Dr Steve Barrett **16 Aug 2010**

Introduction

2

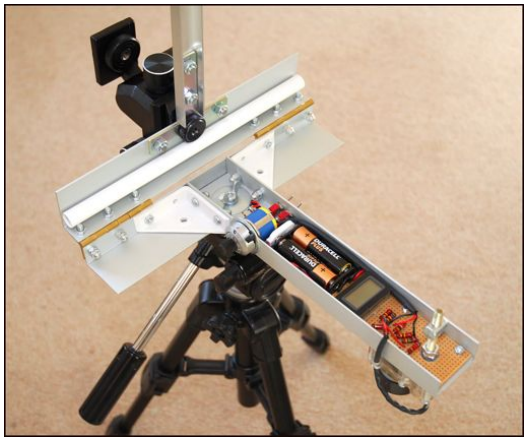
Star Trails

Design Criteria

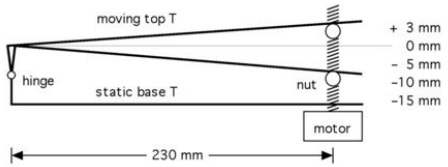
What criteria determine the design of a star tracker?

Ideally...	For K2 this means...
Compact	Footprint no larger than A4
Light	Less than 1 kg
Strong	Able to support a digital SLR
Accurate	Exposures of up to 15 minutes
Battery operated	AA batteries
Low power	Run for ~ 6 hours
Cheap	Cost < £50 for all components
Easy to construct	Manual tools (no workshop)

Construction



Construction

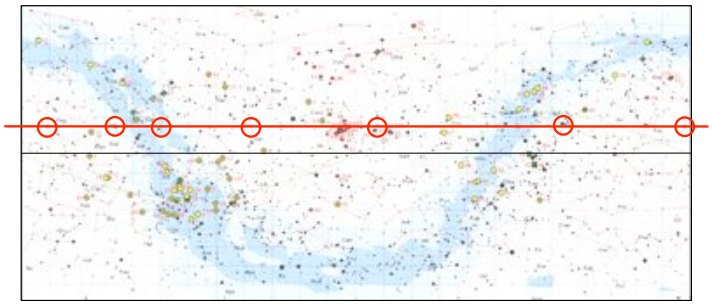


Aligning Using Polaris

A simple sighting tube would work for Polaris, but...

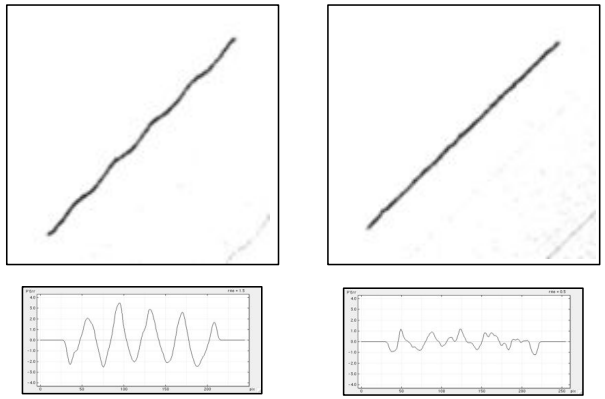
When in Kenya, on the equator,
an alternative alignment is required.

Aligning Using Pegasus Arm

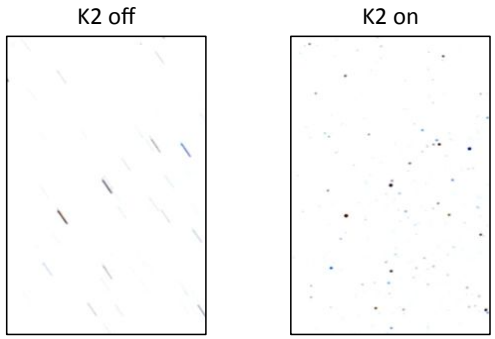


Declination = 15.2°

Periodic Error



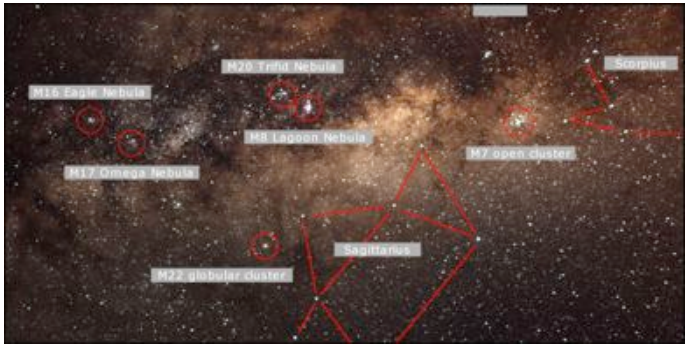
K2 Off/On



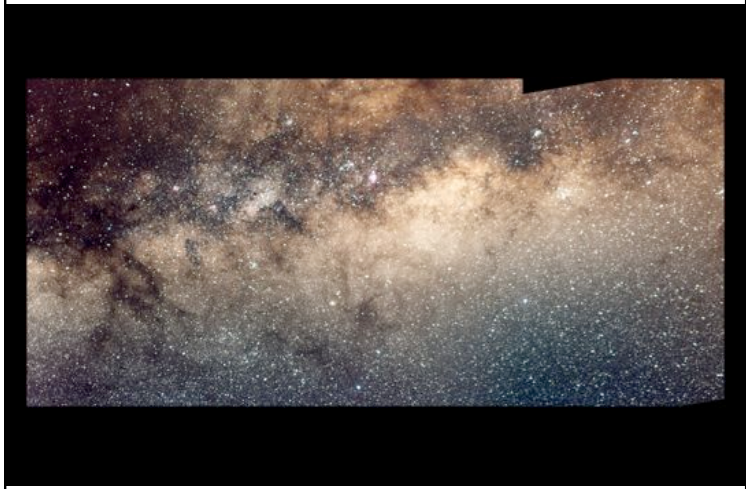
Focal length = 100 mm, Exposure = 30 sec

Results

Results



Results



Overview

So how well did K2 work?

- Alignment using the Pegasus arm ☑
- Tracking accuracy ☑
- Size, weight, power ☑
- Rigidity ☒

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