

## **Information for Visiting Cooperative Investigators and ESRL Staff**

1. The purpose of this information is to aid cooperative investigators and ESRL staff in planning for an effective visit to work at Mauna Loa Observatory (MLO).
2. All Cooperative Research Programs at the Mauna Loa Observatory (MLO) are approved through the Director of Observatories, Russell Schnell. In order to undertake a research study at MLO under this Cooperative Research Program, it is necessary to contact Russell Schnell and provide information on the proposed research.

### **Russell Schnell**

Director of Observatories  
303-497-6733 (Boulder, CO, GMT-6)  
Russell.C.Schnell@noaa.gov

3. Complete the online “[Work Visitation Request Form](#)” prior to your visit and/or before shipping large equipment. This form will be used to provide MLO with your contact information and to schedule staff and logistical support. If the form is not completed, additional assistance may not be available, equipment transport to the Observatory may be delayed, special requirements may not be completed, etc. For logistical arrangements and questions on completing the form, contact the MLO Station Chief, John Barnes.

### **John Barnes**

MLO Station Chief  
808-933-6965 (x226)  
John.E.Barnes@noaa.gov

4. Upon arrival at the Observatory, sign our guest book located in the Keeling Building. We have had some interesting visitors in the past including NASA Astronauts and congressmen.

## **Mauna Loa Observatory Information**

Address: 1437 Kilauea Ave. #102B  
Hilo, Hawaii 96720  
Hilo Office Phone: (808) 933-6965  
MLO Site Phone: (808) 933-6928  
Hilo Office Fax: (808)933-6967  
Web site: [www.mlo.noaa.gov](http://www.mlo.noaa.gov)

## General Information

### 1. Car Rental

- a. Most car rental agencies do not allow their vehicles on Saddle road and Mauna Loa Observatory (MLO) Road. When making reservations it should be clearly stated to the rental agency that business needs to be conducted at the Mauna Loa Observatory. This is to ensure that your rental contract and /or your car rental insurance is valid.
  - 1) Avis - allows cars on any paved road; MLO Road is paved all the way to the observatory.
    - a) 1-800-331-1212 (Nationwide)
    - b) 808-935-1298 (Hilo, Hawaii)
  - 2) Harper Car and Truck Rentals of Hawaii - has 4 wheel drive vehicles without driving restrictions.
    - a) 1-800-852-9993 (Nationwide)
    - b) 808-969-1478 (Hilo, Hawaii)
  - 3) National Car Rental - has a special account for Mauna Loa Observatory visiting scientists.
    - a) 1-800-227-7368
    - b) Hilo 1-808-935-0891
    - c) Please contact Connie Craig at (808) 933-6965 ext 221 for initial reservations.
- b. Rental Car Insurance
  - 1) U.S. Government workers on government business do not require rental car insurance.
  - 2) Non-government workers, government contract workers, and foreigners should inquire about purchasing rental car insurance with the rental car agency.

### 2. Driving Directions

- a. Please refer to our website for directions to the MLO office and mountain facility:  
<http://www.mlo.noaa.gov/visitingandtours/directionsandmaps.html>

### 3. Driving Precautions

- a. Fill your car with gas prior to leaving Hilo. There are no gas stations on Saddle road or MLO Road. It is a 90 mile round trip from the Hilo Office to the observatory.
- b. Allow 1.5 hours for drive time between the Hilo office and the observatory.
- c. Use your headlights while driving on Saddle Road and MLO Road.
- d. Drive slowly around blind turns and hills on MLO Road, other personnel or tourists may be traveling up or down the road. Keep your speed below 25 mph on MLO Road.

- e. MLO Road does not have too many shoulders so if you see another vehicle approaching pull off at the next available shoulder. Drive with caution and courtesy and always look ahead for oncoming traffic.

#### 4. Lodging

You may not use MLO as a place for lodging. You must have special approval to do so. A daily fee will be charged if you do to pay for water and power.

- a. Hilo Hotels (Note: When you click on any of the following links you will be leaving the MLO website. You may wish to review the privacy notice on those sites since their information collection practices may differ from ours.)
  - 1) Hilo Hawaiian – 71 Banyan Drive, (808) 935-9361, [www.castleresorts.com/HHH/](http://www.castleresorts.com/HHH/)
    - a) Please contact Connie Craig at (808) 933-6965 ext 221 for initial reservations to receive corporate rate.
  - 2) Dolphin Bay Hotel – 333 Iliahi St., (808) 935-1466, [www.dolphinbayhilo.com](http://www.dolphinbayhilo.com)
    - a) Walking distance to downtown Hilo
    - b) All rooms with kitchen
  - 3) Hawaii Naniloa Resort – 93 Banyan Drive, (800)367-5360, (808)969-3333, [www.naniloa.com](http://www.naniloa.com)

#### 5. Meals and Drinks

- a. There are no restaurants or food available on Saddle Road, MLO Road or at the Observatory. Purchase food, drinks, and water prior to leaving Hilo. Drink plenty of water to prevent dehydration caused by low humidity and high altitude sickness. There is no potable water available at the Observatory.
- b. The Observatory has a kitchen with a refrigerator, stove, oven, and microwave which may be used to cook or warm up your food. Keep the kitchen clean and take your rubbish down with you when you leave the observatory; we do not have a daily rubbish service.
- c. Be courteous and respect other peoples' food stored in the refrigerator and freezer. Take your leftovers with you when you are done visiting the observatory.
- d. There is no potable drinking water at the observatory. The only available water at the observatory is from a catchment tank and it is not filtered or sterilized and is unfit for drinking.

#### 6. Restroom

- a. Use the observatory's outhouse as much as possible. The outhouse is located to the west of the Keeling Building. This is to conserve the catchment's water. Rainfall at the observatory is minimal, and it is very costly to have water delivered.

- b. A sink is available in the NDSC building. Limit the use of the sink and restroom in the Keeling Building; it has a small catchment tank.

## 7. Medical Attention

- a. A First Aid Kit is located in the Keeling Building on the instrument cabinet toward the right rear as you enter the building.
- b. For poisoning or reactions to chemicals, medicines, cleaning products, etc. call the Poison Control Center, 1-800-362-3585, 24 hours, (Kapiolani Women's and Children's Medical Center, 1319 Punahou Street, Honolulu, HI, 96826).
- c. If the person has collapsed or is not breathing call 911. (Dial "9" first to get an outside line).
- d. Closest Hospital
  - 1) Hilo Medical Center – (808)974-4700, 1190 Waianuenue Ave. Emergency room (808)974-6800. Hilo Medical Center is approximately two miles from the MLO Hilo office and 43 miles from the Observatory.
- e. In the event of an emergency, notify a MLO staff member or if no one is available, call 911.
- f. In case you are locked out of the observatory buildings and a medical emergency occurs, there is an emergency phone located at the south east corner of the Keeling building, which may be used to call 911 or the Hilo Office.
- g. High altitude sickness websites: (Note: When you click on any of the following links you will be leaving the MLO website. You may wish to review the privacy notice on those sites since their information collection practices may differ from ours.)
  - 1) [Outdoor Action Guide to High Altitude: Acclimatization and Illnesses](#) by Rick Curtis, Director, Outdoor Action Program, Princeton University
  - 2) [The High Altitude Medicine Guide](#) by Thomas E. Dietz, MD, Emergency & Wilderness Medicine
  - 3) [Adjustments to Altitude](#) can be found on the W.M. Keck Observatory Website
  - 4) [High-Altitude Illness: How to avoid it and how to treat it](#) can be found on the American Academy of Family Physicians Website
- h. Please note that we have an oxygen tank which can be administered in case of an emergency.

## 8. Working Environment at the Observatory

- a. Elevation – The Observatory is at an altitude of 11,145 ft (3,397 m). At this altitude and without time to adjust, hard physical effort can cause some physical difficulty and even illness rather quickly. Review

with your physician any medical problems which might be aggravated by exertion at high altitude. Oxygen is kept at the Observatory for emergencies.

- b. Temperature – ranges from low of -3°C (26°F) to a high of 20°C (68° F).
  - c. Humidity – very low at night often below 10 %. During the day it can range from 20% to 100%. Drink plenty of water to prevent dehydration.
  - d. UV protection – UV radiation is high, use sunscreen, sunglasses, and keep covered with a hat and jacket or long sleeve shirt.
  - e. Hazardous weather – the weather can change quickly. If the weather is turning hazardous, plan to leave the observatory immediately, especially if you do not have a 4 wheel drive vehicle.
    - 1) Lightning – if lightning occurs near the observatory stay indoors or leave the observatory.
    - 2) Hail and [Snow](#) – If hail or snow accumulates around the observatory, drive slowly and cautiously using 4-wheel drive.
  - f. Websites to monitor the weather (Note: When you click on any of the following links you will be leaving the MLO website. You may wish to review the privacy notice on those sites since their information collection practices may differ from ours.)
    - 1) [University of Hawaii Meteorology Department](#)
    - 2) [National Weather Service Pacific Region](#)
    - 3) [Interactive Weather Information Network](#) can be found on the National Weather Service Website
    - 4) [Mauna Kea Weather Center](#)
  - g. National Weather Service Forecast Phone Recordings
    - 1) Hilo and vicinity forecast  
(808) 935-8555
    - 2) Big Island forecast  
(808) 961-5582
  - h. Mauna Loa Eruption – Recent flows from the summit Mokuaweoweo vent and/or north-east rift zone of Mauna Loa have occurred in 1950, 1975, and 1984. The 1984 flow cut the power line to Mauna Loa Observatory and flowed to within a few miles of Hilo, 40 miles from the summit.
    - 1) In case of an eruption, follow the instructions of the MLO Staff. If you will be at the Observatory without any MLO Staff support, read the MLO Eruption Plan located in the Keeling Building.
9. Existing Instruments – Do not touch or use other projects’ instruments or computers.

## **Logistics while working at the Observatory**

1. Mauna Loa Observatory Staff

- a. The observatory is normally staffed with 2 people from Monday through Friday from 9:30 am to 2:00 pm.
- b. The staff is there to perform daily checks, maintenance, calibrations and troubleshoot existing equipment. For questions or assistance to move equipment ask someone on the staff. However, if assistance will be needed throughout the day, please make prior arrangements with the Station Chief so additional personnel can be scheduled to help you or contact the MLO principle observer assigned to your project.
- c. Please inform MLO Staff if you are encountering any problems with the facility.

## 2. Technical Support

- a. MLO has minimal stocks of scientific supplies, and these are tailored to support ongoing programs. Although we will assist investigators in solving problems, it is the investigator's responsibility to be as self-sufficient as possible. It is advisable to bring or ship all the necessary components needed for your project. Although stores in Hilo can supply most common hardware and electrical needs, actually finding them may be troublesome. More sophisticated items probably would have to come by special order from the mainland. It is also advisable to bring your own supplies, i.e. small tools, extension cords, tape, mailing supplies, batteries, etc.
- b. If your project is to remain operating at MLO with the MLO staff overseeing its operations, you must provide a complete set of typed instructions, a set of spare parts, and other operating supplies, etc. During the length of the project it is essential to keep in regular communication with MLO. Keep in mind, your project is a cooperative project and is only one of many for which the observatory staff is responsible. If your project is to be successful, you must take the responsibility of keeping it updated and provide a constant flow of necessary supplies. If at all possible we will arrange for you to present a discussion to the MLO staff of your research and your specific support requirements. This informal group discussion will be especially important if we are maintaining instruments in your absence. The more familiar we are with your program the better we can support it on a day to day basis. We would also appreciate receiving copies of papers and reports that result from your work at MLO.

## 3. Delivery and shipment of equipment

- a. All large and/or heavy equipment should normally be delivered and picked up at the Observatory site on the mountain during the weekdays between 9:30 am and 1:30 pm while MLO staff is present.
- b. The definition for large and heavy equipment is any items that cannot fit pass a standard door frame and/or cannot be safely lifted into and out of a van by two people.

- c. Contact the Station Chief at least 7 days in advance if you want to contract MLO to transport equipment between the Observatory and Hilo. A service fee may apply. All equipment must be able to fit inside a full size van; the Hilo Office does not have a storage dock or area for storing large equipment. MLO personnel are not freight handlers; please make every effort to have large and/or heavy equipment transported directly to the mountain using a freight service.
  - d. Equipment should be delivered and picked up at the Hilo Office during the weekdays between 8:00 am and 4:00 pm while MLO staff is present.
  - e. Fill out the Equipment Delivery and Shipment Section of the “[Work Visitation Request Form](#)” prior to shipping large and/or heavy equipment.
  - f. Small boxes and maintenance items may be sent to the Hilo office. We will deliver such items to the mountain as a courtesy. Please notify the Station Chief or the cognizant MLO project observer prior to sending packages.
4. Storing or disposal of shipping crates, boxes, and rubbish
- a. Ask one of the staff members for a place to temporarily store your shipping containers if you will be reusing the containers in the near future. However, if your project is permanent or indefinite in time frame, arrange to have shipping containers transferred to your home base or dispose of them properly.
  - b. Please take any rubbish you generate down to Hilo with you. Large items, such as shipping crates or large quantities which will overload the dumpster, must be taken to the county landfill located on Leilani Street, one block south of the airport access road. There is a fee for disposal at the county landfill. For more information and times of operation call the Solid Waste Division, Hilo Baseyard at (808)961-8635.
5. Cryogen or Gases
- a. Cryogenics or gases may be ordered through Gaspro, (808) 935-3341, Gaspro's homepage can be found at [www.gaspro.net](http://www.gaspro.net). Gaspro normally makes deliveries to the observatory every 3 weeks on a Wednesday.
  - b. When transferring cryogenic fluids, proper protective clothing (i.e., gloves, face shield or goggles, and closed-toe footwear) should be worn. No sandals allowed.
6. Tools
- a. Please bring your own tools. However, if you need to borrow anything, return it to its proper storage location. If not, you may be charged for a replacement.

7. Work Areas – Link to [Mauna Loa Observatory Complex Map](#)
  - a. Locations
    - 1) Outside areas
      - i. 7.5'x10' concrete slab on east side of visitors building.
      - ii. 1.5'x8' area on concrete wall southwest of NDSC Building.
    - 2) Office Space
      - i. Front section of the AEC Building
      - ii. Hallway or kitchen of NDSC building
    - 3) Contact the Station Chief on availability of work areas or to use other facility areas. Keep MLO Staff work areas clear (i.e. tables in center of Keeling Building and areas in front of existing instruments – all instruments are checked daily).
  - b. Keys
    - 1) If keys are needed for the observatory, make arrangements with the Station Chief to obtain one. Keys will be required if access to the observatory will be outside of normal observatory staff working hours.
    - 2) Lock all doors and turn off the lights before you leave the observatory.
    - 3) Return keys to the Hilo office when you are done with your visit. You may be charged for re-keying the entire observatory site if keys are lost.
  - c. Computer network
    - 1) Link to [MLO Computer Policies for Visitors](#).
    - 2) RJ-45 ethernet hubs are available in the University of Denver building, and AEC building.
    - 3) Please contact Darryl Kuniyuki (808-933-6965 x237, [Darryl.T.Kuniyuki@noaa.gov](mailto:Darryl.T.Kuniyuki@noaa.gov)) for information on network connectivity (e.g., TCP/IP configuration).
    - 4) A guest computer is setup in the back of the Keeling Building, and the AEC Building which may be used to access the internet.
    - 5) Network printer – HP Laserjet 8000N is located in the Keeling building.
  - d. Phone lines – there are phones in every building and in most rooms. Dial 9 first to get an outside line. Long distance calls are not allowed unless you are using a calling card or calling collect.
  - e. Fax – the fax machine is located in the Keeling building.
  - f. Copy machine – single page copying machine is located in the hallway of the NDSC building and in the Keeling building.
  - g. Gate access – Before going up you must get the combination code to open the gate. Contact the station chief for the combination.

8. Power availability

- a. 110 volt, single phase power is available in all rooms and buildings. There are external outlets located next to the visitors building and the NIWA NO2 dome.
- b. If you require a 220 volt outlet or some other special power requirement, please contact the Station Chief so that special arrangements can be made ahead of your visit.