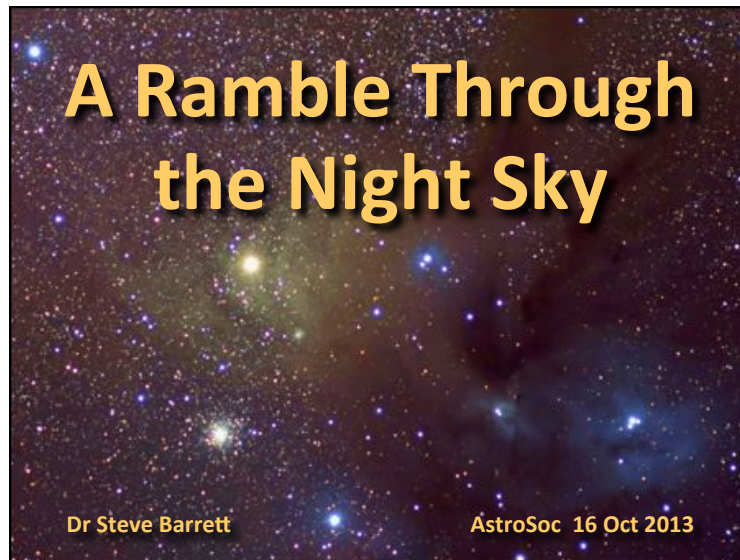


A Ramble Through the Night Sky



A Ramble Through the Night Sky

What's up there?	planets and comets stars and galaxies
How can I find my way around?	maps apps
What if I want to see more?	binoculars telescopes
How can I take photos?	star trails tracking the sky

A Ramble Through the Night Sky / Introduction 2

A Ramble Through the Night Sky

Disclaimer 1

I'm not an astrophysicist ...
I'm an amateur astronomer (who happens to be a physicist)

Disclaimer 2

I'm not attempting to describe everything 'up there'
This is a random walk through the Universe
Along the way, I will show photographs that I have taken

A Ramble Through the Night Sky / Introduction 3

A Ramble Through the Night Sky

What's up there?

A Ramble Through the Night Sky / What? 4

A Ramble Through the Night Sky

Aurora Borealis



A Ramble Through the Night Sky / Aurora

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Even our closest
neighbour can
be fascinating...
...watching the
shadows of the
craters and
mountains
change from
night to night



Comet Hale-Bopp 1997



A Ramble Through the Night Sky / Comets

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Comet Holmes 2007



A Ramble Through the Night Sky / Comets

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A Ramble Through the Night Sky

Jupiter



A Ramble Through the Night Sky / Planets

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Saturn



A Ramble Through the Night Sky / Planets

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Stars and Stuff



A Ramble Through the Night Sky / Stars

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Pleiades Star Cluster

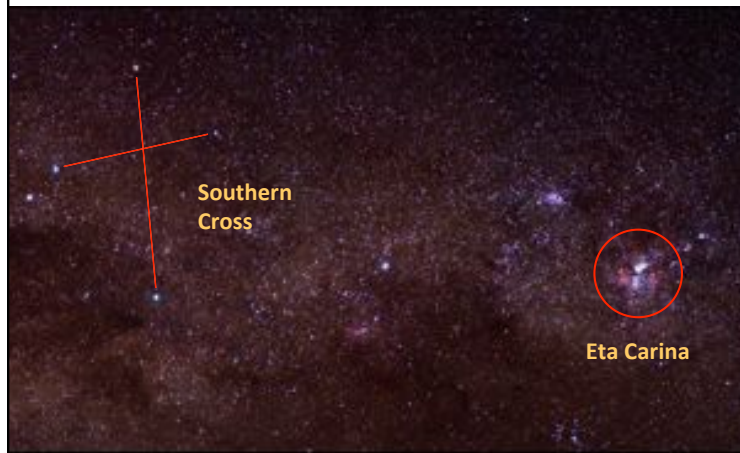


A Ramble Through the Night Sky / Stars / Clusters

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A Ramble Through the Night Sky

Centaurus – Crux – Carina



A Ramble Through the Night Sky / Stars / Constellations

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Helix Nebula



A Ramble Through the Night Sky / Nebulae

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Andromeda Galaxy



A Ramble Through the Night Sky / Galaxies

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Markarian's Chain of Galaxies



A Ramble Through the Night Sky / Galaxies

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A Ramble Through the Night Sky

How can I find
my way around?

A Ramble Through the Night Sky / Navigation

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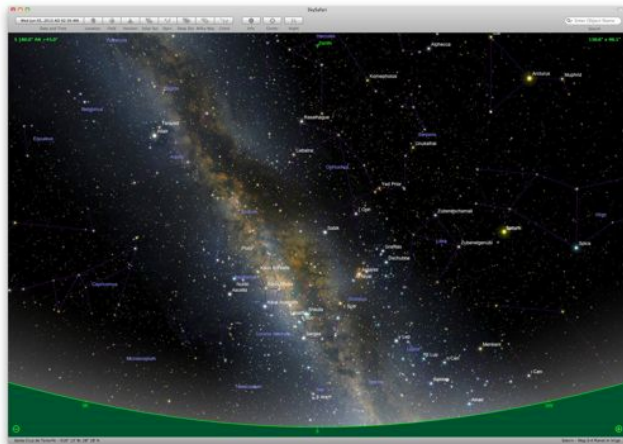
Maps and Apps



A Ramble Through the Night Sky / Navigation

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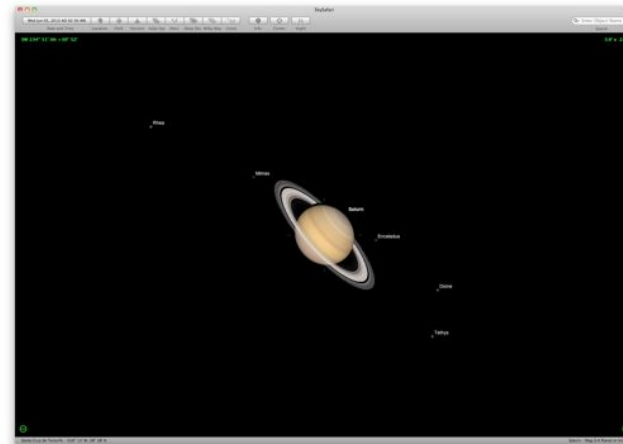
Maps and Apps



A Ramble Through the Night Sky / Navigation / SkySafari

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Maps and Apps



A Ramble Through the Night Sky / Navigation / SkySafari

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A Ramble Through the Night Sky

What if I want
to see more?

A Ramble Through the Night Sky / See More

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Astronomy Hardware

Binoculars, small telescope or big telescope?

How should you decide what is worth buying?

Is the image...

Bright? Clear? Steady? Big?

Making a choice

You would hope that a large, expensive telescope would give brighter, clearer images.

Even small telescopes need a solid, stable mount to ensure that the image is steady.

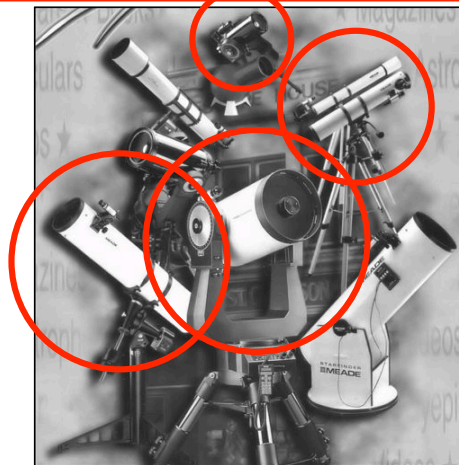
Image magnification is the least important factor.

A Ramble Through the Night Sky / Telescopes

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Astronomy Hardware

There are many
types of telescope
available, making a
choice somewhat
confusing



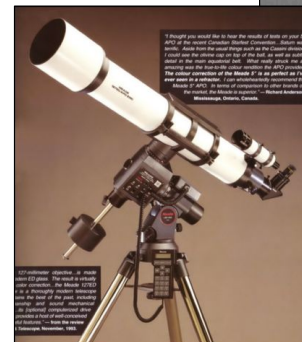
A Ramble Through the Night Sky / Telescopes

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Astronomy Hardware

Refractors

use lenses to focus the light



A Ramble Through the Night Sky / Telescopes

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A Ramble Through the Night Sky

Astronomy Hardware



Refractors

use lenses to focus the light

Reflectors

use mirrors to focus the light

A Ramble Through the Night Sky / Telescopes

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Astronomy Hardware



Refractors

use lenses to focus the light

Reflectors

use mirrors to focus the light

Schmidt-Cassegrains

use both lenses and mirrors

A Ramble Through the Night Sky / Telescopes

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Astronomy Hardware



Refractors

use lenses to focus the light

Reflectors

use mirrors to focus the light

Schmidt-Cassegrains

use both lenses and mirrors

Compact 'Go To' telescopes

user-friendly controllers to
point the telescope

A Ramble Through the Night Sky / Telescopes

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Observatories



A Ramble Through the Night Sky / Telescopes / Observatories

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A Ramble Through the Night Sky

Teide Observatory

Astrophysics students get to visit...



A Ramble Through the Night Sky / Telescopes / Observatories / Teide

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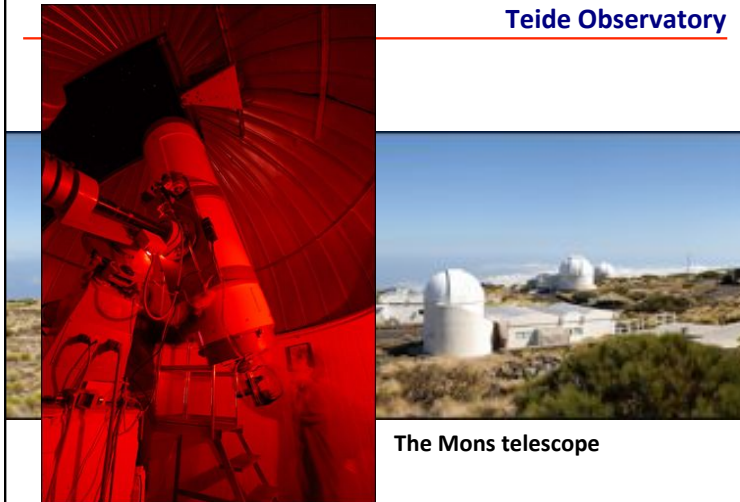
Teide Observatory



A Ramble Through the Night Sky / Telescopes / Observatories / Teide

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Teide Observatory



The Mons telescope

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Teide Observatory



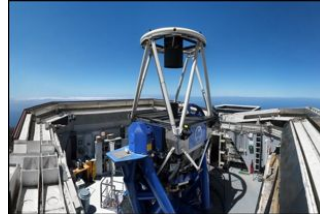
A Ramble Through the Night Sky / Telescopes / Observatories / Teide / Mons

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A Ramble Through the Night Sky

La Palma Observatory

On the neighbouring island of La Palma is the fully-robotic Liverpool Telescope



A Ramble Through the Night Sky / Telescopes / Observatories / La Palma / LT

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The Eagle Nebula imaged with the Liverpool Telescope



How can I take photos?

A Ramble Through the Night Sky / Photography

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Star Trails



A Ramble Through the Night Sky / Photography

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A Ramble Through the Night Sky

Star Trails



A Ramble Through the Night Sky / Photography

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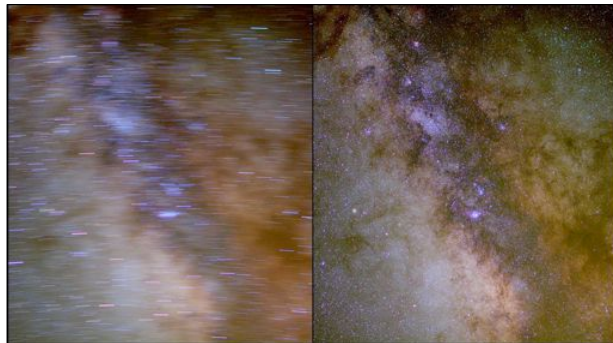
Avoiding Star Trails



A Ramble Through the Night Sky / Photography / Star Tracker

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Avoiding Star Trails



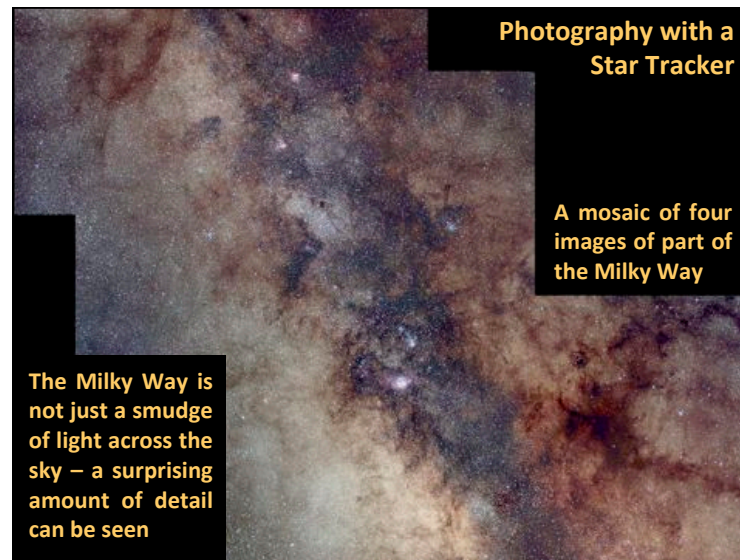
Star tracker off

Star tracker on

A Ramble Through the Night Sky / Photography / Star Tracker

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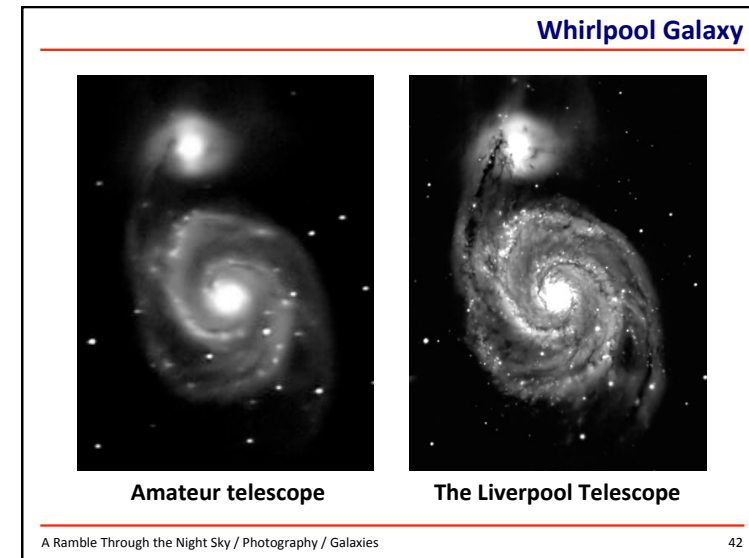
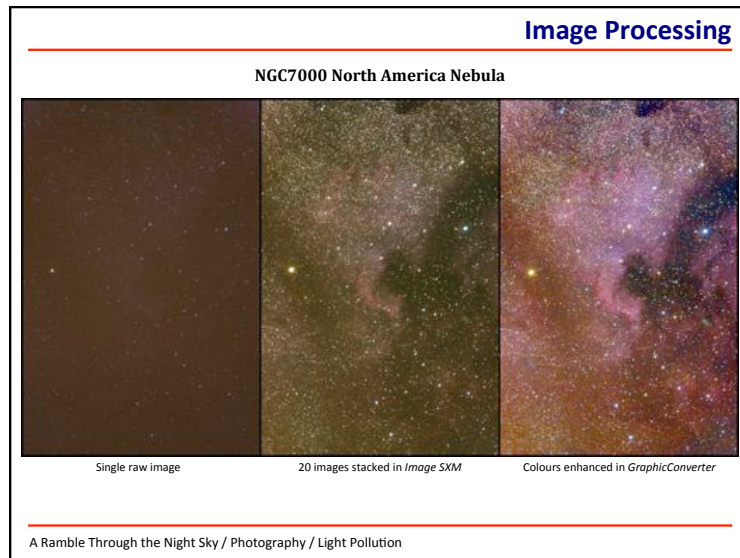
Photography with a Star Tracker



A mosaic of four images of part of the Milky Way

The Milky Way is not just a smudge of light across the sky – a surprising amount of detail can be seen

A Ramble Through the Night Sky




A Ramble Through the Night Sky

What's up there?

How can I find my way around?

What if I want to see more?

How can I take photos?



A Ramble Through the Night Sky

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A Ramble Through the Night Sky

<http://www.liv.ac.uk/~sdb/Talks>

Dr Steve Barrett

AstroSoc 16 Oct 2013