

## Gemini North Visitor's Safety Information

Aloha,

For your personal safety, please read this entire safety policy and information bulletin. Your **signature on the last page** acknowledges that you have read and understood the contents of this safety document. **(Parents or legal guardians of minors age 16 or 17 must also request a Gemini Minors' Release Form for each child on the tour – Gemini North does not permit anyone younger than 16 to visit.)**

Please submit a **signed** Gemini Release Form for **everyone** entering a Gemini summit facility either electronically or to your tour guide 24 hours in advance of your tour. All forms must be submitted before leaving sea-level.

The Gemini Observatory consists of two telescope facilities operated by the Association of Universities for Research in Astronomy, Inc. (AURA). The Gemini South telescope is on Cerro Pachón in Chile at an elevation of approximately 9,000 ft. (2,700 meters) and the Gemini North telescope is at an elevation of approximately 14,000 ft. (4,200 meters) near the summit area of Mauna Kea in Hawai'i. Gemini works diligently to maintain a safe environment for staff and visitors, yet each person bears responsibility for their own safety.

Visiting the Gemini North telescope can pose personal health risks including potentially hazardous conditions and situations. All tour members are required to participate in a safety briefing that will provide additional details and warnings about visiting the facility.

During your visit our guests must remain with a designated guide and follow his/her instructions at all times. *Closed-toe*, sturdy (leather preferred) shoes are required. Jackets and warm clothing are recommended due to cold temperatures. Typically the interior of the telescope's dome will be cooled as low as zero degrees Celsius (32 degrees Fahrenheit).

While visiting Gemini North, because of its high elevation, visitors are exposed to a significant reduction in atmospheric pressure and a corresponding reduction of available oxygen to the body. This can result in a variety of medical conditions and in some cases severe illness and even death can result – see the "Gemini North: Altitude Health risks and warnings" addendum for a list of restrictions and additional information including preparing for the risks of high altitude on the human body.

Aloha and enjoy a safe visit,

GEMINI OBSERVATORY  
Safety Leadership Team

## Gemini North: Altitude Health Risks and Warnings

### SAFETY CHECKLIST/ DOS & DONTs:

1. \_\_\_\_\_ **DO CHECK WITH YOUR DOCTOR FIRST...** Visitors to Gemini North are strongly advised to obtain their primary physician's opinion regarding a visit to 14,000 feet (where available oxygen (pressure) is about 40% less than at sea-level). In addition, many medications are effected by altitude and can cause a significant health risk. **\*\*The nearest medical help is over 90 minutes away from the summit.\*\***
  2. \_\_\_\_\_ **DO STAY RESTED...** This provides additional cardio-vascular/respiratory reserves for the stress of altitude.
  3. \_\_\_\_\_ **DO STAY HYDRATED...** The human body shifts large volumes of body water and dumps some of it to help with short-term adjustments to altitude. Give your body water to stay hydrated prior to and during your visit to help it cope with losses due to altitude and the very dry air.
  4. \_\_\_\_\_ **DO PROTECT YOUR EYES/SKIN FROM UV EXPOSURE...** Glare and bright sunlight is common on the mountain and is easily addressed by wearing dark lenses, preferably with ultraviolet (UV)-coatings to prevent long-term eye damage such as cataracts. Sunscreen is also advised for exposed skin, even for short periods due to the intensity of UV at high elevations close to the earth's equator.
  5. \_\_\_\_\_ **DON'T USE ALCOHOL, MARIJUANA, OR DRUGS...** Do not drink alcohol for at least 10 hours prior to your visit. This avoids dehydration and irritation of arteries in the brain that will be forced to adjust to lesser concentrations of oxygen in the blood. Drugs of any kind can affect the body for several days and many (especially illegal types) can be unpredictable and are an extremely potent constrictive agent for the coronary arteries.
  6. \_\_\_\_\_ **DON'T CHEW TOBACCO OR SMOKE...** Nicotine constricts arteries and further inhibits adjustments to the body's need for increased blood flow.
  7. \_\_\_\_\_ **DON'T EAT HEAVY MEALS...** While it is not a good idea to visit the mountain on an empty stomach, before ascent to the summit area do not eat excessively since this tends to tie up significant amounts of your available blood-flow. A light meal of high-carbohydrate items such as pasta, rice or other starches is generally advised. Avoid skipping meals or eating or drinking only sugared snacks or drinks; sharp changes in blood sugar can trigger increased altitude stress.
- ❖ Visitors to the Gemini North telescope may suffer; headaches, tiredness, irritability, lack of appetite, reduced intellectual capacity, impaired exercise/exertion tolerance, and possible vomiting. It is also possible to develop one or more of the more severe mountain sicknesses, pulmonary or cerebral edema, **both of which can be fatal.**
  - ❖ Altitude is also likely to aggravate pre-existing conditions, particularly cardio-vascular, diabetes, and respiratory diseases (see item #1 above).
  - ❖ Visitors are required to **acclimatize for a minimum of 30 minutes** at the midlevel facilities at 9,200' (2,800 meters). In some cases, if a member of a group becomes ill during a tour it might be necessary for the entire group to descend from the summit area if alternate transportation is not available for the affected individual(s).
  - ❖ Visitors are required to wear, closed-toe, sturdy (leather preferred) shoes at all times in the summit building. Visitors working on the telescope or instruments must use safety shoes or slip-on steel toe caps. It is required by Gemini that shoes are equipped with an ASTM F-2413-2005 or ASTM F-2412-2005 safety rating. Visitors going to the dome floor to see the telescope when no work is in progress do not require safety shoes; if engineering work is going on at the time, steel toe caps are required. [https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=9786](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9786)
  - ❖ **Pregnant women, anyone under 16 years of age, and scuba divers who have descended within the past 24 hours will NOT be allowed to visit the Gemini North telescope facility.**

## Gemini North Release Form

AURA/GEMINI DOES NOT ACCEPT ANY LIABILITY FOR VISITORS TO THE GEMINI OBSERVATORY SUMMIT FACILITIES WITH RESPECT TO THE POTENTIAL ADVERSE EFFECTS OF ALTITUDE OR FOR ANY ADVERSE EFFECTS FROM THE ADMINISTRATION OF OXYGEN, IF REQUIRED. IF YOU INTEND TO VISIT THE TELESCOPE SITE, YOU ARE REQUIRED TO SIGN THE DECLARATION PROVIDED. YOU THEREFORE ASSUME ALL RISKS.

### ACCEPTANCE:

- ❖ I have read and understand the Gemini Visitor's Safety Information document and further agree to abide by all safety regulations and the instructions of my guide.
- ❖ I have been advised to seek medical advice before proceeding and I have read and understand the Medical Alert – "Gemini North: Altitude Health Risks and Warnings" provided by Gemini Observatory concerning the potential harmful effects of altitude.
- ❖ Further, I give my consent for Gemini Observatory personnel to administer oxygen to me in the event I should require it and from that action, I agree to hold harmless AURA/Gemini Observatory and its personnel.
- ❖ I accept that AURA/Gemini shall not be held responsible for any adverse effects to me resulting from exposure to high altitude.

### PRINT NAME & ADDRESS:

\_\_\_\_\_

Name

\_\_\_\_\_

Address

\_\_\_\_\_

City/State/Zip

### SIGNATURE:

\_\_\_\_\_ DATE \_\_\_\_\_

DATE OF TOUR \_\_\_\_\_