

Weather forecasting, especially air temperature prediction, is important in many areas of human activity, from agriculture through the energy industry to air transport. This bachelor thesis describes successively different tasks which are behind the weather forecast, with an emphasis on the air temperature prediction. A brief overview of the weather forecasting history, from subjective methods to objective methods, is provided at the beginning of the work. A description of the air temperature measurement for the subsequent use in numerical models is also provided. Following part of the thesis deals with the prediction of the air temperature, from the description of the temporal cycles of the surface and air temperature, through the description of atmospheric dynamics and various physical processes, to the comparison of the air temperature determination in the frequently used numerical atmospheric models. The last part of the thesis focuses on the weather forecast verification and statistical evaluation of the air temperature prediction quality using data from the numerical model ALADIN. In relation with aviation meteorology, the work discusses the impact of air temperature on aviation safety.