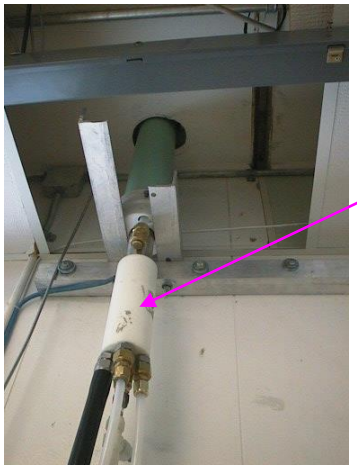
Mauna Loa, Hawaii (MLO)

At MLO, the sampling stack is cantilevered away from the tower so that the stack can go through the building roof while the tower attaches to the ground. The access port is 4-5 feet above the roof and can be reached by standing on the roof w/o climbing the tower.

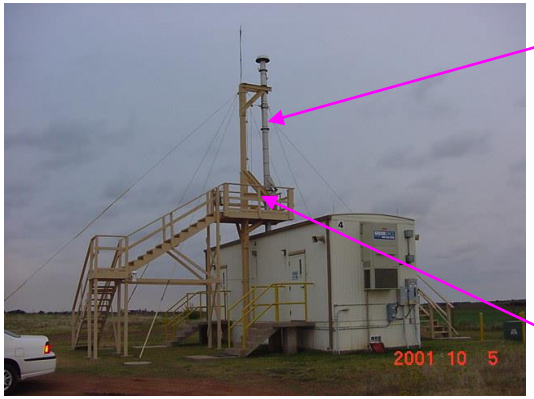
The heater section of the sampling stack goes through the roof of the lab at MLO to the interior. The Vaisala T/RH probe is circled.



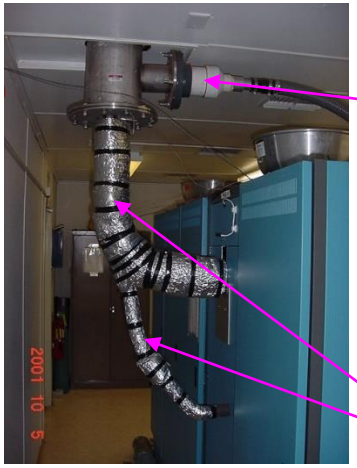
Better view of what comes through the ceiling to the flow splitter. Waterproofing is the key for roof penetration installations.

Excess stack flow tube going to pump box outside building. Tower base is bolted to a concrete pad.

Southern Great Plains, Oklahoma (SGP)



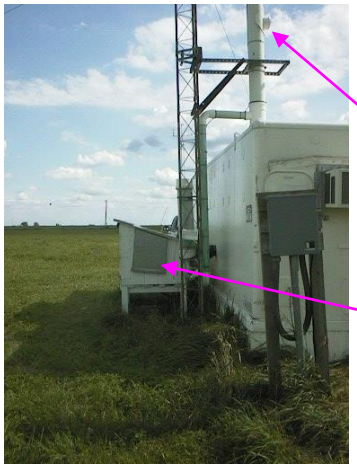
At SGP, the sampling stack is built of stainless steel and breaks in the middle. The top half can be raised/lowered with a winch. The access port is easily accessible from the work platform. This is much nicer than a basic installation, but is also much more expensive.



Excess stack flow tube. The pickoff for excess flow can be either inside or outside the building. Air goes to blower in pump shed outside trailer.

Insulated sampling lines.

Bondville, Illinois (BND) – Old Trailer

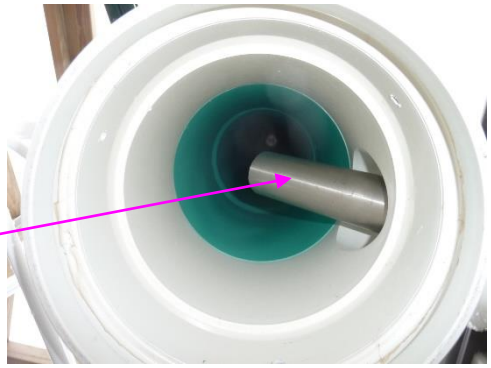


At BND, the sampling stack is cantilevered as at MLO and enters the trailer roof. The access port is easily accessible from the top of the trailer w/o climbing the tower. Excess stack flow is routed to the external pump box. BND has experienced some water leaks with the roof penetration inlet.

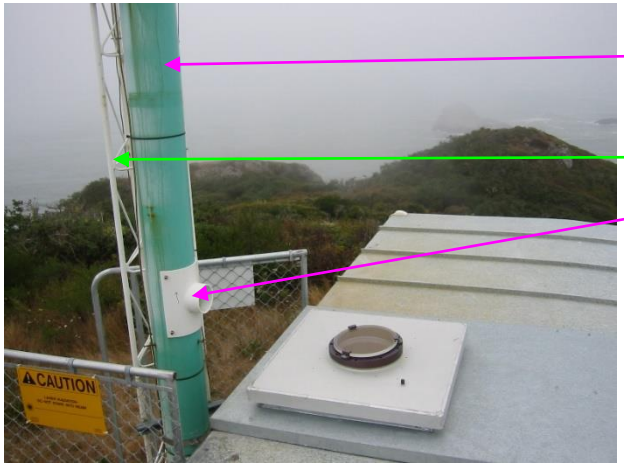
Pump exhaust filter, one of several styles we have used. Our newer pump boxes employ a commercially available filter.

Bondville, Illinois (BND) – New Building

In 2017, the aerosol system at BND was moved to a new building. This required a side wall penetration for the sampling inlet. Excess flow is pulled from the bottom of the stack tube by a blower in the pump box. The sample inlet tube picks off flow from the stack through a tube oriented at 45 degrees to the vertical stack. The sample inlet tube terminates in a flow splitter (shown wrapped in insulation) that delivers flow to various instruments. The flow splitter can be either inside or outside the building, but it is easier to service inside the building.



Trinidad Head, California (THD)

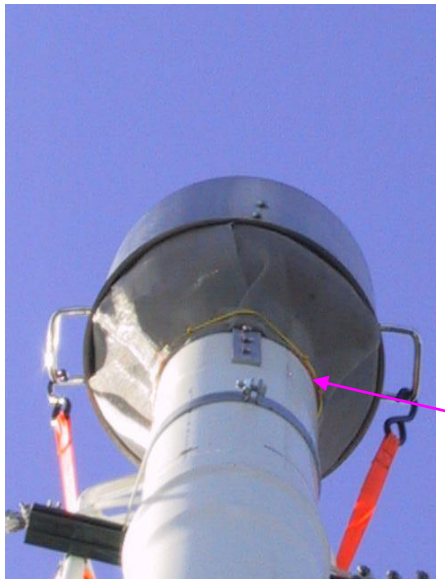


At THD, the sampling stack is attached directly to the triangular met tower. The access port is ~18 inches above the level of the trailer roof. The sampling lines at THD enter the trailer from below, and the excess stack flow line goes to the pump box which is below the trailer.

Met tower base bolted to concrete pad. Roof mounts are available. Note that the tower base has hinges so that it can be tipped if necessary.

Cape San Juan, Puerto Rico (CPR)

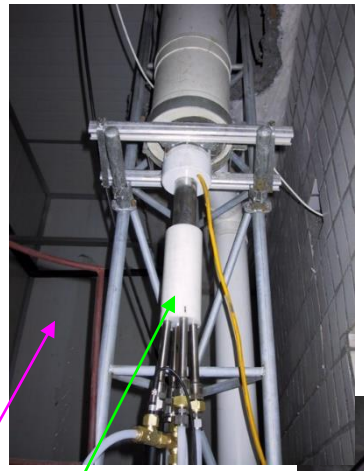
CPR is one of our most basic installations. The lab is a 6 ft x 8 ft wooden shack. The sampling stack is attached directly to the tower and the sampling lines enter the building from the flow splitter through the side wall. Having the flow splitter outside the building requires more attention to check for leaks, corrosion, damage from winds, etc. The access port is easily accessible from the work platform.



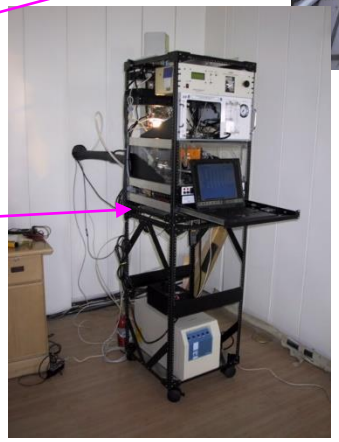
Stack rain cover with stainless steel insect mesh.

Mt. Waliguan, China (WLG)

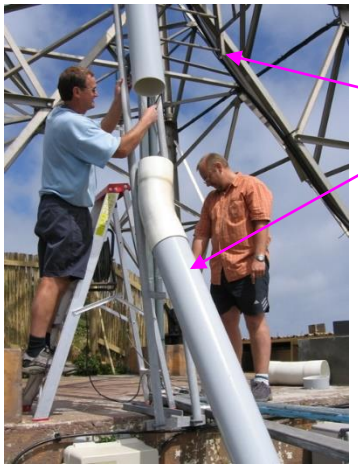
At WLG, the sampling stack was built by our Chinese collaborators and penetrates the roof. The access port is just above roof level. The unique thing about the WLG installation is that they have a double exterior wall on their building, which means that the stack can be serviced from a weatherproof corridor. Pumps are also located in this corridor outside the lab.



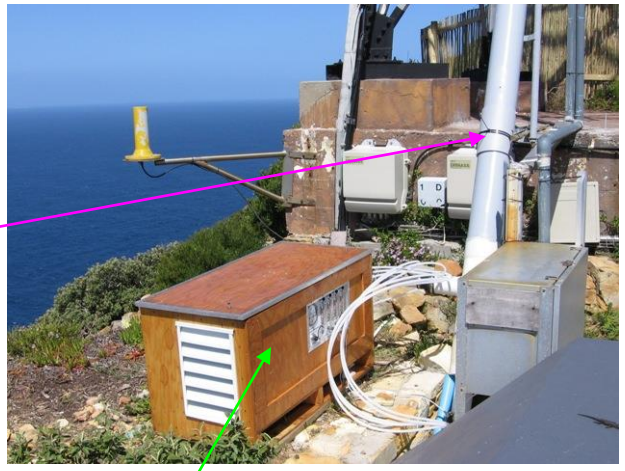
Sampling lines exit the flow splitter and go through the lab wall to the instrument rack.



Cape Point, South Africa (CPT)



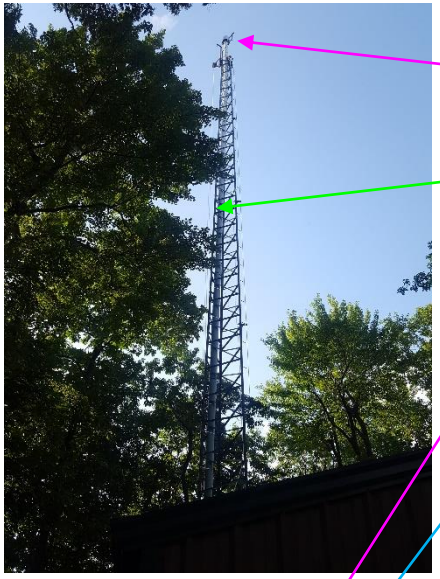
At CPT, the sampling stack is attached to a very tall (60m) tower. The stack has been tilted slightly for an easier entrance into the roof of the laboratory. The access port is easily accessible from the ground (the laboratory was built into the mountain).



The end of the heater section, with the flow splitter, is all that shows on the inside of the laboratory.

Spare sampling lines and pump box.

Boone, North Carolina (APP)



APP also has a very tall tower with an inlet at 34m above the surface. The sampling stack is attached directly to the tower. APP uses a 45-degree side wall penetration to get the sampling tube into the building. The access port is accessible from the ground using a ladder. The excess flow line drops down from the stack inlet line to the pump box in this configuration. The end of the heater section, with the flow splitter, is visible on the inside of the laboratory. Excess flow lines (white) and the main sampling line (black) are inside the building.