Use of remote sensing for snow water content determination

Abstract

The aim of this diploma thesis is an integration of remote sensing to snow water equivalent measurement in Czech Republic conditions. The summary of present information of snow parameters retrieval is presented. For snow water equivalent obtaining, radar differential interferometry technique was chosen. The technique was carried out with seven ERS-2 radar images. The result of processing was finished after coherence images creation because of low coherence value at all interferometric pairs. The low coherence values did not enable next processing. Terms of the negative result are discussed. In the second part of the thesis, connection between snow characteristics and radar backscattering is searched. Dependence between snow moisture and backscattering is demonstrated. Factors, which impact values of backscattering and correlation with snow parameters, are discussed. In order to obtain snow water equivalent, the processing of remote sensed data was carried out for the first time in Czech Republic region. Therefore the negative result is still valuable information.

Keywords: snow cover, snow water equivalent, remote sensing, radar interferometry