



# Lunar Imaging

CAA  
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by

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# Lunar Webcams

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 various 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 space.

## Webcams used

- Logitech Pro 4000/5000
- Philips SPC900/SPC880
- Imaging Source DMK21 (Colour)
- Imaging Source DFK21 (Mono)
  
- 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.

# Lunar Webcams

## Logitech Pro 4000



## Philips SPC900





# Lunar Webcams

## Other Astro Type Webcams

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



# Lunar Webcams

## Imaging Source Camera – High Frame Rate Cameras

- Can do 60fps
- Can also be converted to an 'All Sky' camera with a cheap CCTV fisheye lens
- Mono and Colour available
- Prices: New £300-£600  
2<sup>nd</sup> Hand £150-£300





# Lunar Imaging Tips

- Capture video with software that came with webcam or try AmCap 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
- Don't image a full moon, image the moon through the phases. There is 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.

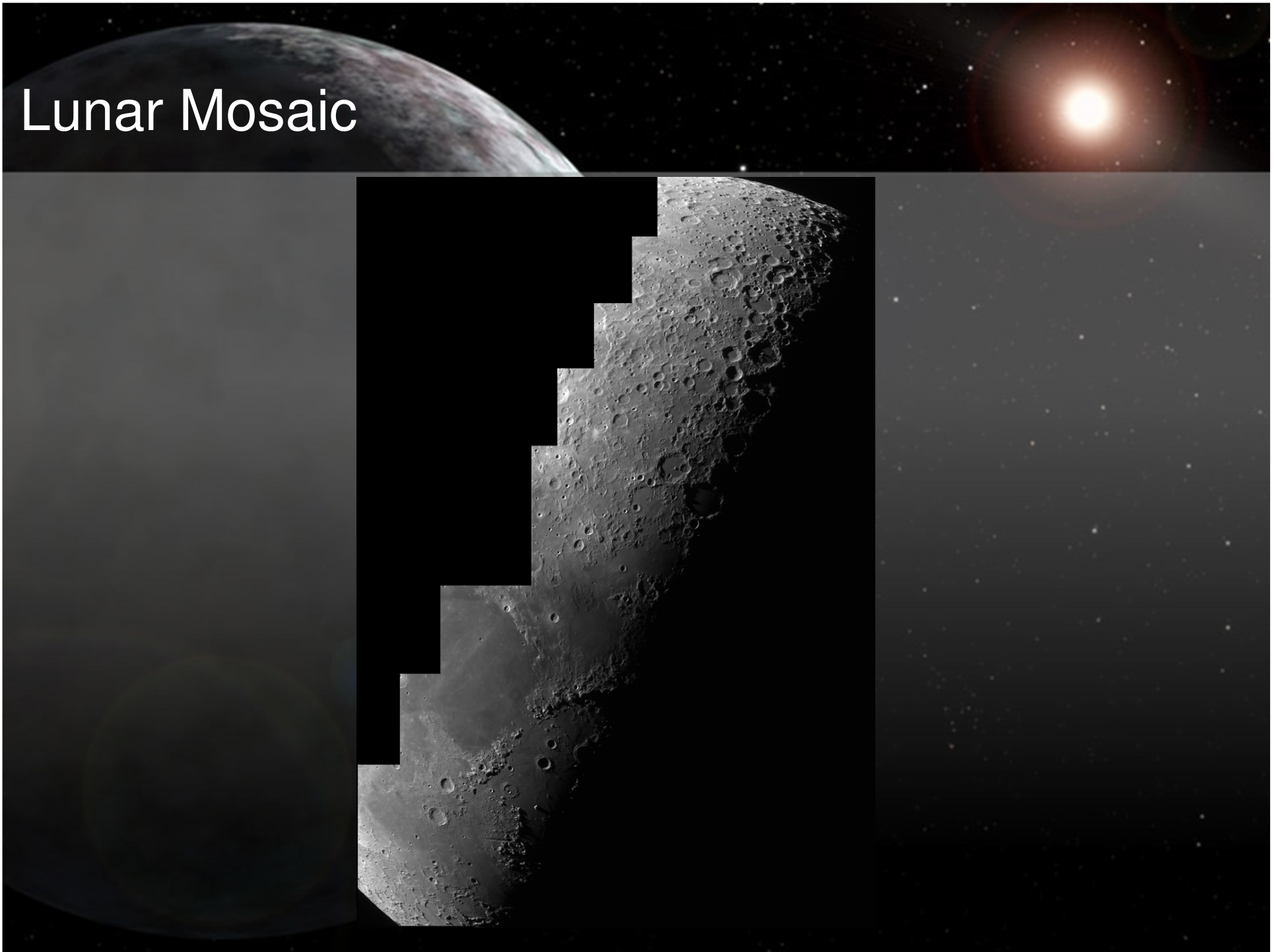


Demo Time

Play the lunar video!



# Lunar Mosaic



The background of the slide is a composite image of the moon in space. The moon is on the left side, showing its craters and surface texture. In the upper right, a bright sun is visible, creating a lens flare effect. The rest of the background is a dark, starry space.

# 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

The background of the slide is a composite image of the Moon and the Sun in space. The Moon is on the left, showing its dark, cratered surface. The Sun is a bright, glowing orb in the upper right. The text 'Lunar Mosaic Demo' is centered in white on a dark grey semi-transparent rectangular background.

# Lunar Mosaic Demo





The End

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