www.astronomie.be/registax/
- K3ccdTools http://www.pk3.org/Astro/index.htm?k3ccdtools.htm
- Photoshop, Paintshop Pro or ImagesPlus.

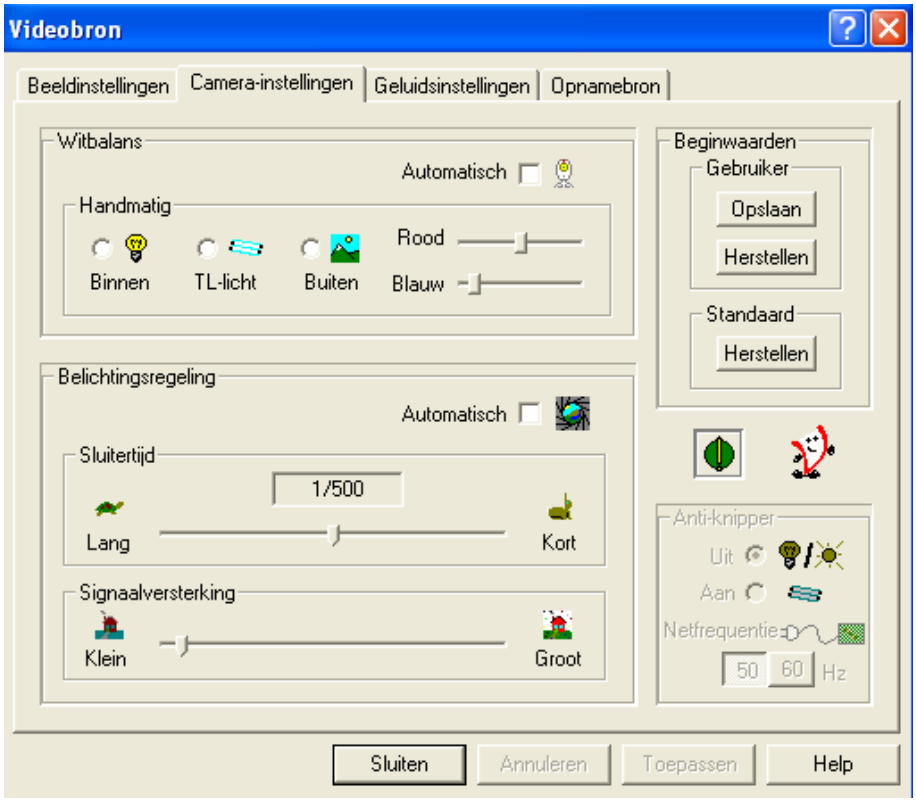
Capturing some frames

- Set image format at 640X480 pixels
- Shoot short AVI's of about 30 – 45 seconds
- Use framerates of 10 – 15 frames/second
- Always capture in monochrome, black and white



Imaging Parameters

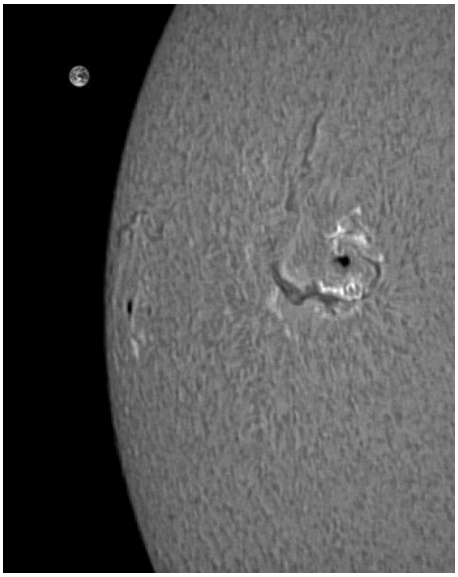




Imaging Parameters

- Brightness: > as possible
- Gamma: < as possible
- Contrast: 50%
- Saturation: 0%
- Mode: black/white

- Exposure time:
  Prominences: 1/33 – 1/100sec.
  Sunspots: 1/500 – 1/1000sec.
- Gain: < as possible



Captured some AVI's…, what's next?

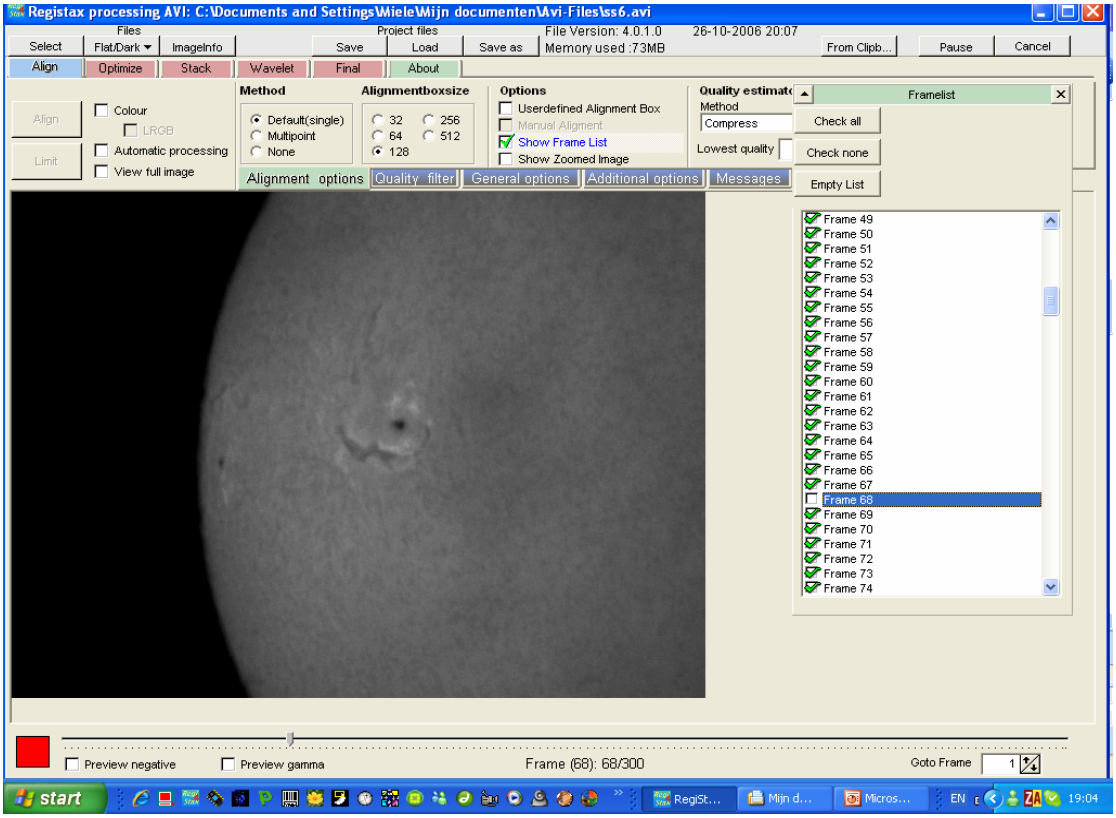
Captured some AVI's and ready to align.
Open Registax and select an AVI-file.

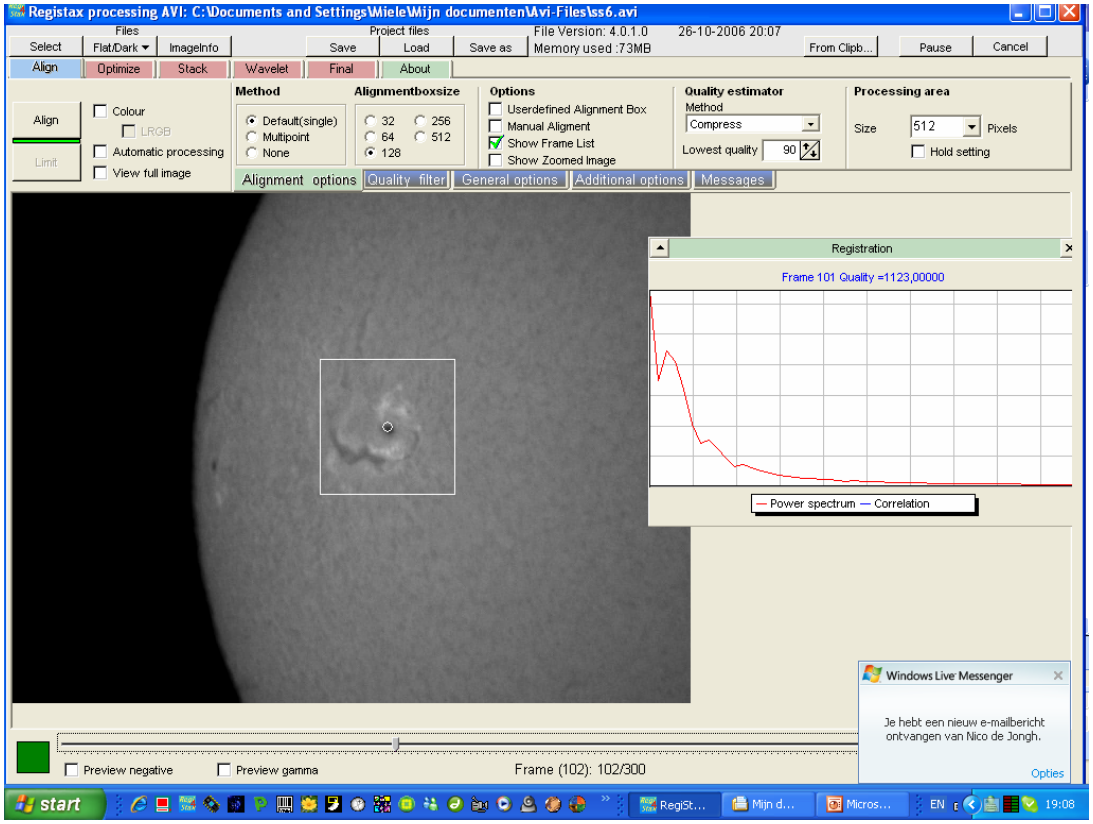
Using Registax

- Select an AVI file
- Uncheck all bad frames
- Select a refrence frame
- Choose an alignmentbox size and put it on a contrasty detail like a spot.
- Set the Quality Estimate on Compress and lowest quality on 90%
- Push the align button
- Registax will now align the images from best to worse

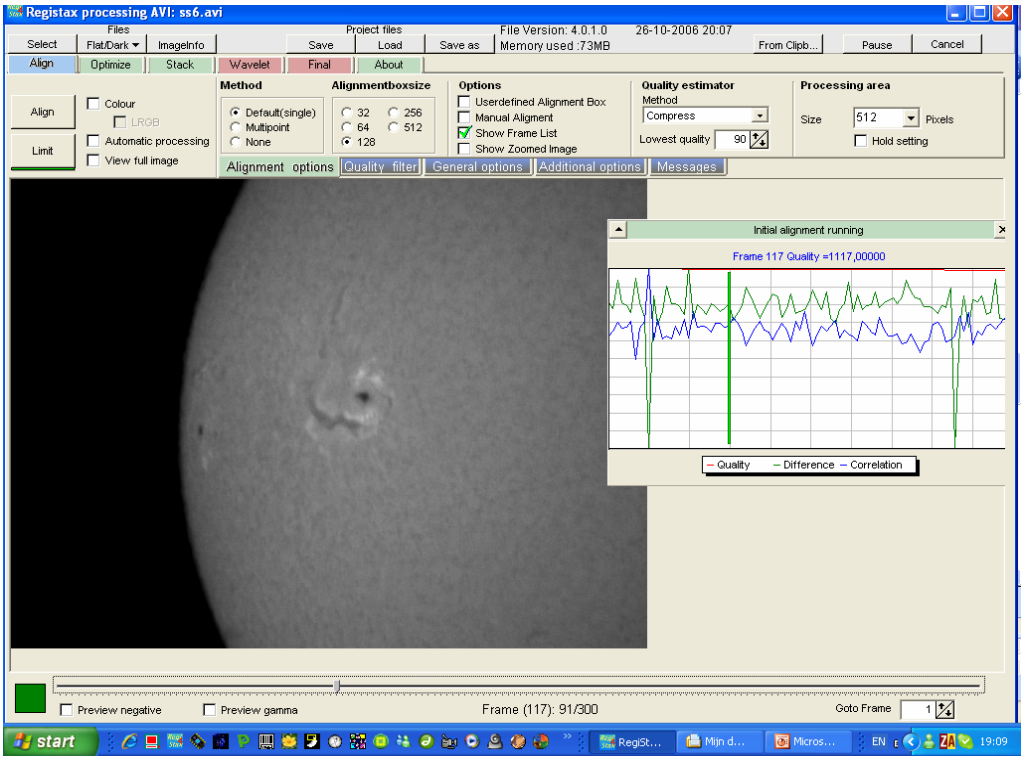
See next 2 figures

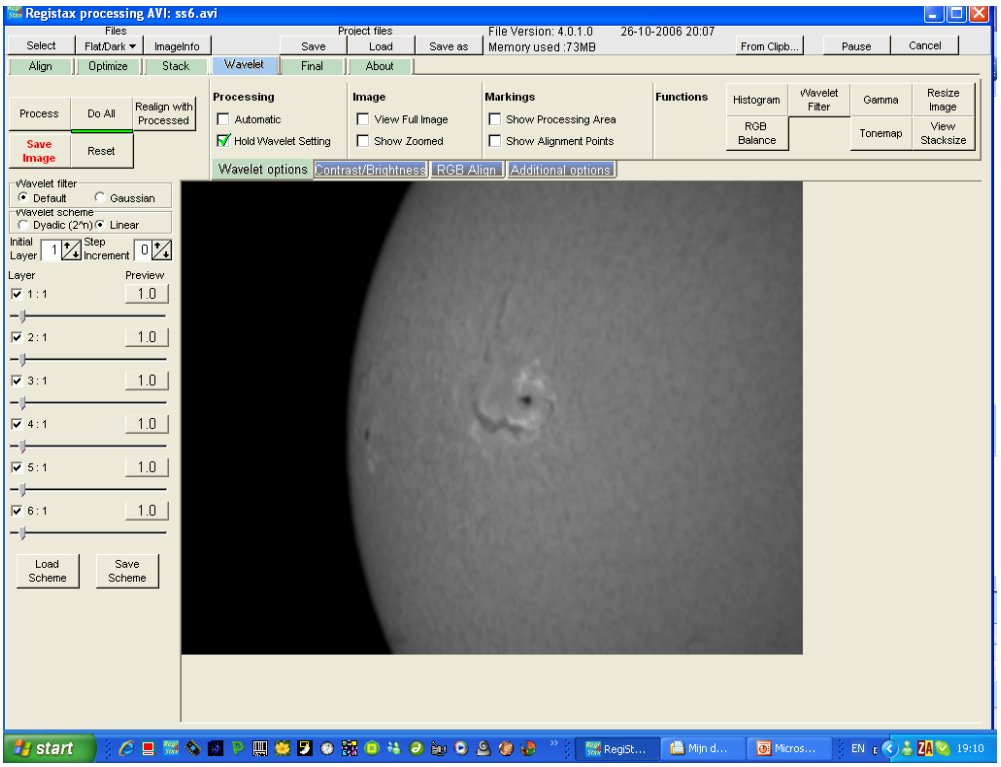
>>


Registax processing AVI: C:\Documents and Settings\Miele\Mijn documenten\Avi-Files\ss6.avi
Files
Project files
File Version: 4.0.1.0
26-10-2006 20:07
Memory used :73MB
Select
Flat/Dark
ImageInfo
Save
Load
Save as
From Clipb...
Pause
Cancel
Align
Optimize
Stack
Wavelet
Final
About
Colour
LRGB
Automatic processing
View full image
Method
Default(single)
Multipoint
None
Alignmentboxsize
32
64
128
256
512
Options
Userdefined Alignment Box
Manual Aligment
Show Frame List
Show Zoomed Image
Quality estimat
Method
Compress
Lowest quality
Framelist
Check all
Check none
Empty List
Alignment options
Quality filter
General options
Additional options
Messages
Frame 49
Frame 50
Frame 51
Frame 52
Frame 53
Frame 54
Frame 55
Frame 56
Frame 57
Frame 58
Frame 59
Frame 60
Frame 61
Frame 62
Frame 63
Frame 64
Frame 65
Frame 66
Frame 67
Frame 68
Frame 69
Frame 70
Frame 71
Frame 72
Frame 73
Frame 74
Preview negative
Preview gamma
Frame (68): 68/300
Goto Frame
start
19:04

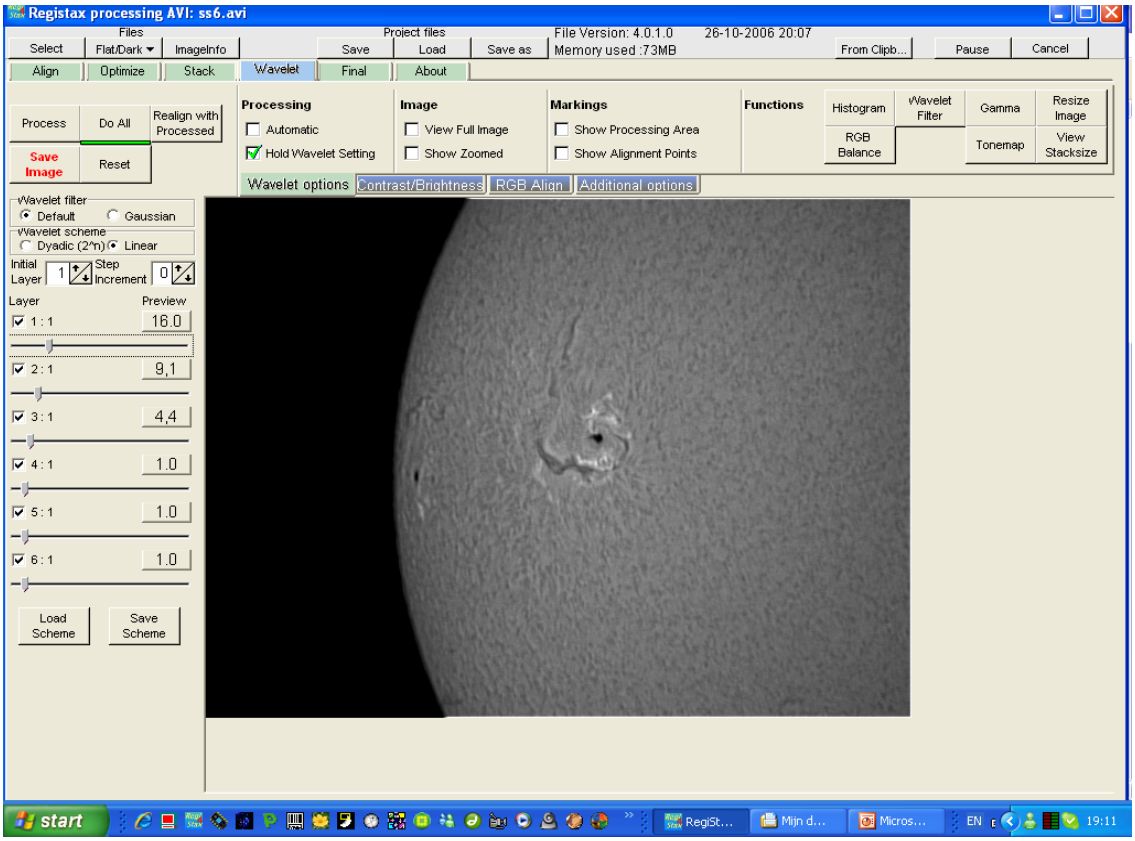

Registax processing AVI: C:\Documents and Settings\Miele\Mijn documenten\Avi-Files\ss6.avi
Files
Project files
File Version: 4.0.1.0
26-10-2006 20:07
Memory used :73MB
Select
Flat/Dark
ImageInfo
Save
Load
Save as
From Clipb...
Pause
Cancel
Align
Optimize
Stack
Wavelet
Final
About
Colour
LRGB
Automatic processing
View full image
Method
Default(single)
Multipoint
None
Alignmentboxsize
32
64
128
256
512
Options
Userdefined Alignment Box
Manual Aligment
Show Frame List
Show Zoomed Image
Quality estimator
Method
Compress
Lowest quality
90
Processing area
Size
512
Pixels
Hold setting
Alignment options
Quality filter
General options
Additional options
Messages
Registration
Frame 101 Quality =1123,00000
Power spectrum
Correlation
Windows Live Messenger
Je hebt een nieuw e-mailbericht ontvangen van Nico de Jongh.
Opties
Preview negative
Preview gamma
Frame (102): 102/300
start
19:08

- Choose the limited frames to stack, with the slider at the bottom of the screen
- Push the Limit button
- Registax will now stack all selected frames
- You end up with the Wavelet screen
- See next 2 figures





- Now you can set the wavelets the way you like, just don't overdo it.
- Push the Do All button
- There is a lot more you can do in this screen, just try it out.
- Save as TIFF or FITT size



- After you saved your images, you can process them further with Photoshop or Paintshop.
- Just try Levels, Curves, Shadows/Highlights and Unsharp Masking.
- I use a H-alpha colorisation AVL, but you can give the Sun a real nice color with Colorbalance and Channelmixer too!. Just playing with those sliders ;)