



NATIONAL OBSERVATORY OF ATHENS
Institute for Astronomy, Astrophysics
Space Applications and Remote Sensing
HELMOS OBSERVATORY



Health & Safety Issues
for
Visiting Astronomers

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June, 2017 Version 2.2

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1. Health Advice

1.1 Working at the Telescope

The Helmos Observatory is situated at an altitude of 2340m. This altitude does not usually pose any problems; visiting observers are not required to have a medical examination.

Note, however, that at this altitude the atmospheric pressure is approximately three quarters that of sea-level. This may affect your health, especially if there is a pre-existing condition:

- If you have a head cold, it is better to avoid driving from sea-level to the Observatory as much as possible. There have been cases of damaged eardrums caused by inability to equalise pressure.
- Avoid doing heavy exercise shortly upon arriving at the Helmos Observatory.
- Colds, head (including sinus conditions) and chest infections may be greatly exacerbated on the mountain.
- If for any reason you think that working at an altitude might affect your physical condition, it would be advisable to check with your doctor before coming out.
- If you have a chronic medical condition which may require emergency measures, (e.g. respiratory, heart problems, epilepsy, diabetes), please inform the staff member at the telescope.

1.2 First Aid facilities

There is a hospital in Kalavryta (15km away from Helmos Observatory), where doctors and nurses are on call throughout the week.

There is a first-aid kit in the Control Room.

Visitors are advised to bring lip-salve, sun shield and motion-sickness tablets if they are affected by winding mountain roads.

1.3 Medical Emergencies

In case of emergency, contact a staff member immediately and he/she will take the appropriate action. If, for any reason, a staff member cannot be reached and it is believed that an ambulance is required, call the emergency number **166**, in order to speak with the hospital in Kalavryta. You should be able to communicate in English.

If you are feeling ill, for your own safety and protection, *first* notify someone, then go to your room to lie down. In any event, make certain that a staff member is informed.

2. Visitor Safety at the Aristarchos Telescope

2.1 Basic safety advice

Advice for visiting observers at the Aristarchos Telescope:

1. It is recommended that observers do not go to the telescope alone, especially in wintertime.
2. In case of an accident, if possible, inform a staff member immediately and they will then take appropriate action. If an ambulance is required, and a staff member cannot be reached, dial 166 from any phone in the telescope or service building. You should be able to communicate with someone who speaks English.
3. There is a first-aid box in the telescope control room. If a visitor requires an item from this box, they should ask a staff member for permission, unless it is an emergency.

2.2 Winter period

In winter, extra precautions need to be taken:

1. On arrival at Kalavryta and before driving up the mountain, you should contact the telescope staff to check road conditions.
2. Watch out for changing weather conditions while at the telescope. E.g. temperature falling below zero, humidity variations, ice formation. If ice does start to form, you should immediately go down to Kalavryta. If a staff member is still at the telescope, then it is advisable to go down with them, since you will need a vehicle with four-wheel drive and a car with a mobile phone.
3. When driving down from the telescope and there is already ice on the road, it is good practice to have one wheel in the ditch (off the road), to give you more traction.
4. If it is impossible to get a vehicle (ambulance) to the telescope due to snow, ice or for any other reason, then nobody (staff or observers) should attempt to go there.

2.3 Safety instructions for the tower

1. Only authorized persons have access to the building.
2. Visitors have to be instructed about safety rules and are to be accompanied in the building by authorized IAASARS/NOA-staff.
3. Any person entering the telescope building is responsible for his/her own safety.
4. Entrance to the electronics-room (telescope control cabinet, telescope control computer, hydrostatic bearing unit) and the observatory electronics-distribution room is prohibited. Entrance to these rooms is limited to authorized personnel only.
5. Entrance to the operation floor is limited to authorized staff. Unauthorized people must stop at the safety barrier. Opening the safety barrier will cause an emergency stop of the telescope and enclosure control. Note the warning signs in section 4. Authorized people passing the barrier are obliged to wear helmets on this floor and at the enclosure. Beware! Standing at the narrow spot on the operation floor while the telescope is moving, may result in serious injury. (warning sign, see section 4)
6. Before each control of the telescope and the enclosure, the operator has to manually initialize a signal for about 10 seconds (press a separate button). A flashing light goes off, simultaneously with an audible alarm heard on the operation floor. People inside the tower

must be on the alert that this alarm means that the telescope and/or the enclosure operation will start immediately. They must stay at the entrance to this floor or keep a distance from the moving telescope.

Note: The operator cannot monitor the full situation from the tower.

7. In case of emergency, press the red emergency 'Stop' button in the panel box of the operation floor or the emergency button inside the dangerous zone. This will also affect the enclosure control.
8. Access to the enclosure platform is not allowed to visitors. However, in case of emergency, use only the enclosure entrance hatch to enter the enclosure platform. Before entering, both enclosure and telescope must be stopped. Use a safe and secure means to reach the maintenance platform.
9. Access to the enclosure azimuth rail and azimuth drive during enclosure movement is not allowed.
10. Before leaving the telescope floor, the free movement of the telescope and the enclosure, without obstruction and collision, has to be ensured.
11. Inflammable liquids, gases and other dangerous substances are not allowed in the telescope building.

2.4 Safety instructions for the enclosure area

1. Only authorized personnel are allowed to enter the enclosure. Visitors must be informed about safety rules and must be accompanied on the telescope floor by authorized IAASARS/NOA-staff.
2. Any person entering at the enclosure platform is responsible for his/her own safety.
3. There are no safety barriers at the enclosure. All activities are to be performed carefully!
4. When working indoors, the enclosure must be kept closed. Beware of possible contusion at narrow zones (at the wind screen) when the telescope is moving.
5. After entering the enclosure floor (service platform), close the hatch. A safety switch will interlock the enclosure control, if the hatch remains open.
6. It is not allowed to be alone at the enclosure floor. If all personnel are working on the service platform, a secure exit route and means of communication must be available.
7. If it is intended to operate the telescope, when people are at the enclosure floor, note the specific features of the emergency stop (no immediate stop of mechanisms).
8. Before entering and exiting, all motion within the enclosure and the telescope must be stopped. Use only the hatch and a safety ladder for exiting.
9. In case the main hatch is blocked, use the emergency hatch on the opposite side. An additional ladder for exiting the area must be left at the enclosure floor. The emergency hatch must be kept unlocked at all times.
10. If the enclosure is covered with snow, set the telescope in the horizontal position and protect the tube (using a tarpaulin) from falling snow and ice before opening it. The installed heating must be kept in the switched 'On' position during winter time to prevent the slit from freezing.
11. There are special working instructions for the enclosure operation. Opening the enclosure is not allowed under the following conditions:
 - wind speed > 15m/s
 - during rain, snowfall and fog
 - during and in the event of an impending thunderstorm
 - Activities during and in the event of an impending thunderstorm:
 - a) close the enclosure
 - b) leave the enclosure
 - c) set telescope in 'Park' position

- d) switch off control cabinets and computers
- 12. Access to the enclosure azimuth- rail and azimuth drive during enclosure movement is not allowed.
- 13. People entering the enclosure must use helmets.
- 14. Due to its winding mechanism the operating windscreen may endanger people with long hair. In addition to wearing a helmet, hair has to be protected. Note the warning advice on the windscreen system!
- 15. Before leaving the enclosure, ensure that the telescope and windscreen can move without obstruction and collision. The platform must be cleared of components which may fall through the grating. Remaining components have to be placed and fixed safely at the edges of the enclosure.

2.5 Safety instructions for the telescope area

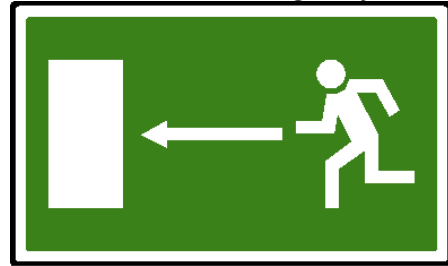
1. Only authorized staff is allowed entrance to the telescope area. Visitors must be instructed about safety rules and are to be accompanied onto the telescope floor by authorized IAASARS/NOA-staff.
2. Any person entering the telescope floor is responsible for his/her own safety.
3. Keep a safe distance from all moving mechanisms and the body of the telescope.
4. The operator works in the operations building. Before a regular telescope operation, the operator must ensure that no one is at the telescope-floor level; if someone is there, the operator must communicate with him/her.
5. If people are inside the tower, the operator (operating from the different building) must release the button for the acoustic-optical signal in the operation floor of the tower just before the start of any motion of the telescope or enclosure components.
6. Opening the telescope shutter when the enclosure is opened during daytime is prohibited. Incoming sun radiation may damage the sensitive CCD sensors.
7. For the nitrogen filling routine for the scientific CCD-camera, see the instructions! Due to its low temperature (-196°C) there is a potential danger if contacting with it. Use safety goggles and safety gloves! Avoid inhaling the vapours!

3. Overview of installed signs

A. At doors of the electrical rooms



B. At doors or emergency exits



C. At the entrance barrier of the tower operation floor



D. At the slip ring-system

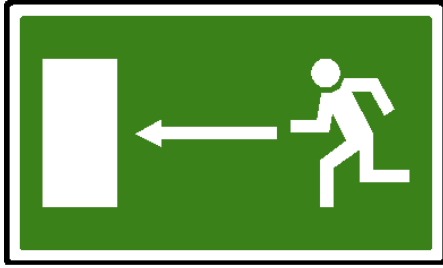


E. At the mains supply units to be worked



Do not switch on! Staff working!

F. At the enclosure hatches inside



G. At the enclosure entrance hatches outside



H: At the wind screen system



I: At the narrow part of the operation floor



Danger !

**Protect long hair from moving components
of the windscreen system**

K: At any area inside the Helmos Observatory buildings and domes



Smoking is not allowed

4. Helmos Observatory Telephone list

4.1 Aristarchos Telephone List

Aristarchos Telescope Control Room & Resort

+30 210-8109206 (telephone and Fax)

+30 210-3490030

Aristarchos Telescope Dome Building

+30 210-3490029 (Telescope level)

+30 210-3490028 (TCC Computer and Cabinet room)

4.2 Helmos Observatory Office at Kalavryta

+30 26920-24763

4.3 Useful Telephones

Kalavryta General Hospital

+30 26920-22222

+30 26920-22724

(General emergency number: 166)

Kalavryta Police Station

+30 26920-23333

(Police emergency number: 100)

Kalavryta Fire Department Station

+30 26920-23199

+30 26920-23710

(Fire emergency number: 199)

Kalavryta Ski Resort

+30 26920-22174

+30 26920-23418

Municipality of Kalavryta

+30 26920-22380

+30 26920-22390