Photographs taken by members of Reading Astronomical Society

A selection of photographs taken with anything from a smartphone to a large telescope with a specialist camera

Images arranged by distance from a fraction of a light-second to 10s of millions of light-years

See more at:
https://www.flickr.com/groups/readingas/

Compiled by Trevor Gainey

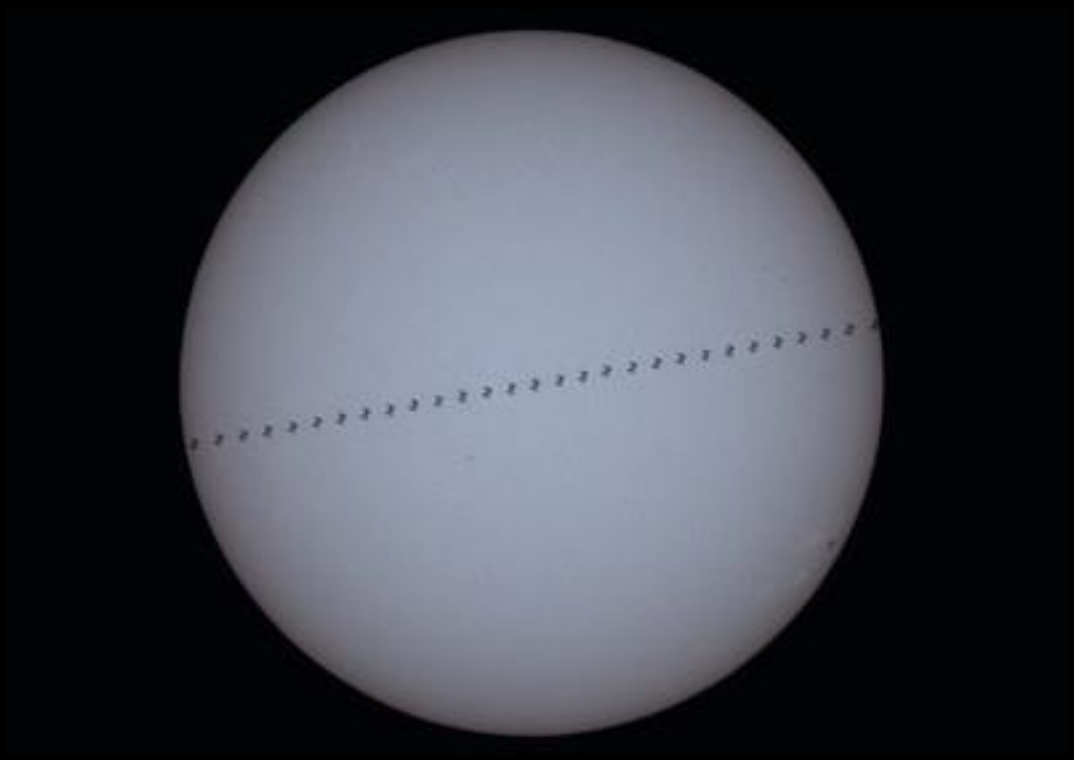
ISS crossing the Sun

8 April 2022

The International Space Station in silhouette against the Sun as it passes in front

Dist.: ISS is 200Km ~1/10000 light-second
Dist.: Sun is 8 light-minutes

Marc Charron



Meteor

12 August 2021

One of the meteors from the annual Perseid shower in August each year

Also known as shooting-stars, they are the result of dust from comets hitting our atmosphere and burning up

Dist.: Less than ~1/10000 light-second

Nikon DSLR with 8mm fish-eye lens

Marc Charron

Noctilucent clouds

23 June 2021

“Night-shining” clouds seen in the summer months and caused by ice crystals in the upper atmosphere

Dist.: 80Km, ~0.0002 light-seconds

Olympus E-PL6 camera

John Talbot

The Moon

10 April 2022

Just past first quarter Moon

Dist.: 1.3 light-seconds

70mm telescope

Marc Charron

Comet Neowise

17 July 2020

Comet C/2020 F3 Neowise is a long period comet discovered in March 2020.

It became visible to the naked-eye at dark sky locations at closest approach a few months later

Dist.: 109M km, ~4 light-minutes

Canon 800D DSLR through 254mm telescope

Brian Skidmore

Solar halo

25 June 2022

Caused by light from the Sun hitting ice crystals in the upper atmosphere

Dist.: 8 light-minutes

Apple iPhone 11 Pro Max

Peter Tickner

The Sun

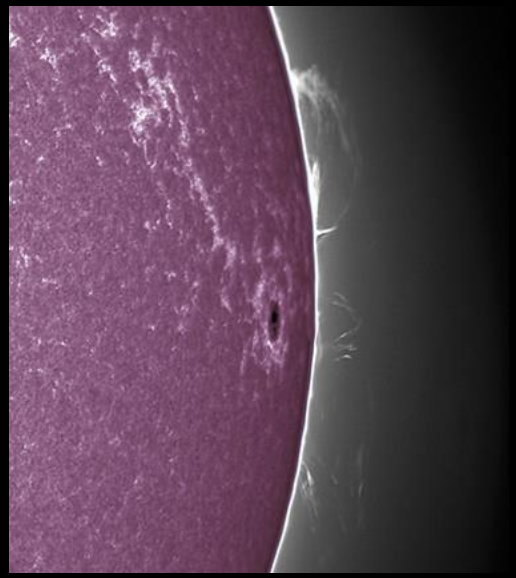
1 May 2022

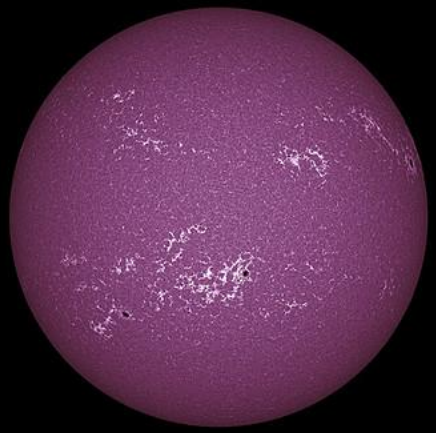
Prominences and sunspots on the Sun

Dist.: 8 light-minutes

90mm telescope with special Calcium K filter

Alun Halsey





Mars

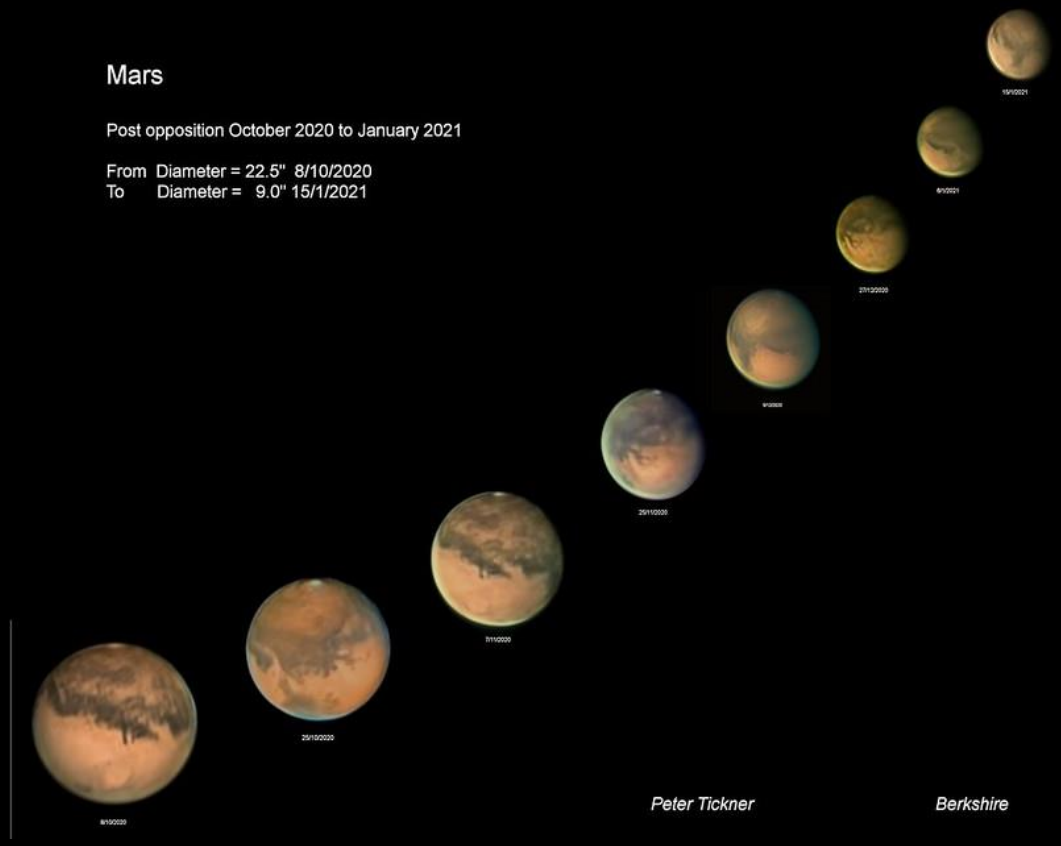
October 2020 – January 2021

This shows the changing features and apparent size of Mars over 4 months as it halves in apparent size

Dist.: ~12 light-minutes

356mm telescope

Peter Tickner



Jupiter & Europa

25 October 2021

Europa caught just right of Jupiter project its shadow onto the planet

Dist.: ~40 light-minutes

356mm telescope

Peter Tickner

Jupiter & Io

18 July 2022

Jupiter showing the famous Red Spot which is a storm that has lasted for hundreds of years

The moon Io caught just left of Jupiter projecting its shadow onto the planet as a dark spot

Dist.: ~40 light-minutes

356mm telescope

Peter Tickner

Saturn

5 July 2022

Saturn is a gas-giant showing the famous rings and bands in the atmosphere of the planet

Dist.: ~80 light-minutes

356mm telescope

Peter Tickner

Jupiter, Saturn, Mercury

13 January 2022

Planetary alignment just after sunset in the West

Dist.: ~8 (Mercury) to ~80 (Saturn) light-minutes

Olympus E-PL6 camera

John Talbot

Uranus & 5 moons

25 October 2021

Uranus is the 7th planet from our Sun and spins on its side

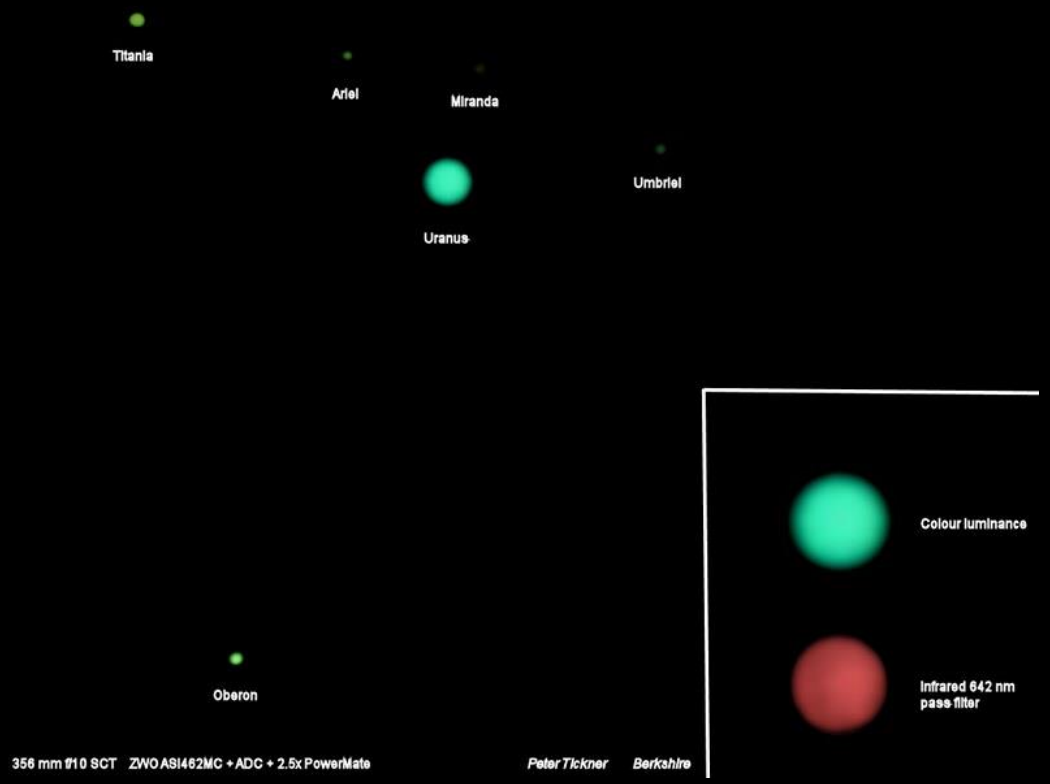
It is a ice-giant made mostly of methane

This image captures the 5 major moons

Dist.: 160 light-minutes

356mm telescope

Peter Tickner



Neptune & moon Triton

1 October 2021

Neptune is the 8th planet from our Sun
Like Uranus it is composed mostly of Methane.

This image also captures the largest moon - Triton

Dist.: 250 light-minutes

356mm telescope

Peter Tickner

Star Occultation

23 January 2021

This shows the light from a double-star in the constellation of Taurus the bull disappearing behind the Moon

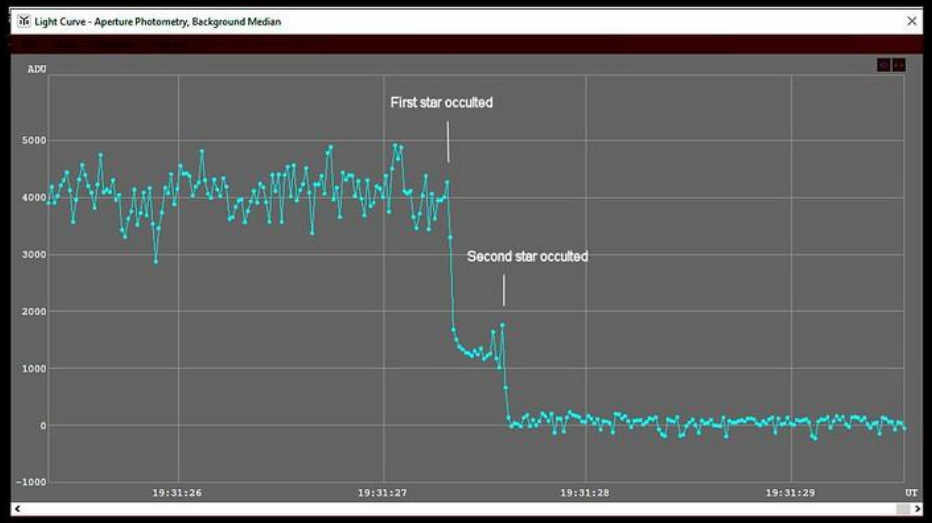
By measuring the time between the dips in the starlight it is possible to measure the distance between the stars

Dist.: 1.3 light-seconds (Moon), 275 light-years (Star(s))

356mm telescope

Peter Tickner

Lunar occultation of close double star SAO 93840 (first star magnitude 7.12 second star magnitude 7.92)



Each dot on the graph is 15 milliseconds (ms) - occultation of each element of the star by the dark limb of the Moon takes approximately 15 ms - time gap between the stars is 240ms

Equipment used: unfiltered ZWO ASI174MM Cool at -10C 14inch f/10 LX200ACF SCT EQ8 mount 19:31:27 UT 23 January 2021 *Peter Tickner* *Berkshire*

READING ASTRONOMICAL SOCIETY

Exoplanet transit

HAT-P-23 is a sun-like star in the constellation of Delphinus the Dolphin

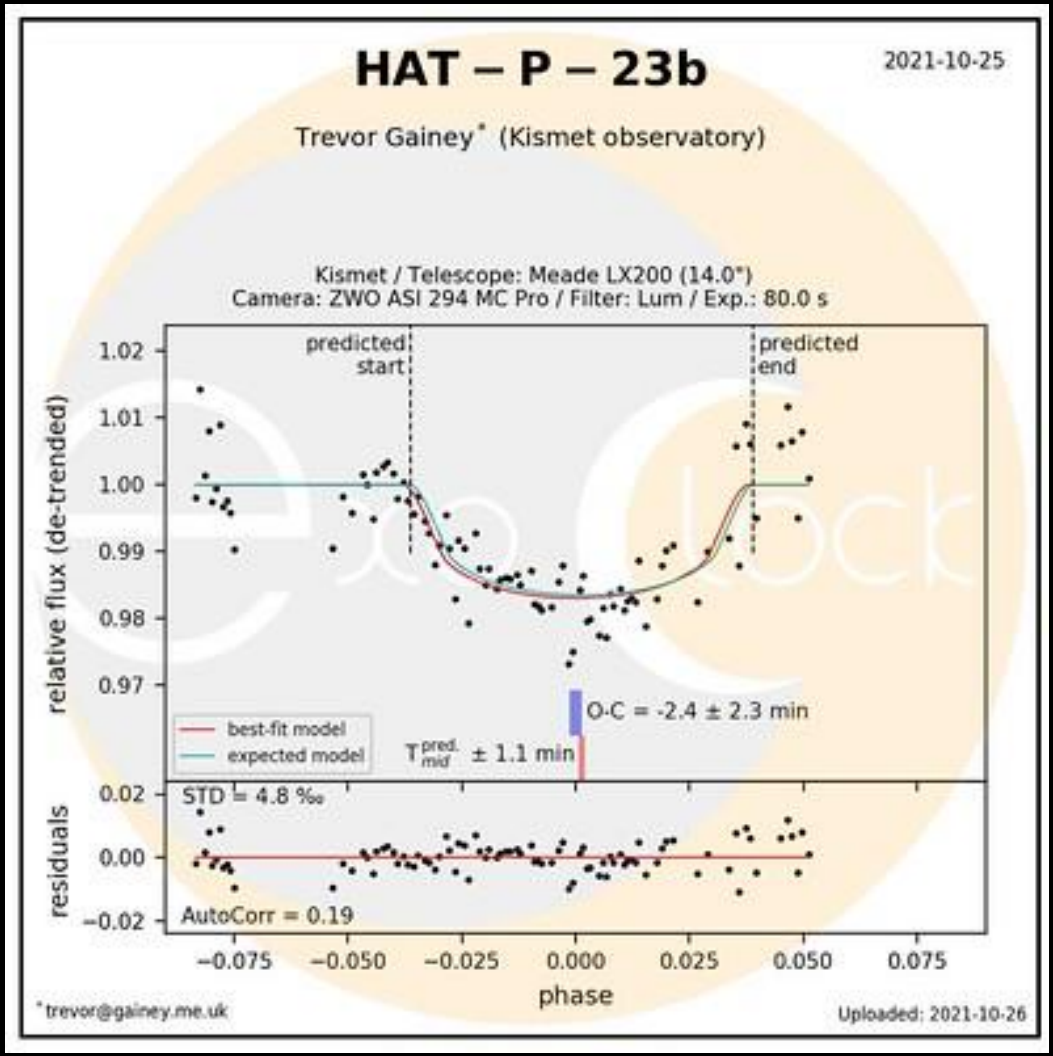
HAT-P-23b is a Jupiter-sized planet which orbits the star every 1.21 days

This light curve shows the 2% drop in light from the star as the planet passes in front

Dist.: 1200 light-years

356mm telescope

Trevor Gainey



Dumbbell Nebula

1 October 2021

The Dumbbell Nebula or M27 is a planetary nebula in the constellation of Vulpecula or little fox.

The gas and dust clouds have been cast off by the white dwarf star in the centre as it ran out of fuel

This is how we think our Sun will end its life in about five billion years time

Dist.: 1300 light years

Peter Tickner

North America Nebula

2 July 2022

The North America and Pelican Nebulae in the constellation of Cygnus the swan

Gas and dust clouds where stars are formed

Dist.: 2600 light-years (N. America)
Dist.: 1800 light-years (Pelican)

Canon 1100D with Canon 135mm F/2 prime lens

Alun Halsey

Rosette Nebula

2 July 2022

The Rosette Nebula in the constellation of Monoceros the unicorn

This is an emission nebula containing mostly Hydrogen gas

Dist.: 5200 light-years

60mm telescope

Trevor Gainey

Bubble Nebula

1 October 2021

The Bubble Nebula is an emission nebula in the constellation Cassiopeia the queen

The "bubble" (about 3.5 light years in diameter) is created by the stellar wind from a massive hot, young central star

Dist.: 11,000 light years

Trevor Gainey

Interacting galaxies

25 April 2020

M51 is a pair of galaxies that are in the process of merging together to form a much larger galaxy

Dark dust lanes can be seen bridging the gap between them

Although billions of stars are involved, no two stars will collide during this process which will last many millions of years

Dist.: 23 Million light years

Trevor Gainey

Supernova

3 February 2021

This shows a supernova in the Whale galaxy in the constellation of Canes Venatici, the hunting dogs

The supernova is the result of a massive star dying in a violent explosion as it runs out of fuel

These images show before and after the supernova was discovered

Dist.: 30 Million light years

Peter Tickner