

## IRTF SAFETY REGULATIONS FOR OBSERVERS (3/1/01)

The summit of Mauna Kea can be a dangerous place to work. The following is a list of rules designed to ensure that you have a safe visit to the IRTF. Please abide by them.

1. All Visitors should have had a recent physical examination in order to ensure that they are not suffering from heart disease or other conditions that might create problems at high altitude. Consult with the Support Astronomer or the Division Chief if you know of any medical condition which may be affected by altitude. Medication should only be taken at Mauna Kea Observatory (4200 m) after consulting with a physician with regard to the effects of the high altitude.
2. Visitors should familiarize themselves with altitude sickness symptoms listed below and inform the telescope operator if any of these symptoms is experienced.
3. A 4-wheel drive vehicle is provided at the new IfA Hilo building for travel to the Onizuka Center for International Astronomy (OCIA, also known as Hale Pohaku). Use extreme care when driving on the Saddle Road and the summit road. *This is the most dangerous part of your visit.* No one unfamiliar with the Saddle Road is permitted to drive IRTF vehicles. All first-time visitors should arrange to be driven to the OCIA by a colleague who has driven on the road before or make special arrangements with the Support Astronomer.
4. The speed limit between the OCIA and the summit is 25 m.p.h., and 4-wheel drive low (4L) must be used, unless otherwise specified. Visitors who have never driven on Mauna Kea should complete at least two round trips between the Onizuka Center and the summit as a passenger before driving on the summit road. If you are in doubt concerning your ability, please drive under the supervision of an IRTF staff member. Excessive speed or other reckless behavior will result in the suspension of your driving privileges.
5. There are now two lanes of pavement extending down from the summit area for about six miles. Although the smooth pavement makes higher speeds more comfortable than on the dirt road, there are some sharp downhill twists in the paved portion, so make sure you use a low gear, slow speed, and a lot of care while going down this section of the road. All levels of this pavement are prone to icing from freezing fog, or becoming slippery with small amounts of snow. Use extreme caution at all times. All of the vehicles are equipped with snow chains, and they should be used whenever the road conditions are thought to be bad. One of the IRTF vehicles has studded tires, which should help the traction on the ice at low speeds. *Do not bring this vehicle to sea level.*
6. *Visitors are required to arrive at the OCIA 24 hours before observing in order to acclimatize.* Some visitors may find a 48 hour acclimatization period to be necessary for a comfortable visit. Visitors should not work for more than 16 hours continuously at the summit in any 24 hour period.
7. At the end of working all night, it is recommended that visitors sleep at least 4 hours before driving down from the OCIA to Hilo.
8. When driving up or down the summit road alone at night, call the IRTF telescope operator before you start up or after you return to the OCIA.
9. Consumption of alcohol is prohibited on the summit at all times, or anytime within 10 hours before working at the summit.
10. There should always be two or more people with a vehicle at the IRTF when the IRTF is occupied. This is to ensure that help is available in case of an accident. During bad weather conditions, consult with the IRTF superintendent or telescope operator before working at the IRTF.
11. Visitors using IRTF facility instruments do not need to make cryogenic transfers. However, if you do handle cryogenics, note that there is a box on the bench outside the Control Room which houses a face shield and protective gloves for handling cryogenics. Please read the safety pamphlet attached to the dome wall in the cryogen area.

12. Visitors must leave the summit when instructed to do so by the IRTF superintendent or telescope operator. Weather or other hazardous conditions may require summit evacuation. The telescope operator is the final authority in questions about closing the dome or evacuating the summit.
13. The IRTF dome floor and facility roof are designated hard-hat areas. No one will be granted access to these areas without a hard hat.
14. If you find any safety hazards during your visit, please bring them to the attention of the IRTF staff.

### **SAFETY NOTES FOR YOUR BENEFIT**

"RED ALERT SYMPTOMS" (From Forster, see reference below)

Cerebral Symptoms:	Slurred Speech Loss of Coordination Loss of Balance (Stumbling When Walking) Impairment of Vision (Loss of Peripheral Vision) Weakness of Limbs Drowsiness, Confusion, Disorientation Incapacitating Headache "Pins and Needles" (paraesthesiae)
Respiratory Symptoms:	Severe Shortness of Breath at Rest Shortness of Breath When Talking (At Rest) Cough-producing Frothy or Blood-stained Saliva Marked Anxiety Marked Increase in Breathing Rate at Rest (e.g. 30 per minute)
Other Symptoms:	Palpitations Swelling of Hands, Feet, or Face Nausea or Vomiting
Action to be Taken:	Inform the Telescope Operator or the IRTF Superintendent Administer Oxygen (@ 6 Liters per Minute) Descend to Sea Level Seek Medical Attention (Hilo Hospital Emergency Room - Ph: 969-4100) Use Common Sense

***IF IN DOUBT, DESCEND FROM THE SUMMIT  
- ONE OF THE ABOVE SYMPTOMS IS SUFFICIENT -  
THIS MAY SAVE A LIFE!***

The **ONLY** cure for altitude sickness is to descend to lower elevation or to sea level. **If there is no improvement upon descending to OCIA, or if the symptoms occurred at OCIA, evacuate to sea level immediately; go to the hospital.**

References:

- Cudaback, D.D. 1984. Four-Km Altitude Effects on Performance and Health. *Pub Astron. Soc. Pac.*, **96**, 463
- Federal Aviation Regulations*, FAA Part 67, Medical Standards and Certification. Has information on high-altitude medical standards.
- Forster, P.J.G. 1984. Health and Work at High Altitude: A Study at the Mauna Kea Observatories. *Pub. Astron. Soc. Pac.*, **96**, 478.
- Houston, C.S. 1987. *Going Higher. The Story of Man and Altitude.* (Little, Brown, and Co.).