

## **Information for Visiting Cooperative and NOAA/ ESRL Investigators**

The purpose of this information is to aid cooperative investigators and NOAA/ESRL staff in planning for an effective visit to work at Mauna Loa Observatory (MLO).

### **New Projects**

All Cooperative Research Programs at the Mauna Loa Observatory (MLO) are approved through the Deputy Director of GMD, Dr. Russell Schnell. In order to undertake a research study at MLO under this Cooperative Research Program, it is necessary to contact Dr. Russell Schnell and provide information on the proposed research. Download the "GMD Cooperative agreement form from the MLO website at:

<http://www.mlo.noaa.gov/visitingandtours/visitingscientists.html>

Fill out the form and send it to Dr. Schnell.

### **Dr. Russell C. Schnell**

Deputy Director of GMD  
303-497-6733 (Boulder, CO, GMT-6)  
[Russell.C.Schnell@noaa.gov](mailto:Russell.C.Schnell@noaa.gov)

### **Preparing to Visit the site**

After the new project is approved, contact the MLO Station Chief, John Barnes. 808-933-6965 (x222) [John.E.Barnes@noaa.gov](mailto:John.E.Barnes@noaa.gov) for logistical arrangements and questions. For any future visits for maintenance, always contact John Barnes or your MLO primary contact for the project.

Read the rest of this document to assist you in your visit.

Upon arrival at the Observatory, all visitors are required to 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 Mountain 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 Lillian Kamigaki 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.
- f. Do not drive and use you cell phone at the same time. If you need to use the cell phone pull off the road and park.

#### **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 Lillian Kamigaki 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 Waiuanue 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**

**\*\*\*\* THE FACILITY IS A CLEAN AIR SITE, DO NOT USE ANY AEROSOL SPRAYS AT THE SITE. NO SMOKING IS ALLOWED!\*\*\*\***

- 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**

### ***A. 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.

### ***B. 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.

### ***C. 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. 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.

#### ***D. 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.

#### ***E. 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.

#### ***F. 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.

#### ***G. 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) Chin west of Keeling building
- 4) Uchida building between AEC and Groundwinds building.

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).

#### **H. Keys/Gate access**

- a. 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.
- b. Lock all doors and turn off the lights before you leave the observatory.
- c. 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.
- d. 4.)Gate access – Before going up you must get the combination code to open the gate. Contact the station chief for the combination.

#### **I. Computers/Network/telephone**

- a. All computers at the Mauna Loa Observatory must have a type of antivirus
  - b. software installed on the system. Antivirus software and definition files must be updated. If you need an MLO staff to maintain antivirus upgrades please indicate to primary MLO contact or an MLO IT staff member.
  - c. MLO will only provide support for the following operating systems for new systems:
  - d. Windows XP
  - e. Windows 2003
  - f. Windows Vista
  - g. Mac OS X
  - h. Linux
  - i. Modems are not allowed to be connected to a PC, which is also connected to
  - j. MLO's network.
  - k. Dynamic addressing (DHCP) is available. To obtain a static IP addresses please contact Darryl Kuniyuki. You will be assigned a public IP address unless you request to be inside our firewall. If you want to be behind this firewall please contact Darryl for special configuration information.
5. MLO will not be responsible for backing up your system; you are responsible for maintaining your system unless you state in GMD coop agreement that an MLO staff will be doing it. Please indicate if you want MLO staff to apply upgrades, patches, service packs to your system.
  6. It is highly recommended that your system be on a UPS, which you must provide. MLO will not be responsible for damages caused by power surges or lightning



- strikes. Maintaining your UPS's battery is your responsibility unless specified in the coop agreement.
7. Do not use any computers other than your own and the designated guest computers provided. Guest computers are setup in the back of the Keeling Building, and the NDACC Building which may be used to access the internet Do not install any programs on MLO computers without permission from MLO IT staff.
  8. If you borrow anything, Please remember to return it.

### **MLO IT Staff**

*Darryl Kuniyuki: 808-933-6965 (x237)*

*Preston Sato: 808-933-6965 (x236)*

Paul Fukumura-Sawada 808-933-6965 (x223)

### **J. 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.

### **K. Telephone**

- a. 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.
- b. Fax – the fax machine is located in the Keeling building.
- c. Cell phones, At the observatory site Verizon has cellular service. AT&T does not have service at the site, but it is available at the guest parking below the gate. There are many dead zones on the MLO access road and saddle road for all carriers.

### **L. Copy Machine**

- a. A copy machine is in the Keeling building and a single page copying machine is located in the hallway of the NDSC building. Please keep copies to a minimum.