*Abstract* – A variety of sensors are studied on a one-axis tracking surface and a horizontal surface in Golden, Colorado and Eugene, Oregon. This is the first year of a long-term study that will look at not only a comparison between the instruments but will also the longer-term degradation in calibration and/or performance. Initially, results from each location will be analyzed, and then the results will be compared between the two locations. A quick comparison at Eugene indicates that reference solar cells yield irradiance values closer to a secondary standard thermopile pyranometer values on a one-axis tracker than photodiode-based pyranometers, especially at large solar zenith angles. More study is needed to characterize and specify this finding.

*Index Terms* – irradiance, POA, one-axis tracking, reference cell, pyranometer.





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