

A space-themed background featuring a large, dark planet on the left side, a bright star in the upper right, and a field of distant stars.

# Webcam Imaging

CAA

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# Webcam Imaging

The background of the slide is a composite image of space. On the left, a large, detailed view of the moon's surface is visible, showing craters and lunar maria. In the upper right corner, a bright sun is shown, partially obscured by a dark, circular shadow, creating a lens flare effect. The rest of the background is a dark, star-filled sky.

## Webcams used

- Logitech Pro 4000/5000
- Philips SPC900/SPC880
- Imaging Source DMK21 (Mono)
- Imaging Source DFK21 (Colour)
  
- The higher the frame rate (Frames Per Second) the better, most home webcams will manage 15fps but high frame rate cameras like the DMK21 will go to 60fps.
- The more frames we capture the greater chance we have of capturing a frame that is in focus and has perfect seeing.
- A higher frame rate also gives us a brighter image, meaning we can turn down the gain of the camera and produce less noise in our images.



# Webcam Imaging

## What is seeing?

- It refers to the blurring and twinkling of astronomical objects such as stars caused by turbulence in the atmosphere.
- But we also see this effect when looking at planets or the moon.

Video!

# Webcam Imaging

## Logitech Pro 4000

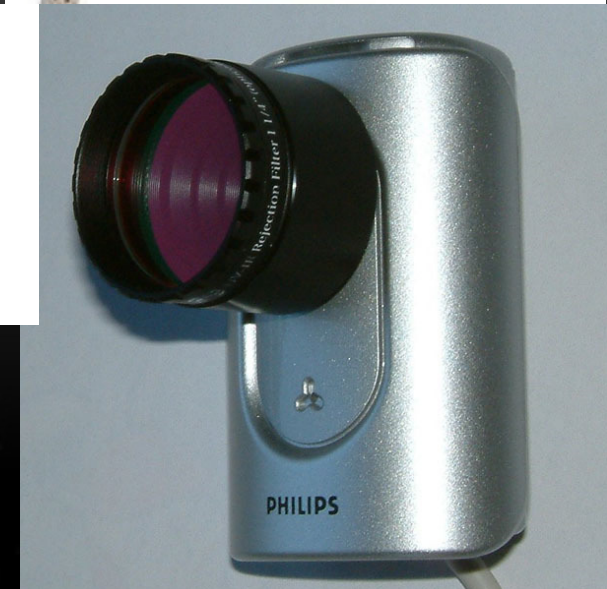
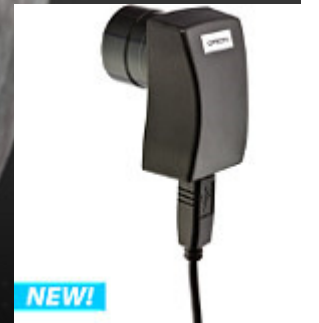


## Philips SPC900



# Desktop Webcams

- Logitech Pro 4000/5000
- Philips TouCam Pro
- Philips SPC900NC (£50)
- Celestron NexImage
- Meade LPI (£50) /  
(Orion StarShoot Eyepiece II)
- [www.eBay.co.uk](http://www.eBay.co.uk)
- [www.AstroBuySell.com/uk](http://www.AstroBuySell.com/uk)



# High Frame Rate Cameras

- Can do from 30fps to 200fps
- Mono and Colour available
  
- Orion StarShoot (£80+)
- ZWO ASI120MM/MC (£250)
- QHY5-II (£199)
- QHY IMG132E (£250)
- Imaging Source DMK21 (£390)



A composite image of the moon and the sun in space. The moon is on the left, showing its cratered surface. The sun is on the right, appearing as a bright, glowing orb. The background is a dark, starry sky.

## Lunar Imaging Tips

- Capture video with software that came with webcam or try AmCap, FireCapture ([firecapture.wonderplanets.de/](http://firecapture.wonderplanets.de/)) or SharpCap ([www.sharpcap.co.uk](http://www.sharpcap.co.uk))
- Add a UV/IR rejection filter
- Try a Green or OIII filter to aid with Lunar 'seeing'
- Set your mount to the Lunar Tracking Rate
- The moon is bright, so lower the gain and exposure times or use ND filter



## Lunar Imaging Tips

- Don't image a full moon, image the moon through the phases. There are lots of detail along the terminator line
- Take video at the highest frame rates you can
- 500-1000 frames should be enough
- Save your video as an uncompressed AVI
- Process video in Registax – it's FREE




# Processing Lunar Video

## Registax 6

- Select Video
- Choose Reference Frame
- Set Alignpoints
- Align
- Limit the frames
- Stack the best frames
- Use Wavelets to sharpen

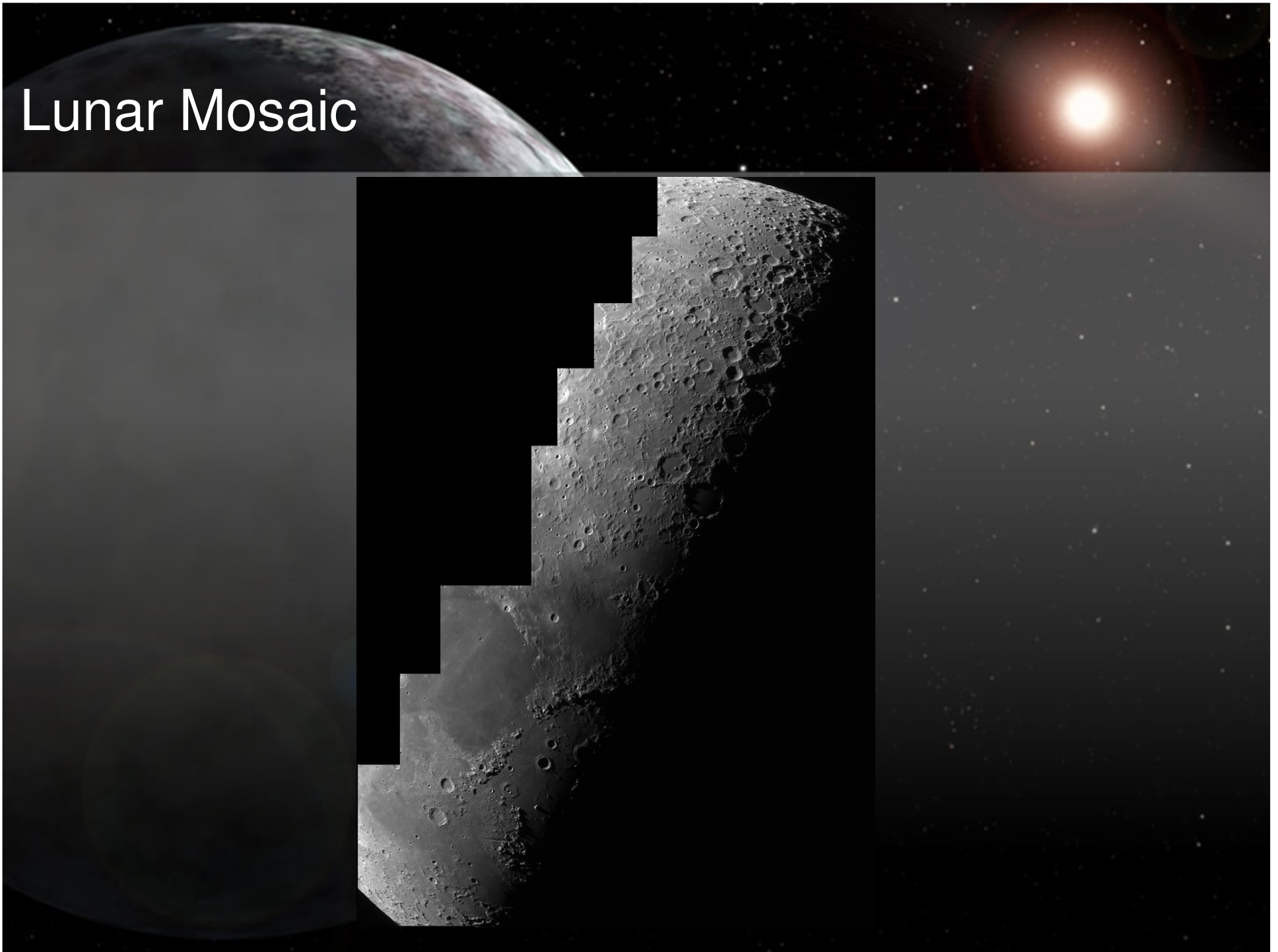
Move to image editing program to tweak brightness, contrast, sharpening etc.



Demo Time

Play the lunar video!

# Lunar Mosaic

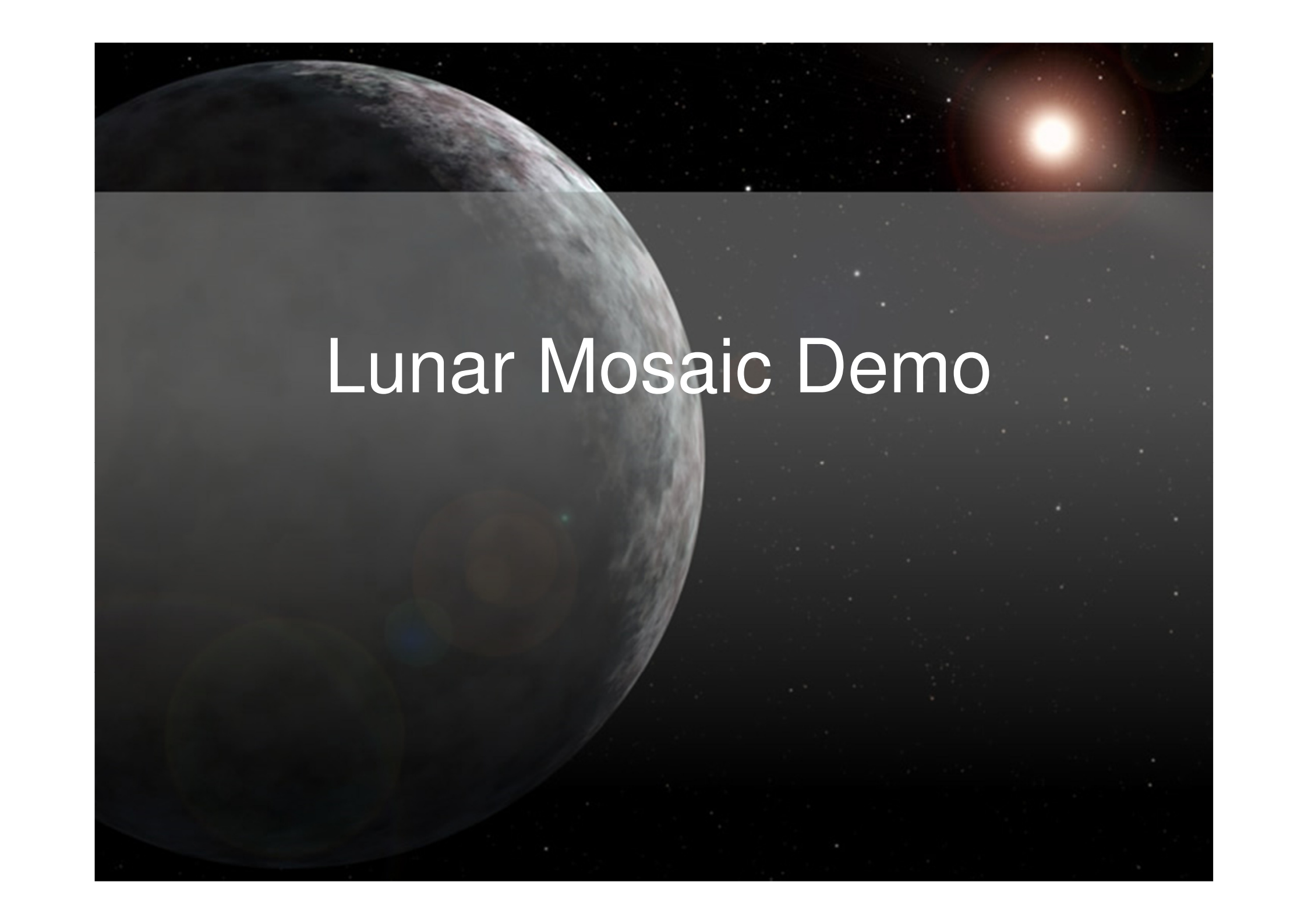




# Lunar Mosaic

Most webcams have a small chip, so a small field of view  
To get the whole moon you will need to make a mosaic by taking several videos.

- Keep the webcam settings the same throughout all videos
- Make sure you overlap your videos
- Process the videos in Registax using the same settings, including Wavelets
- Don't manually align the image frames - use Photomerge in Photoshop and Photoshop Elements (8+). Alternatively use the FREE Microsoft ICE program



# Lunar Mosaic Demo



The End

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