This thesis provides an overview of methods used for determining the baseflow as one of the essential components of Water balance. Knowledge of the baseflow is important for determining the size of natural groundwater resources, as it gives valuable information on the possibilities of their exploitation. The thesis provides an overview of the historical development of the methodology in this field. Selected methods are compared based on the difficulty of their application, data input requirements and the quality of outputs. Several case studies dealing with the application of selected procedures are presented. Furthermore, the Kamenice river basin is presented as a pilot area. Based on its natural conditions and the form of available data inputs from the Hřensko measurement profile, a suitable method for calculating the baseflow is chosen and applied.