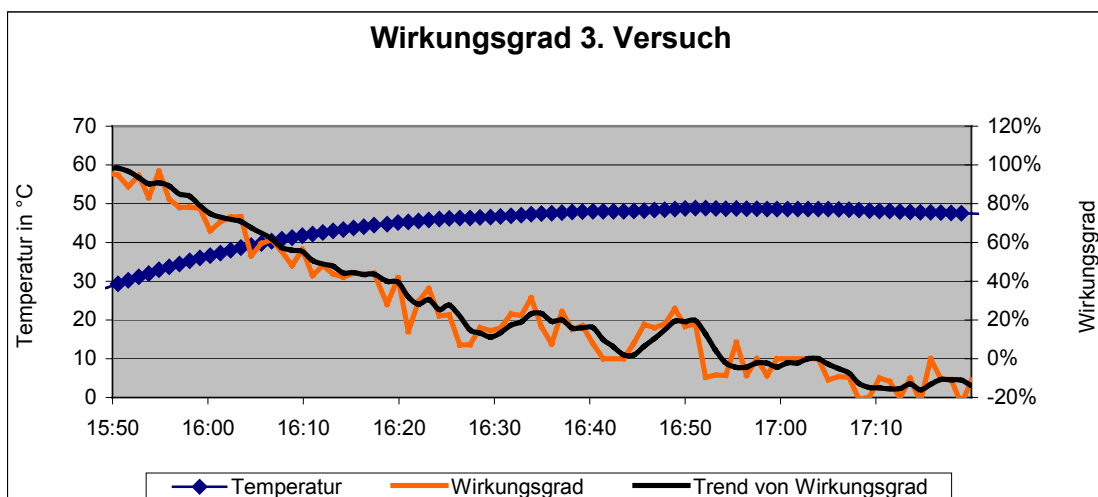
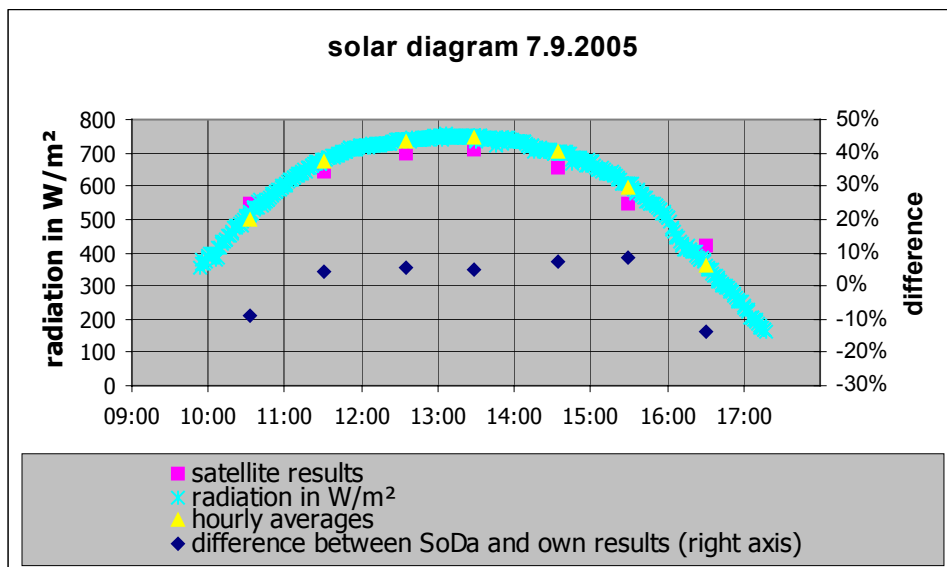
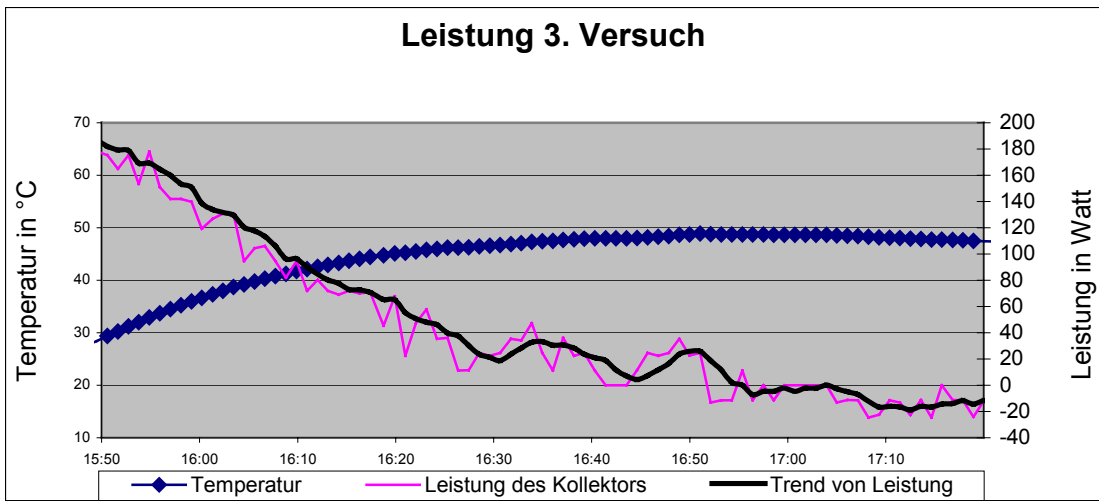


Summary – Sebastian Kranz, 11 February 2006

This dissertation is about the use of solar energy for heating purposes. To include everything, it is mentioned how solar energy arises, its way to earth and how to record it. In the practical part the main target was to gain the degree of effectiveness of self-made solar panel (no photovoltaic). Therefore it was necessary to take solar radiation measurements in addition to temperature measurements at the same time. So measuring instruments were constructed in order to get realistic results. Wiring diagrams have been drawn or taken from the internet. By applying the PC, a photodiode, a 1-wire panel a solar cell and temperature sensors, results for solar radiation and temperature have been determined simultaneously. To have a professional reference providing more exact results, a French institute for research on solar radiation has been consulted. Professor Lucien Wald provided eagerly results from HelioClim2, a weather satellite. With all those results momentary power and effectiveness of that solar panel have been worked out. Power ranged from 0 to 200 W and effectiveness from 0 to 90%. Average results at the three experiments were 16,2%, 33,5%, 39,8%.





It was impossible to change the two German diagrams into English, so here are some explanations:

Wirkungsgrad = degree of effectiveness

Leistung = power

Versuch = experiment

Kollektor = solar panel

Last picture is the wiring diagram of the 1-wire panel

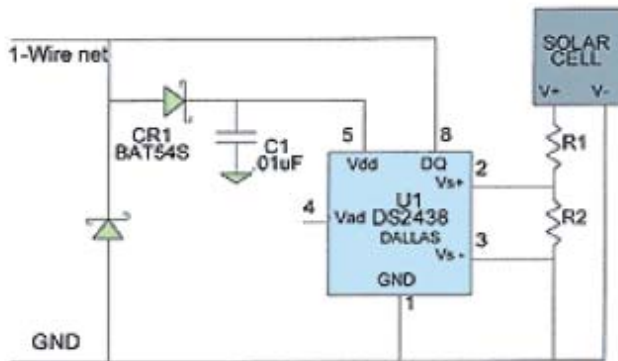


Figure 4. In a photovoltaic cell-based solar radiance sensor, R1 and R2 form a voltage divider to keep the voltage seen by U1 within its maximum range.

This is just a short summary and few pictures and diagrams to show the most important facts of my dissertation.