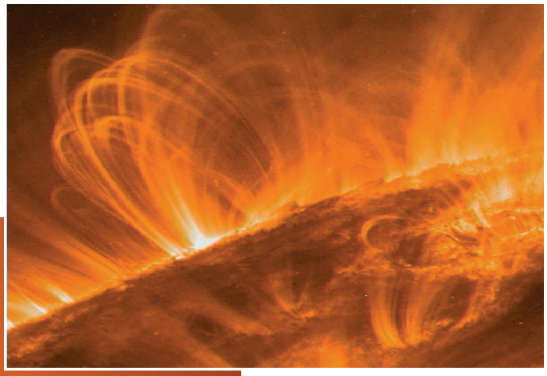



# Presenting the Improved

## Met One Instruments' Naturally Aspirated Radiation Shields

Met One's well established naturally aspirated radiation shields for ambient temperature and relative humidity measurements just got better. They have been redesigned for better performance in high solar radiation compared to the previous model.

Naturally aspirated radiation shields are convenient and efficient for use as low cost solutions when power consumption is limited, as they require no power. There were some well-known issues with the previous models of metal shields. As the shields heat up from increasing solar radiation, the air inside the shield also warms up and heats the air inside around the sensor. Temperature readings can measure higher than the true ambient temperature during periods of low wind speed, as wind is what is used to "naturally" aspirate the unit with fresh ambient air.







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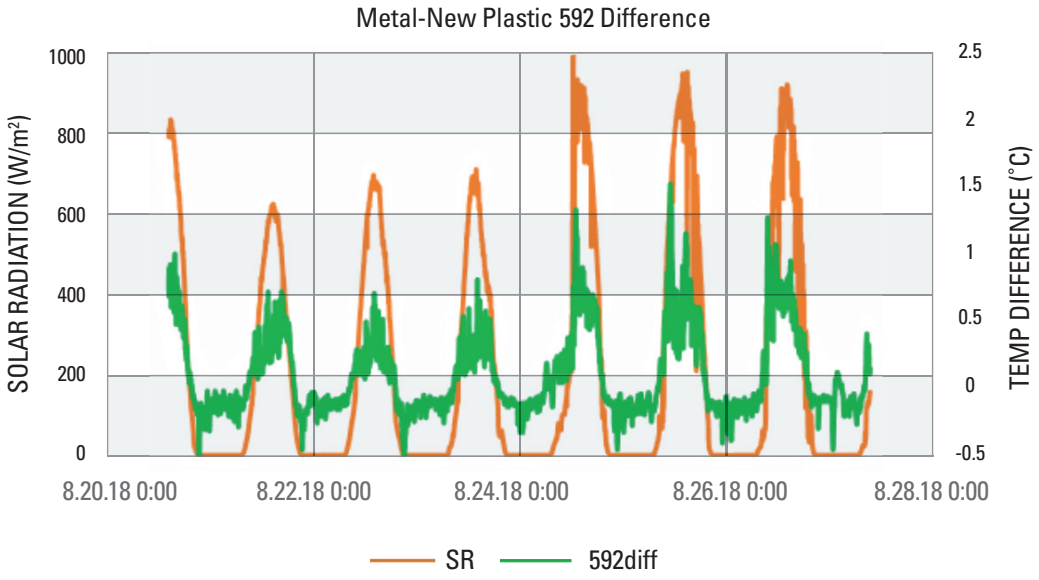
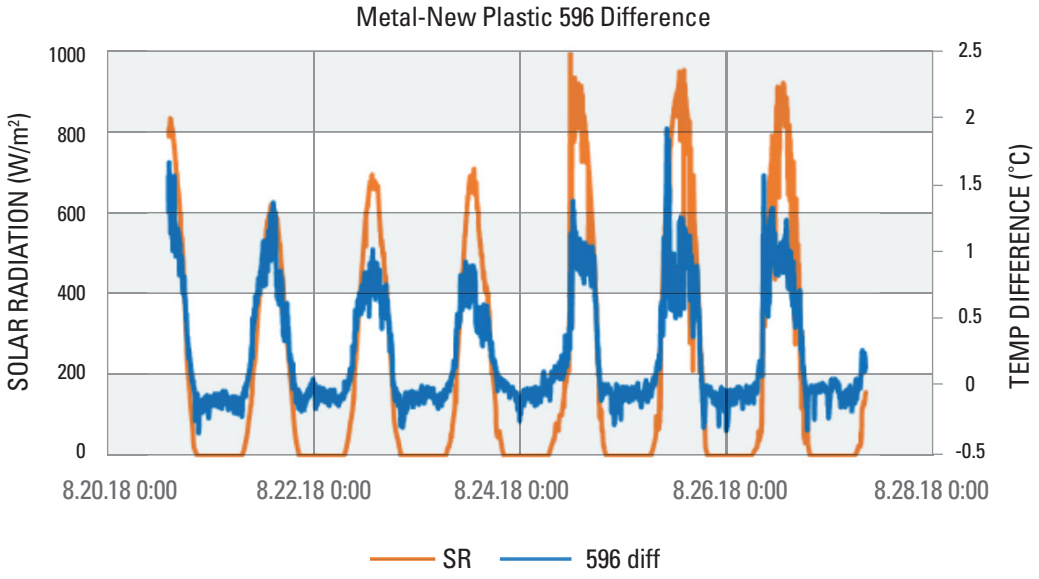
## Keep Sensors "Cooler"



Met One Instruments BX-592 is an ambient temperature sensor and our BX-596 is an ambient temperature/pressure sensor, both of which are housed within naturally aspirated radiation shields. The improved shields have been engineered with new UV stabilized thermoplastic material and new design with more plates for improved performance. This new design keeps the sensor "cooler" than the previous metal design, as illustrated in the graphs below. This graph of field test data is proof of the efficiency of the new improved design, radiational heating is reduced.



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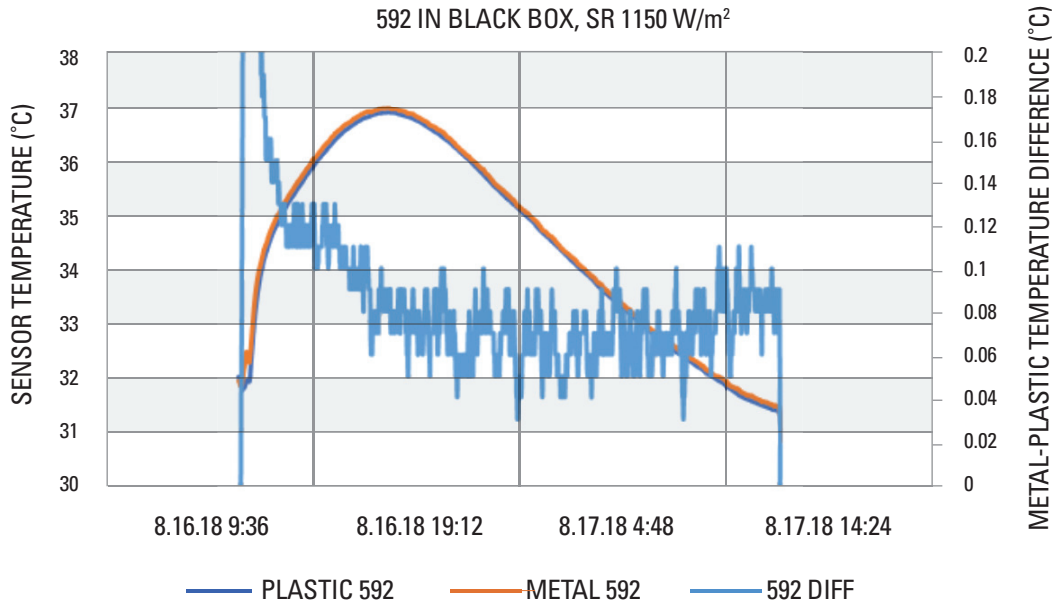
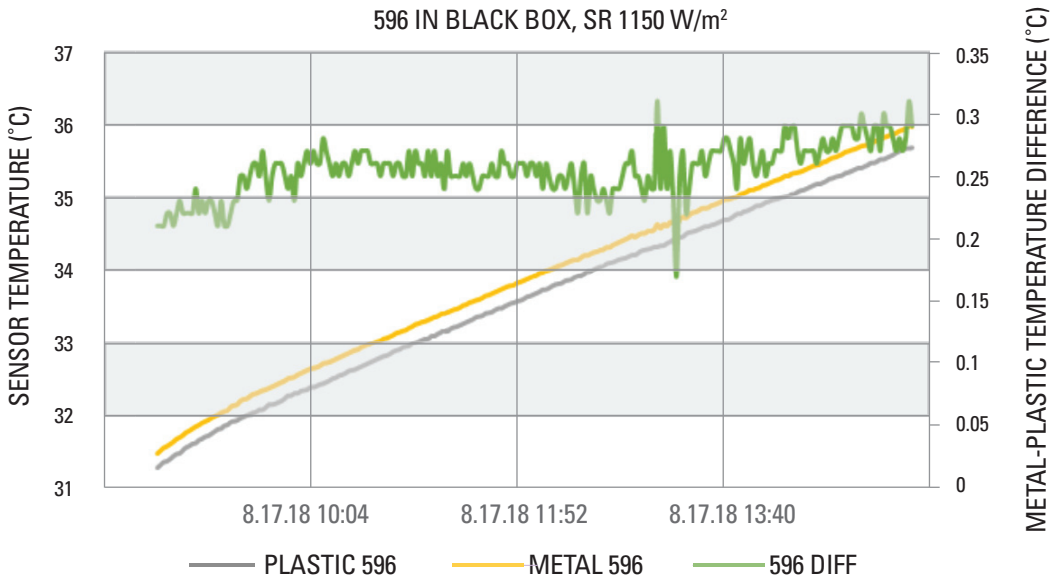
## Absorbs Less Radiation

The daytime solar radiation at the test site was not as high as it could have been due to nearby wildfires. Therefore both the new plastic and old metal design shields were each subjected to 1150 W/m2 in a radiation box. The plastic radiation shields still measured slightly lower, proving the new material absorbs less radiation.



The temperature difference between the naturally and fan aspirated radiation shields decreases with increasing wind speed. The graph below shows the temperature difference for each of the new and old naturally aspirated radiation shields from that of the fan aspirated 076B for solar radiation levels >400 W/m2. The temperature differences have been averaged over 0.5m/s bins to simplify the graphed results. It can be seen from the graph that the new plastic shields have a smaller difference than the metal shields at higher wind speeds. This is further proof of the efficiency of the new improved design.

## Conclusion

**Met One Instruments new radiation shield minimizes the radiational heating reaching the sensor, minimizes the radiation absorbed by the shield, and maximizes airflow around the sensor. Our newly designed radiation shields have improved accuracy and are proven to perform better since the new material absorbs less solar radiation and the new package accommodates more airflow around the sensor.**