In order to evaluate satellite and cloud cover models, it is useful to understand the short-term variability of solar radiation. This article examines at the variability of beam and global solar radiation over short time intervals. First, 5-minute data are compare with data collected 5 and 15 minutes later. Second, data collected during the middle 5- minute period of an hour are compared to hourly average data. These data comparisons show a 'Nugget Effect' similar to that observed when verifying satellite modeled solar radiation values with ground-based data.