



# From the AIR PROGRAM

## EMO has a New PM<sub>2.5</sub> particle pollution monitor!

After many months of planning, research, and coordinating the sharing of information with our neighboring Air Quality programs in the Owens Valley, the Bishop Paiute Tribe purchased and installed a monitor for the measurement of PM<sub>2.5</sub>, or particulate matter of diameter size up to 2.5 microns. PM<sub>2.5</sub> is a *criteria pollutant* regulated by US EPA (who provided the funding for the monitor), which can contribute to a number of health effects with exposure. The body of academic and medical literature linking PM<sub>2.5</sub> pollution or exposures with adverse health conditions including cardiovascular, inflammatory, brain function impacts, immunological deficiencies, premature deaths and birth defects continues to grow every year.

In July (after the 4th!), we took down the old monitor, which had been in service for the Tribe for over a decade and a half! This older monitor worked by converting an oscillation frequency, changing as dust and smoke are loaded onto a balancing filter, into a volumetric concentration, accounting for potential volatilization of the very small particles with changes in humidity and temperature. A suite of specialized components and corresponding services was required for this process.

The new monitor, installed in July on the platform next to the PM<sub>10</sub> monitor, measures particles by light spectroscopy, where particles of different sizes scatter (LED sourced) light in measurable quantities of intensity. The particles are in the ambient sample air pumped in at a low volumetric flow through a conditioner into the instrument. This technology is a newer EPA certified and approved method of measuring PM<sub>2.5</sub>. Because of the methodology, the monitor can also measure different sizes of particles, up to 10 microns. The Air Program is working on making the data available for public viewing online.

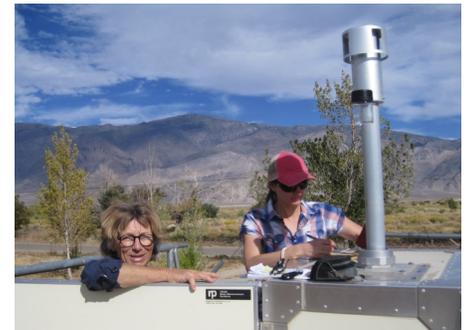
For more info contact the Air Program at 760-784-9308

Below: the monitor and display screen.

Right: The project required a precise modification to the outdoor enclosure to correctly position the new monitor sample tube, Brian Adkins, EMO Director pictured.



Right: The outdoor enclosure after the first stage of modification was completed, ready for weather sealing, and then the replacement monitor, on the monitoring platform, next to the PM<sub>10</sub> monitor.



Above: Seeing the set up for the same model at Lone Pine Paiute-Shoshone Reservation in fall 2019, and discussing the enclosure modifications, the operations, and of course, the weather (it was HOT!) April Zrelak, LPPSR Air Quality Specialist and Emma Ruppell, BPT Air Quality Specialist pictured.

