

## ***Abstract***

Solar radiation is the most important energy source on the Earth. The intensity of the solar radiation isn't constant. It varies over time due to the various processes on the Sun. Measuring the solar constant allows us to examine these changes and consider their possible influence to the Earth's global temperature. Global temperature is derived from many temperature measurements from stations around the world and it grows over the last few decades.

This diploma thesis deals with the proces of satellite-based measuring of solar constant, which started in 1980's. Various instruments on the Earth's orbit provide slightly different results. Potential sources of this difference are examined at some length. The difference is mainly due to design dissimilarities of used instruments. Aside from the diference, there is a suggestion of a positive trend in solar intensity over the last few decades, but it's not sufficient to explain the supposed increase in the global temperature. The second main part of this diploma thesis is dedicated to determining the average global temperature including specific limiting factors of this process. These factors are for example insufficient distribution of measuring stations, inhomogenity of the datasets, urban warming, etc. The last part of the thesis shows how the variations in solar irradiance may influence the Earth's climate.