A method has been developed to estimate IR radiative losses using solar radiation and meteorological data without the need for pyrgeometer data. The modeled IR radiative losses are not as accurate as that obtained using pyrgeometer information, but 95% of the modeled IR radiative losses are with a few W/m^2 of the actual IR radiative losses. Currently this method is limited to having a least some period when pyrgeometers measurements are available. More testing and evaluations are needed at a number of locations to test the general applicability of the model developed.