

AURA/NOIRLab Visits Summit Safety Form

In traveling to one of our summit facilities, you will be visiting a working AURA/NOIRLab research observatory; an important national scientific facility, located in a high and remote location. We ask that you follow these rules so that you are able to visit without disrupting research activities, while keeping you and your group safe. Being prepared and informed is crucial to a safe and enjoyable visit.

The safety of NOIRLab staff, visitors and equipment is a top priority. Please take a moment to thoroughly read and understand the potentially hazardous conditions you may encounter. These possibly dangerous situations may arise from regular operations of the observatories, construction activities, and/or environmental factors. NOIRLab's observatories are in use 365 days a year, 24 hours a day.

While at any of the NOIRLab sites, all visitors will be under the authority of the NOIRLab Director. They must comply with all rules applicable to the site, in particular regarding Safety and the use of NOIRLab Information Technologies, facilities, and/or services, and follow the instructions of the Director or his/her delegate (i.e. your AURA/NOIRLab host).

Recommendations

Please note:

1. Ascent to the altitude of AURA's Sites may expose visitors to a reduction in atmospheric pressure, which can result in a variety of medical conditions, and in certain cases, severe illness or even death can result. Symptoms you may experience include:
 - a. headaches,
 - b. dizziness or lightheadedness,
 - c. tiredness,
 - d. irritability,
 - e. insomnia,
 - f. reduced intellectual capacity,
 - g. impaired exercise/exertion tolerance,
 - h. nausea or vomiting.

Mild symptoms are to be expected, but if they go from being an annoyance to incapacitating (ie from slight nausea to feeling like you are about to throw up) inform your tour guide immediately.

2. It is also possible, although rare below 3000 meters (9,840 feet), to develop one or more of the more severe mountain sicknesses: pulmonary or cerebral edema, both of which can be fatal (usually in conjunction with a pre-existing condition).
3. Please consider personal health issues that could arise from being at altitude or walking at this elevation, such as: decreased lung capacity, cardiac issues, or other altitude related issues. Time spent at altitude may also aggravate pre-existing illness, particularly cardiovascular and respiratory diseases. If you have health concerns, please consult your doctor before visiting us.

If you have a pre-existing condition which could be affected by altitude (and your doctor has given you clearance to be at altitude), please bring this to the attention of your

AURA/NOIRLab host so that s/he is better able to assist you in case you experience a medical emergency.

4. Be sure to stay hydrated by drinking plenty of water or juice. Bring enough to supply your group for the duration of your travels. This will help compensate for the low humidity and avoid dehydration at the summit (which can mimic high altitude symptoms).
5. Eat a bit of food or snacks to help avoid the effects of the altitude, there aren't opportunities to make purchases at the summit facilities, and you will process calories more quickly while in the summit area.
6. Take your time, walk slowly, and be cautious when getting up from sitting while you are at the summit.
7. The sunlight can be very intense, especially in the summer. Avoid unprotected eye exposure to glare and bright sunlight at the summit and on the drive up by wearing sunglasses, preferably with UV-coated lenses.
8. Use sunblock and lip balm. We recommend the use of sunscreen with a factor over 30. In addition, we suggest the use of long-sleeved shirts, long pants, hats and covered shoes (required inside summit facilities), to avoid exposure to UV radiation.
9. Temperatures will be much cooler at the summit, especially in the winter months. Please bring winter clothes (layers recommended).
10. You should stay rested and ideally avoid heavy meals, excess caffeine, and alcohol or other drugs (excluding medically necessary medications) within 24 hours of your trip to the mountain.
11. The observatory reserves the right to deny future access to the sites to people with bad behavior during visits.

Rules

1. Close toed shoes are required inside of summit facilities.
2. Before the tour, please inform your tour Guide if you have any concerns or questions about the tour, or if someone needs assistance during the visit.
3. NOIRLab does not offer transportation to the observatories. Visitors are required to have their own transportation.
4. There are no gas stations, restaurants, or hotels at the observatories. Be sure to have a full tank of gas before starting your trip.
5. Ensure that the transportation vehicle is adequate for such a journey. Check tires and air pressure, including a spare, and ensure the vehicle is in good mechanical condition (brakes, clutch, gearbox, water level and cooling system, as well as tools).
6. If you are driving a 4 Wheel Drive (4WD - required at some locations) vehicle, be sure you understand how to operate your vehicle's 4WD function before departing for your trip.
7. Please follow posted speed limits
8. While traveling to and from the summit, only stop in clearly marked areas (some roads do not allow for picture taking); it is dangerous to stop on the road where other vehicles may not see you.
9. All occupied seats must have a seat belt. Seatbelts must be worn at all times while traveling to and from summit locations.
10. Do not enter areas that are not clearly marked as a trail as these are highly sensitive environmental areas.
11. Avoid rolling car windows down, especially on dirt roads.
12. While at the summit facility, stay with your tour Guide, there are areas of restricted access. This is for your safety as well as the safety of our staff and equipment..
13. You must not depart the facility without informing your tour guide.

14. In case of an emergency such as earthquakes or fire, follow your guide's instructions.
15. At the observatory sites you can find native flora and fauna. Wildlife and natural landscape are protected. Do not disturb or feed animals, and take care not to run them over.
16. Please do not litter. Take out what you bring in. This includes vegetation.
17. The locations of the observatories depend on dark skies. Any light will spoil the quality of observations. Unless specifically authorized you must leave the summit no later than directly after sunset as there are no lights on the road, and headlights are harmful to optical astronomy. If you must travel after twilight is complete, use your low beams or parking lights until at a distance from the summit.
18. Drones are not allowed.
19. The use of wireless communications such as cellular telephones and other electronic devices which transmit a radio signal are prohibited on the summits including radio remote controlled devices (put cell phones in airplane mode)
20. Camping or overnight stays are not allowed
21. Do not drive if you are exhausted, drowsy or under the influence of a medication that prevents it, or under the influence of alcohol.
22. For media visits there is a 14-hour rule for work at the summit. No one may be at the summit for longer than 14 hours at a stretch.
23. Each site has specific rules and recommendations which must be read, acknowledged and followed (see below)
24. Smoking for visitors is prohibited while visiting our observatories, both indoors and outdoors. Please report any indications of smoke or fire to any personnel you see so they can take appropriate action.
25. Pets are not allowed.

“Leave only footprints, take only photographs”

Date

Name

Signature

Specific Safety regulations: Hilo/Maunakea, Hawai'i, USA

Maunakea is a sacred place to the Native Hawaiian community and has great environmental, cultural, and scientific significance. When you visit Maunakea please treat the environment and people you meet there with respect.

- Do not venture from the road without a licensed tour guide or extensive research beforehand. There are many unmarked archeological sites and sensitive species habitats.
- All visitors are required to familiarize themselves with the [Cultural](#), [Astronomical](#), and [Natural History](#) of the mountain. Please download and review the [Maunakea Resource Brochure](#) prior to your visit.
- Age limit: 13 years old. Minors (persons under the age of 18) need to be accompanied by a parent, guardian or teacher (2 minors per adult).
- Anyone who is pregnant, suffers from heart or respiratory problems, circulatory conditions such as anemia or has scuba dived within 24 hours of the visit, are not permitted to proceed further than the [Visitor Information Station](#) (VIS) at 9,200 feet.

Altitude

- The summit of Maunakea is 13,796 feet (4,205m) above sea level. This means there is less atmospheric pressure, making it more difficult for your body to absorb the available oxygen. This causes high altitude symptoms.
- It is in a very remote area. Professional medical assistance is over 1.5 hours away.
- It is recommended that you not travel to the summit if you are currently experiencing; a head cold (or are otherwise sick), having a severe allergy or sinus issue, headache, have been drinking alcohol (or taken recreational drugs) within the last 24 hours, have trouble breathing, or blood sugar issue that is not under your control, as altitude may exacerbate your symptoms, and generally make for a miserable trip.
- You will be required to acclimatize at the Visitors Information Station (VIS) or Hale Pohaku (HP) at the 9,000' (2,800 meters) elevation for at least 1 hour before traveling to the summit. If you feel anything more than mild discomfort at 9,000 feet it is strongly recommended that you do not ascend any higher.
- There are limited public restroom facilities above the VIS. The only public telephone above the VIS is an emergency phone at the entrance to the University of Hawai'i 88-inch Telescope. Cellular phone coverage is unreliable on Hwy 2000/Saddle Road, Maunakea Access Road and at the summit area.
- The VIS is your last opportunity to purchase snacks or water (they have a limited supply)
- Watch for signs and symptoms in yourself and in your companions, especially younger adults and minors. You might not recognize that you are having a problem that someone else is able to recognize, so help each other out.
- Pressure breathing may be used to increase oxygen uptake by creating more "pressure" in your lungs (Deep breaths through the mouth and exhaling forcefully through pursed lips).
- The only cure for high altitude sickness is to come down from high altitude, and the longer you are exposed to its effects the worse you will get. "Toughing it out," is a sure way to make yourself sick.
- All guests will have their blood oxygen level measured when entering the summit facility.

- You may be offered supplemental oxygen if your guide assesses that you would benefit from it. Oxygen can mitigate the worst effect of altitude, but the guest should return to sea level once oxygen therapy is discontinued, or if symptoms do not improve.

Weather

- In general, it is very dry and cold. You will be losing moisture from your skin and every time you breathe. Sometimes a strong headache is actually dehydration rather than a high altitude symptom. Staying hydrated will prevent this. But if you already have a headache we recommend drinking two cups of water to see if your symptoms subside.
- Cold temperatures can exacerbate high altitude symptoms, or make you feel them more strongly.
- During the winter, ice regularly forms on the surface of observatory buildings and other structures. As these ice formations melt, large fragments may fall to the ground without warning. Take proper precautions, such as parking away from buildings, weather towers etc., and taking appropriate walking paths to and from building entrances to avoid being injured and/or causing vehicle damage.
- Weather can change very rapidly, resulting in severe conditions such as freezing temperatures, snow storms, and winds exceeding 100 mph. “White-outs” caused by blowing snow and fog can block or impair visibility. Road conditions can become hazardous due to deep snow drifts, freezing rain, fog, and ice which prevent vehicle travel. Visitors that are on the summit area when severe weather occurs face a life-threatening situation. Severe weather conditions can last up to a week, preventing an immediate rescue. If you get stuck in a severe winter storm, always stay with your vehicle.
- Even on warm sunny days conditions can change rapidly, be prepared to descend if warned of inclement weather.

Driving

- Important: The drive to the summit area is over roads that are steep, narrow, winding, unpaved, and subject to weather-related hazards. You must provide a 4WD transportation for all visits (note that not all rental companies allow driving up the Maunakea Access Road). This includes travel from the Hale Pohaku/Visitors’ Information Station area to the summit area.
- Always use 4-wheel drive LOW RANGE on the dirt section of the summit access road (to reduce the risk of brake failure and overheating). Use low range on paving areas without 4 wheel drive engaged.
- Most rental companies have restrictions about taking their cars to the summit of Maunakea. So be sure to confirm your MK visit with the company when making your reservations.
- All vehicles must be clean and clear of any organic materials. This is to prevent the transportation of invasive species to the summit of Maunakea.
- The drive to the VIS takes from 1 to 2 hours from Hilo. After an hour of acclimatization it is another 30-45 min to the summit. Above the VIS two-thirds of the way is a dirt road, the rest near the telescopes is paved. Whilst the dirt road is maintained in good condition, you should be aware that conditions can change markedly on the mountain at short notice.
- If the road is closed to the public by the Maunakea rangers, there will be no summit visits until the road is reopened — no exceptions.
- There is often road work (usually a grader) on the road. These vehicles should be given the right-of-way at all times, and only pass them when it is safe to do so (you can see far enough ahead to be able to safely pass at no more than 25 mph).

- If your car gets a flat or otherwise breaks down, try to make it to one of the small parking lot areas along the way and flag a ranger down (rangers only make their rounds during the daytime, so do not stay after dark).
- Potential hazards include:
 - narrow, rough surface
 - hairpin switchbacks
 - ice or black ice
 - high winds
 - low visibility due to fog and/or low sun angle
 - steep grades (use low gear when descending)
 - rocks on the road
 - maintenance vehicles (or other slow-moving trucks)

Hazards inside the telescope domes

- The dome temperature is kept near 0° Celsius. Even if it is a “warm” day the telescope floor will be cold.
- Stay with your guide at all times and do not wander off, if you want to see something better, ask your guide if you can get closer as a group.
- Telescopes are working facilities — be mindful of telescope staff, uneven or wet floors with no railings — follow your guides’ instructions.
- All visitors will wear a hardhat while at the facility, and return them at the end of the visit.
- Pinch Points — There are clearly marked “Pinch Point” areas in the Gemini North dome on level 5. These areas are dangerous when the telescope is moving and should be avoided. Stay with your guide.
- Slip Ring — On level 5 where the telescope is, there is an orange ring along the inside wall of the dome. This ring is charged to ~4800v. Please keep a healthy distance from this ring.

Evacuation

- If an emergency arises please remain calm.
- Stay with your guide who will give you instructions.
- If you get separated from your guide, make your way to the exterior of the building following the exit signs, and meet up with your guide near the stairs at the front entrance.
- Do not depart the summit without checking in with your guide/Incident Commander (will have a yellow fluorescent vest) first so that you and your group may be accounted for.

Date

Name

Signature