

A Home Observatory



Build it and you will come...

Styles of Home Observatories

- **Domes:** Classic Looks, But Expensive.
- **Roll Off Roof:** Rugged Construction, But A Big Footprint.
- **Other Designs:** Imagination Is The Only Limit.
- **My Flip Top:** Highly Functional, And Affordable.

Classic Domes...



- Advantages
 - Looks Like An Observatory
 - They Block Stray Light
 - They Block Wind
 - They Block Dew Formation
- Disadvantages
 - Cost
 - Home Owners Associations
 - Limited Sky Availability
 - Dome/Scope Tracking Issues

Roll Off Roof Observatories...



- Advantages
- Almost Full Sky Access
- Home Owners Associations
- Can Be Home Made
- Cost Less Than A Dome



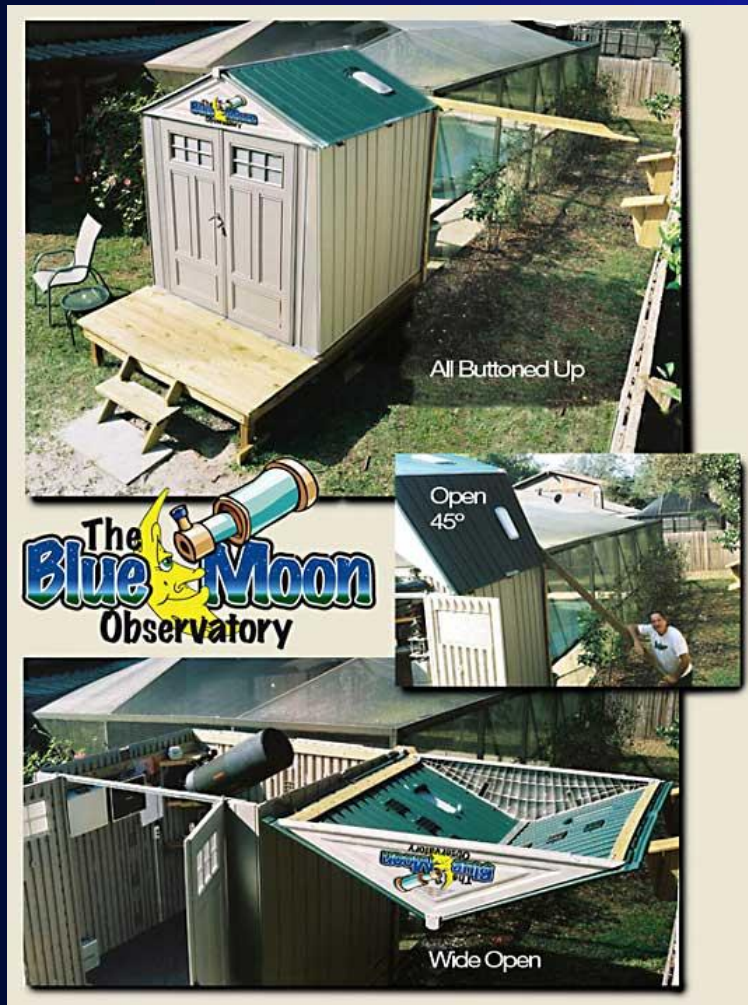
- Disadvantages
- Roof Can Be Very Heavy
- Extra Area Needed For Roof Truss System
- High Walls

Other Designs...



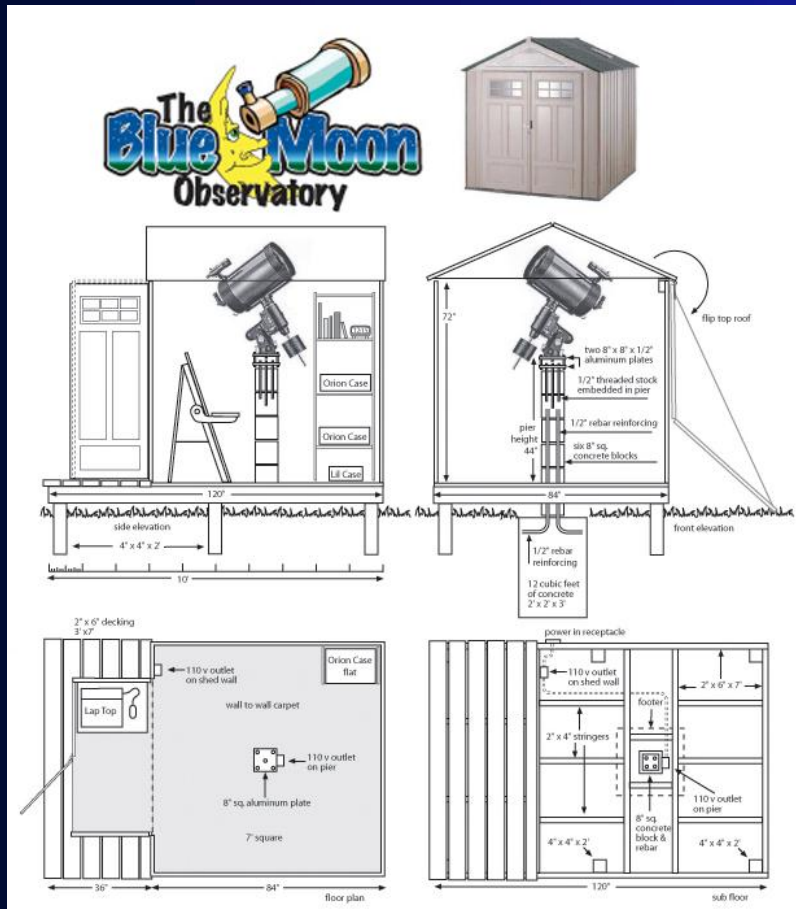
- Advantages
 - Low Cost
 - Works With Limited Space
 - Protect Scope While Stored
- Disadvantages
 - No Protection For Observer
 - Little Or No Light Protection
 - Little or No Wind Protection
 - No Protected Work Area

My Flip Top Observatory



- Advantages
 - It's In My Back Yard
 - It Works Like A Charm
 - I Have Total Sky Access
 - Storage For All My Equipment
 - Blocks Both Wind And Light
 - Can Be Opened In 30 Seconds
 - I have Tripled Observing time
 - I Built It For Just Over A Grand
- Disadvantages
 - Could Be A Tad Bigger
 - More Subject To Wind Damage

The Plan



- I drew all my plans out before I bought or did anything.

I researched just about every shed at Home Depot, Lowes and the web before I settled on Rubbermaid's product, The Big Max.

Pier Construction



- First pour... I dug and filled a hole 2' x 2' x 3' deep with fifteen 80 lbs bags of cement.
- Then I set two 16" x 8" concrete blocks into the wet pour.
- Then I set four 48" long by one half inch thick pieces of rebar deep into the wet pour.

Pier construction continued...

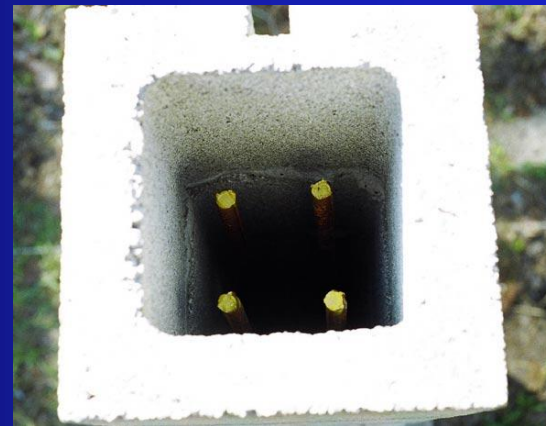


- Second pour...
- Two more full blocks and the first of six half blocks filled using another two 80 lbs. bags of concrete.
- And four more 48" long by one half inch thick pieces of rebar set down into in the wet pour.

Pier construction continued...



- The third step...
Stacking the
remaining
five half blocks.



Pier plate assembly



- Two one foot square, one half inch thick aluminum plates from McMaster-Carr tied together with one half inch threaded stock, nuts and washers.
- Four more pieces of threaded stock 18 inches long with dog legs beaten into the bottoms of each one to aid in their setting securely into the concrete.

Plate assembly set into pier

- I filled the stack with another 80 lbs sack of concrete and while still wet, I worked the plate assembly into the pour.



Mounting the mount



- I used the plug left over from cutting the hole in the upper plate to accept the mount, to build the tie down. Using that disc of aluminum, a 10 mm bolt and other odd pieces, I fashioned a hand tightened spanner to mount my CG5 German Equatorial Mount to the plate assembly.

Sub-floor assembly



- 4 x4's and 2 x 6's make up the sub floor.
- It is important that the observatory floor not touch or be attached to the pier in any way.



The Big Max



- The Big Max comes with it's own floor. Making the cut out for the pier was no big deal. And the plastic floor makes a soft landing pad for any dropped astro gear.
- The Blue Moon fully assembled.

The Flip Top



- The entire roof opens 180° with one lever.
- Reinforcement proved necessary to swing the weight of the roof.



The Flip Top continued



- Some additional internal bracing was added as well. The Big Max is a good starting point for an observatory, but it benefits greatly from the additional reinforcements.



Plenty of head room...



- With the roof in place, I still have plenty of room for the scope to be left parked in any position.
- Since this photo was taken, I have added a Orion ED80 guide/wide field scope. Even with that refractor and it's mounting rail and rings setting on top of the C11, I still have plenty of room to spare.

Finishing touches



- All the comforts of home
- Carpeting
- A work desk
- Electricity
- Task lighting
- Shelf for charts etc.
- My observing time has more than doubled, I can set up and be ready to go in under five minutes. And if the weather quits on me, I can shut down and lock everything up in 5 minutes.

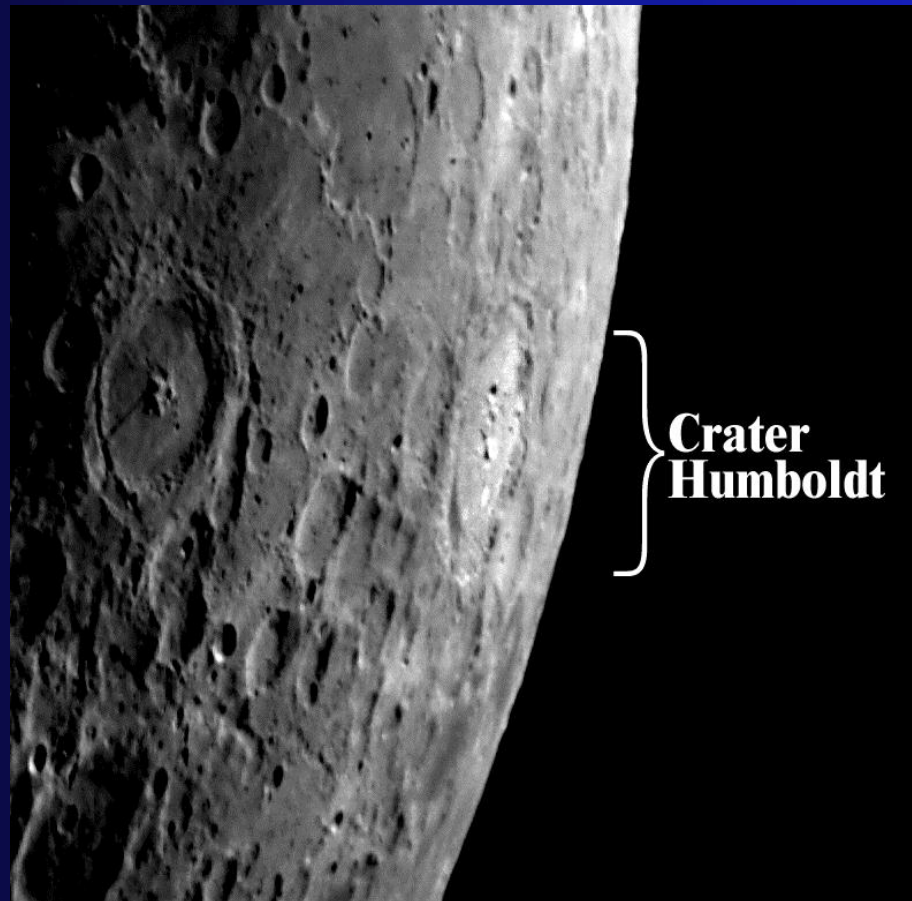
Some images...

- 13 day old moon



Some images...

- Crater Humboldt



Some images...



- 6 day old moon
It is a 13 frame mosaic, but I missed a piece.

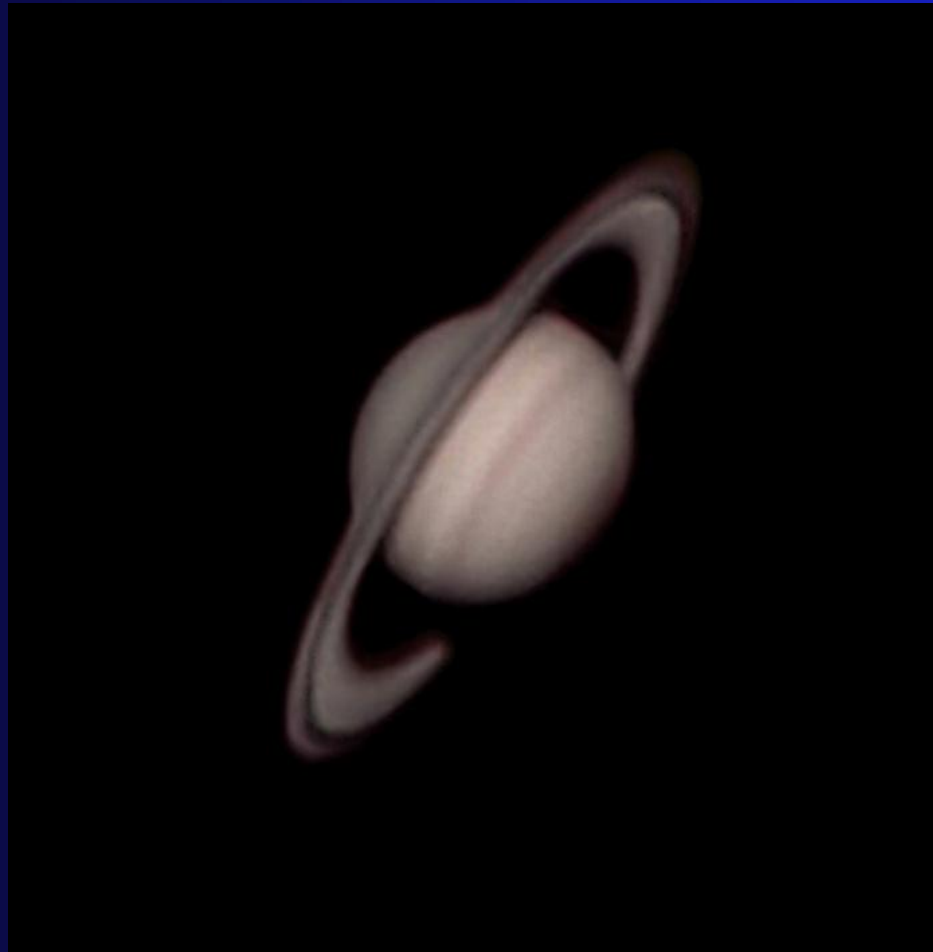
Some images...

- Mars



Some images...

- Saturn



Some images...

- Jupiter



Some images...

- Jupiter and his moons



Some images...

- M42



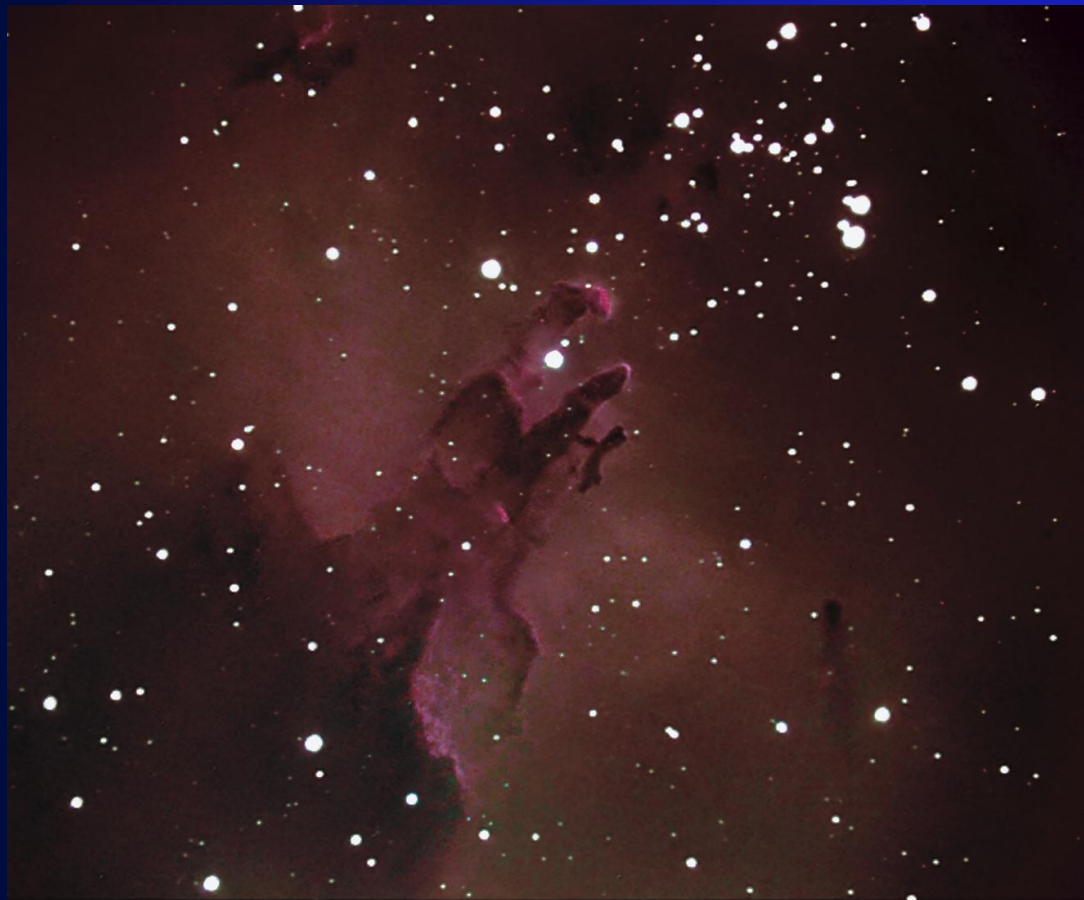
Some images...

- M20



Some images...

- M16



Some images...

- M27



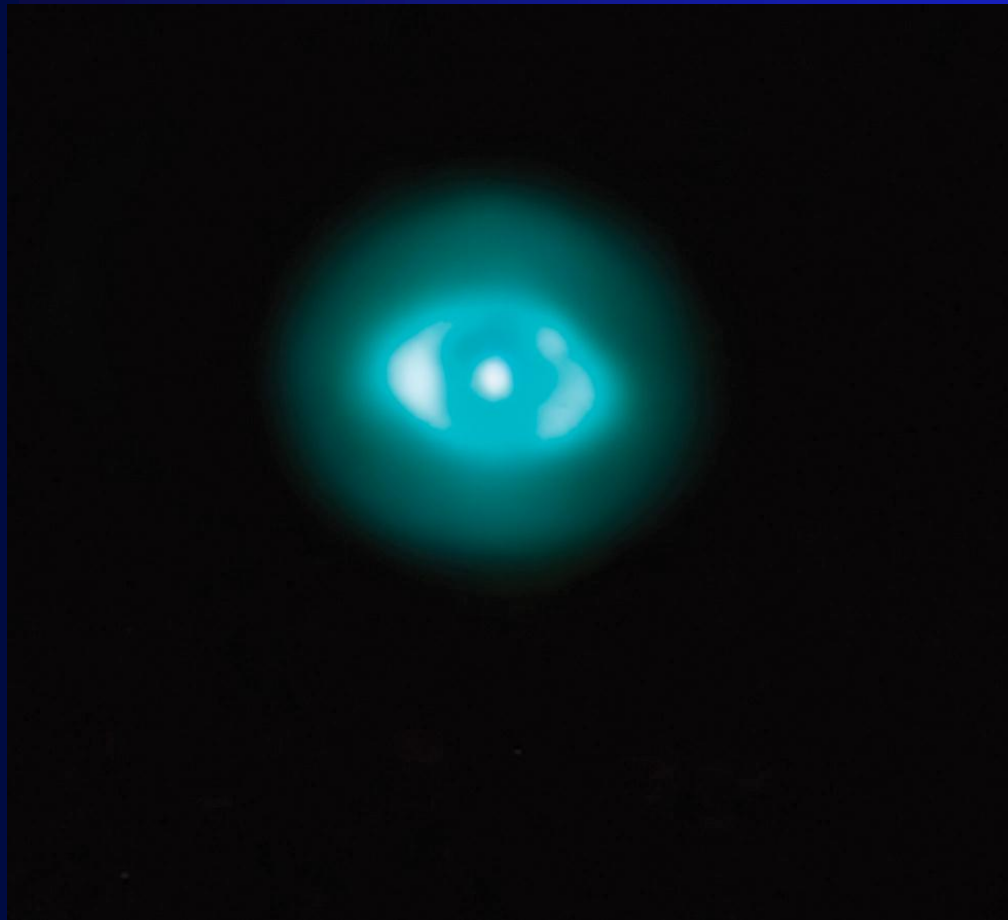
Some images...

- M57



Some images...

- Ghost of Jupiter



Some images...



- NGC6210

Some images...

- M13



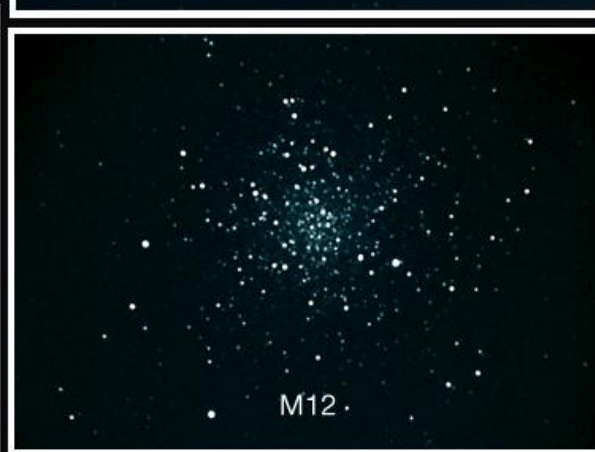
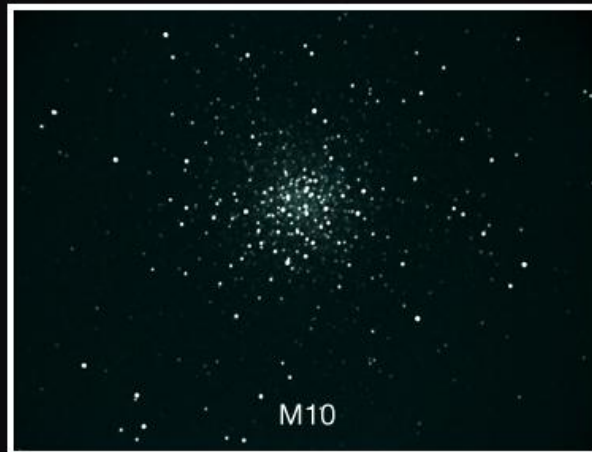
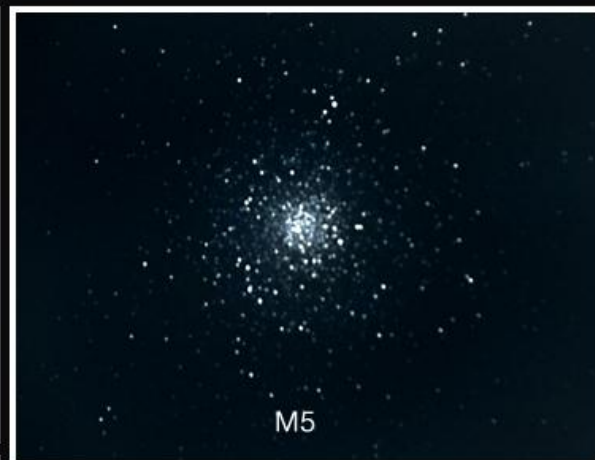
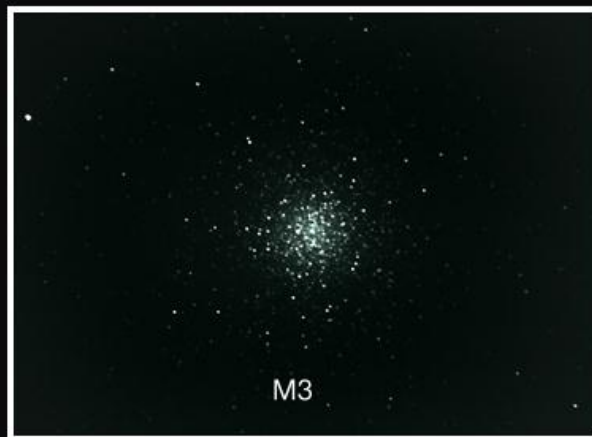
Some images...

- M15



Some images...

- Four more Globular Clusters



Some images...

- M51



Some images...



- M101
Too big to image
without a lot of focal
reducer.

Build it and you will come...

- Of all the accessories I have added to my astronomy package, none have been more useful, or been used more often than this observatory.
- It takes the laborious task of dragging all the stuff out, putting all the pieces together, getting a usable alignment dialed in, and trying to not drop or lose anything in the grass into a quick and simple process of opening up the roof and waking up the mount.
- Also, all my astro gear is only an arms length from the scope, and not taking up room in the corner of the living room.
- When the night is over, and I am tired and ready to call it quits, the whole thing can be closed and locked up in 5 minutes.