Latitude:	19.54 N
Longitude:	155.58 W
Elevation:	3397 m (11,140 ft)
Time Zone:	HST (-10 GMT)

Temperature

	Day	Night
Average Temperature	9°C (48°F)	5°C (41°F)
Average Min Temp	4°C (39°F)	3°C (37°F)
Average Max Temp	12°C (54°F)	7°C (45°F)

Precipitation and Winds

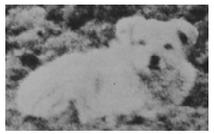
Avg Precipitation	1.5 "/ month
Avg Station Pressure	680 mbs.
Overall Winds	Mostly east and northeast trades
Local Flows	Day – upslope Night – downslope
Avg Wind Speed	5 m/sec (11 mph)
Max Avg Wind Speed	20 m/sec (45 mph)

TIPS AND CAUTIONS

The weather at MLO is generally cool in summer and cold in winter. Strong winds are not infrequent. MLO has high UV levels; even when the air seems cold, one can get sun burnt within a few minutes. Children under 16 years of age and pregnant women should not visit the observatory because of ***potentially severe health hazards for young people exposed to high altitude***. High altitude sickness occasionally occurs at the elevation of Mauna Loa; ***people with heart and lung problems should be aware of the risk and should not visit the site*** since proper medical attention can be severely delayed due to the remoteness of the observatory. Bring your own food and drinks, there are very limited supplies at MLO. Bring a camera with plenty of film, the sights and views are awesome.

Road and Travel

The MLO road begins between mile markers 27 and 28 on the Saddle Road that passes between Mauna Kea and Mauna Loa Volcanoes. Turn south off the Saddle Road onto a single lane road that passes the base of a tree-covered cinder cone, the only one in the area. MLO is 29 km (18 miles) from the Saddle Road cut off. ***Use your vehicle lights when driving on the MLO road*** to alert oncoming drivers. About 1 km (1.5 miles) up and on the MLO road, a white line of dripping paint will appear. Straddle this line and follow it up to the observatory.



For More Information:
Mauna Loa Observatory
1437 Kilauea Ave., #102
Hilo, HI 96720
(808) 933-6965 Fax: (808) 933-6967

Arrangement for Special Tours:
Dr. John E. Barnes, Station Chief
E-Mail: John.E.Barnes@noaa.gov

According to Hawaiian Legend …

Pele, the fiery goddess of the volcanoes in Hawaii, has a white dog that she sends as a messenger to alert the people whenever an eruption was imminent. A white dog was first noticed by the observatory staff during the latter part of 1959 about ½ km below the observatory. Attempts to befriend or capture this mysterious dog, no matter how persistent, failed. The dog for some reason would have nothing to do with the observatory staff. In December later that year, Kilauea Iki, one of the two active craters, erupted and the dog disappeared. The dog would occasionally reappeared and then disappear until 1966. Since then, no one has seen this mysterious white dog.

Photograph by J.D. Griggs on January 10, 1985

The Curse of Pele

Myth: It is known to the locals that he who removes a lava rock, from the sacred ground of Pele , shall receive a trail of bad luck.

Truth: In 1946, tired of visitors taking rocks as souvenirs, a park ranger created the story of the "curse" to discourage the practice.

Fact: Each year Hawaii Volcanoes National Park, and MLO, receives hundreds of rocks in the mail from all over the world with letters asking to replace the rocks upon the mountain from which it was taken. Many rocks are accompanied with letters describing the misfortunes experienced since taking the rocks home.

Powerstones Letters to a Goddess; Publishers and authors Linda Ching and Robin Stephens (1994) ; 754 Ilaniwai Street, Honolulu, Hawaii 96813

Mauna Loa, Earth's Largest Volcano

The Hawaiian name "Mauna Loa" literally means "Long Mountain." Gradually rising to more than 4 km above sea level, Mauna Loa is the largest volcano on earth. Its long submarine flanks descent to the sea floor an additional 5 km, and the sea floor in turn is depressed by Mauna Loa's great mass another 8 km. This makes the volcano's summit about 17 km (56,000 ft) above its base. This large volcano covers half of the Island of Hawaii.

Mauna Loa is an active volcano, having erupted 33 times since 1843. The most recent eruption was in 1984.

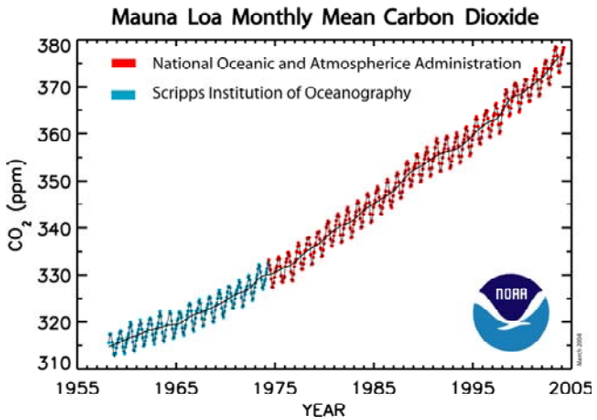
http://hvo.wr.usgs.gov/maunaloa

Les Pajo 04/06

Mauna Loa Observatory

Big Island of Hawaii

A Baseline Observatory of the
Earth System Research Laboratory – Global Monitoring Division
Boulder, Colorado

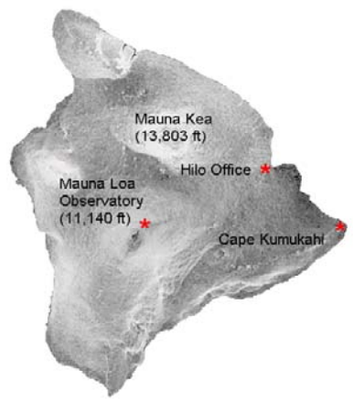


Widely recognized as the "Keeling Curve", the Mauna Loa atmospheric CO_2 concentration measurements taken since 1958 constitute the longest, continuous record of atmospheric CO_2 available in the world.

Monitoring Atmospheric Constituents That Can Change The Earth's Climate

http://www.mlo.noaa.gov

http://www.esrl.noaa.gov

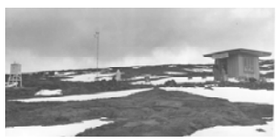


Phone: (808) 933-6965 Fax: (808) 933-6967

MAUNA LOA OBSERVATORY

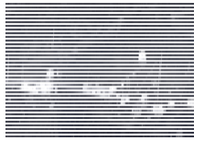
Mauna Loa Observatory (MLO) is a just one of five baseline stations for the Earth System Research Laboratory (ESRL) Global Monitoring Division (GMD) of the National Oceanic and Atmospheric Administration (NOAA). GMD's main mission is to conduct research related to atmospheric constituents that are capable of forcing change in the climate of the earth's environment, for example greenhouse gases and aerosols, and those that may cause depletion of the global ozone layer. GMD accomplishes this goal primarily through long-term measurements of carbon dioxide, carbon monoxide, methane, nitrous oxide, surface and stratospheric ozone, halogenated compounds including CFC replacements, aerosols, and solar and infrared radiation. The other baseline stations maintained by GMD are located at South Pole, Antarctica; Pago Pago, American Samoa; Barrow, Alaska; and Trinidad Head, California.

MLO started off as a small "summit" meteorological station located just below the upper rim of Makuaweoweo crater in 1951. In 1954 observations were discontinued because of the extreme difficulty in traversing the trail to the summit. In June 1956, the U.S. Weather Bureau erected the current observatory at the 11,140-ft (3397m) level with living quarters for the scientists who spent successive days at the site. Today, the scientist maintain a rotating schedule to make the daily 3-hour round-trip up to the observatory. The MLO site is considered one of the most favorable locations for measuring undisturbed air because of its remote location and its minimal influences of vegetation or human activities, and thus is ideal for MLO's purpose to monitor constituents in the atmosphere that could cause climatic change.

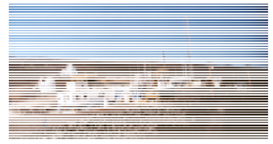


"Summit" Observatory - 1951

Observatory Building in 1957



Observatory 1975



Observatory 2000

South Pole, Antarctica

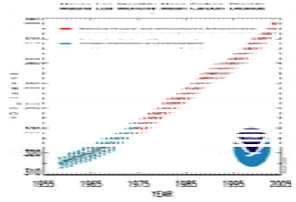
Pago Pago, American Samoa

Barrow, Alaska

Trinidad Head, California

Dr. Charles David Keeling

and the *"Keeling Curve"*



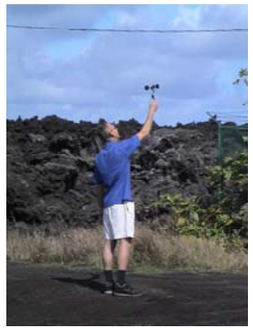
The increase of carbon dioxide gas (CO_2) in our atmosphere has been measured at MLO continuously since 1958 and follows an oscillating line known as the "Keeling Curve", named after the late Dr. Charles David Keeling, professor at Scripps Institution of Oceanography. The widely recognized "Keeling Curve" represents the longest, continuous record of atmospheric CO_2 concentrations available in the world. Dr. Keeling was the first to report that global atmospheric concentrations of carbon dioxide are rising.

During the day, leaves from the plants absorb sunlight to take up CO_2 from the atmosphere in a process called photosynthesis. At the same time plants, animals, and soil microbes consume the carbon in organic matter and return CO_2 to the atmosphere during respiration. During winter in the northern hemisphere, photosynthesis ceases when many plants lose their leaves, but respiration continues. This condition leads to an increase in atmospheric CO_2 concentrations during the northern hemisphere winter. With the onset of spring, however, photosynthesis resumes and atmospheric CO_2 concentrations are reduced. This cycle is reflected in the monthly means (blue and red curves) of atmospheric carbon dioxide concentrations shown in the above graph.

Global Monitoring Division is comprised of groups each tackling different, yet related, aspects of the climate change issue.

The Aerosol and Radiation Group studies the behavior of atmospheric aerosols and radiation. The goals of this regional-scale monitoring program are to characterize means, variability, trends of climate-forcing properties of different types of aerosols, and to understand the factors that control these properties.

Dust and Air Pollution From Asia March 29, 1995



The Carbon Cycle Greenhouse Gases Group makes flask sample measurements from land and sea-surface sites, aircraft, and continuous measurements from baseline observatories and tall towers. These measurements document the spatial and temporal distributions of greenhouse gases and provide essential information to our understanding of the global carbon cycle. GMD also uses inverse models to determine global sources and sinks of carbon dioxide.

The Ozone and Water Vapor Group conducts research on the nature and causes of the depletion of the stratospheric ozone layer and the role of stratospheric and tropospheric ozone and water vapor in forcing climate change. This mission is accomplished through long-term observations and intensive field programs that measure total column ozone, ozone vertical profiles (ozonesondes and umkehrs), ground level ozone, and water vapor vertical profiles in the upper troposphere and stratosphere.

Halocarbons and other Atmospheric Trace Species Group has a mission to quantify the distribution and magnitudes of the sources and sinks for atmospheric nitrous oxide and halocarbons, that include the chlorofluorocarbons, chlorinated solvents, methyl halides, halons and other important ozone-depleting and greenhouse gases. Ground-bases stations, towers, ocean vessels, aircraft, and balloons are utilized to accomplish the mission. The group also conducts measurements at sea to determine the concentrations of halogen gases, both in the air and sea, at the surface of the global oceans.