

Land cover classification in the Argentine Pampas using multi-temporal Landsat TM data

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The objective of this study was to explore the use of multi-temporal Landsat TM data from the same growing season for the classification of land cover types in the south-western portion of the Argentine Pampas. Investigations were made on how many dates are necessary to obtain an accurate classification and, given a fixed number of dates, which is the particular combination of dates that yield the best results. Additionally, the effect of using the NDVI instead of all the bands available on the classification accuracy and the use of a moving window filter over the classified image were tested. Scenes acquired in spring, early summer, late summer and early fall of the 1996–1997 growing season were used. Land cover information for the same period was collected from farms and ranches and this information was included in a GIS. Supervised classifications were performed using all the 15 possible ways to combine the four dates. At least two scenes are needed for a satisfactory classification. These scenes must embrace the shift between winter and summer crops (i.e. one spring and one summer image). Using the NDVI instead of Landsat TM bands 3, 4 and 5 increased the biological interpretability of the results but caused a decrease in accuracy.