

Mauna Loa Observatory Field Trip

Wednesday February 23, 2011

Departure time: 8:00 AM

Return: 1:30 PM

What to bring:

Camera

Shades

Warm jacket or sweater

Water bottle or drink

Snacks

Notebook and pencil

Money for lunch on the way back

High altitude sickness (headache and nausea) is common at MLO. Advil® or Tylenol® will help

Pre visit

Go to:

http://www.esrl.noaa.gov/gmd/obop/mlo/programs/search_pages/search_all.html

find two research projects currently under way at MLO. Read them....make notes and locate the instrumentation when we visit. Be prepared to share you findings with the class while we are at the observatory.

Post-visit summary

Write a descriptive narrative that includes the following topics we will experience while visiting MLO:

Bronze sign dedication, CO₂ analyzer calibration (370 ppm), IR reading analyzer (heating of CO₂), CO₂ hangs around for 2,000 years, flasks sent to Boulder climate modelers, EPA measuring Hg in clean air, O₃ analyzer in small dome (compares UVA/UVB), surface O₃ better than satellite (window clouds on satellite), '86 British scientist 40% drop in O₃. Chlorine from CFCs attack O₃, '96 Montreal Protocol, CO₂ from coal, oil, and natural gas, shadow band radiometer (UV up, O₃ down), 385 ppm, 280ppm naturally before Industrial Revolution, 100,000 year cycle (280-180-280-180), ice cores 1 million years of atmosphere (8 cycles), 1990 Kyoto (1 now 1.25), water evaporating more because of heating, CH₄ has an 8 year cycle so it has leveled off (changes to water), LYDR green laser (measures location of particles in stratosphere – $d = s \times t$)