# The Use of Spot-Vegetation Imagery to Study the Spatiotemporal of the Snowy Cover in the High Atlas of Marrakech

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The Moroccan High-Atlas mountain range represents important water storage for the neighbouring arid plains. It is the case of the Haouz plain, in the region of Marrakech, where waters resources are intensively exploited for agriculture and tourism. Sustainable water management is a priority for the regions authority and requires a good understanding of the processes and variables involved in the water cycle. The contribution of liquid and solid precipitation to the runoff of the Tensift main subbasins is of particular interest. In this context, we used a 7-year time series of SPOT-VEGETATION images to map snow cover in the High Atlas. The spatial and temporal variations of the snow covered area in the High Atlas as well as in the five main tributary basins of the Haouz plain are analyzed by altitudes and aspects. These variations are confronted with the available ground data (Precipitation, temperature and Runoff). This study demonstrates how remote sensing techniques can be used for long-term observation of snow covered area and analysis of it's inter and intra annual variability in regions where the meteorological observation network is insufficient. The potential of these data to study the hydrology of semi-arid region is also underlined.

Key words: High-Atlas, snow, remote sensing, SPOT-VEGETATION, snow index, nival hydrology.