APO STAFF INFORMATION : NMSU 1M TELESCOPE

NMSU operates a robotic 1m telescope at Apache Point Observatory. Since the telescope is run robotically, APO staff are an invaluable resource for noticing any problematic behavior that may affect the health and safety of the telescope and on-site personnel.

NMSU pays an annual fee to cover basic services at APO, and we reimburse various technical staff members on a per-hour basis when they work on the telescope.

NMSU understands that APO observers/staff have no formal obligation regarding the NMSU 1m and that all 3.5m or 2.5m functions take precedence over any 1m function.

Nonetheless, NMSU would strongly appreciate if APO staff would be alert to any possible issues with the telescope, and wants to make sure that all APO staff have access to contact information, as well as some very basic operational items.

1.1 Things to be alert for

We would appreciate if observers/staff note any peculiar behavior or items that might affect the health of the telescope. In particular, it would be great if people could be alert for:

- dome open after 3.5m dome is closed (by more than several minutes)
- any especially loud noises from the telescope

In particular, we want to avoid:

- sunlight on the mirror, which could potentially be a fire hazard
- damage to telescope mirrors
- damage to telescope drive surfaces

1.2 What to do

If something out of the ordinary is noted, but there is no obvious immediate threat to site or telescope, attempt to contact (in prioritized order):

1. Jon Holtzman, holtz@nmsu.edu, 575-646-8181 (work), 575-522-5065 (home), 575-621-7380 (cell)
2. Tom Harrison, tharriso@nmsu.edu, 505-646-3628 (office) , 505-526-2990 (home)
3. Jeff Coughlin, jlcough@nmsu.edu, (404) 617-6819 (cell)
4. Mark Klaene

If something threatens telescope or personnel safety, take action first, but please contact above after action has been taken.

1.2.1 Dome is open

- Keep sun off of mirror: close dome shutter(s) or if it doesn't close, rotate away from sun (see operational instructions belwo)
- Keep rain/weather off of telescope: close dome with motors. If that fails, close with crank. If that fails, cover telescope with tarp (one can be found in the bottom drawer of the toolchest in the 1m dome).

1.2.2 Very loud noise from telescope drive

- Kill telescope power using emergency power off switch on pier inside door.

1.2.3 Lights are on

Lights controlled by the power switches inside the door (outside light, and two sets of wall mounted lights) should NEVER be on, unless being used by people on site. There are two toggle switches, and one dimmer knob; please turn them off completely.

There are two clamp lights that are remotely powered for use with remote webcam viewing. They are turned on during telescope initialization and if someone is trying to diagnose a problem. These lights can be turned off by computer control from newton using the command: power1m off lights. Ideally, contact Jon Holtzman before doing this, in case something important is being looked at.

1.2.4 Louvers are open

Louvers can be closed by computer control from newton, using the command: power1m off louvers. If big dome fan is running, this should be turned off before louvers are closed: power1m off domefan.

1.3 Basic operation

1.3.1 Emergency power off

There is a red button on the telescope pier immediate in front of the door. If this is hit, all power to telescope motors will be killed. This will also trigger a watchdog circuit that will attempt to close the upper dome shutter (the lower dome shutter has no watchdog). If the emergency power switch is hit, please notify Jon Holtzman.

1.3.2 Dome control

There is a control box for the dome rotation and upper dome shutter inside on the N wall (to the left when you walk in). Normally, the upper switch should be in ”Automatic” mode, but manual operation can be achieved by putting it in ”Manual” mode. Once in manual mode, the lower switches can be used to control dome rotation, and to raise/lower the upper dome shutter. In general, please return switch to ”Automatic” mode.

We have had some problems with fuses blowing in the upper dome circuit. In the bottom of the control box, the left fuse is for the dome rotation; this is a spare next to it. In the right side, the fuse has been replaced by a circuit breaker; if the white button has popped out of the bottom of the box, the circuit breaker has been tripped, and pushing it in will reset it. If manual operation fails, the circuit breaker and fuse can be inspected and reset/replaced if necessary.

If the dome cannot be closed by motor control, it can usually be closed with the hand crank that is located in the dome. The hook goes around the small eyeloop at the top of the dome, and then the crank can be rotated to close the shutter.

The control box for the lower dome shutter is on the S wall (to the right when you walk again). There is a toggle switch for manual operation. To raise or lower the dome in manual mode, select raise/lower, then apply the power switch. The lower shutter opens and closes slowly. Note that the lower dome shutter cannot close fully if the upper dome shutter is closed; for complete closing, the lower dome shutter must be closed first.