

Images from the GOES 8 satellite were used along with auxiliary information such as snow cover to produce an hourly solar radiation database on a  $0.1^\circ$  grid for the Pacific Northwest from 1998 through 2002[1]. Both global and beam irradiance values were derived from the satellite images and diffuse values were calculated from the beam and global values. Data from the University of Oregon Solar Radiation Monitoring Network were used to help refine and validate the model used to produce the database from the satellite images.

This article presents new and independent tests of this satellite database from one year with high quality data from Kimberly, Idaho that was not used in the original development and testing of the satellite model. The mean bias error of the satellite-derived global and beam irradiance values were 5 and 2% respectively. The standard deviation ranged from 22% for global values to 41% for beam values. The largest discrepancies occur on clear winter days when it is difficult to distinguish between frost or snow on the ground and low lying fog or clouds. It is suggested that ground-based measurement or visibility measurements are needed to augment the satellite cloud cover and snow cover data to reduce errors that can occur during cold winter days.