

Geomorphology of the Ódáðahraun semi-desert, NE Iceland; a Landsat TM - based land cover mapping

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Abstract – *This research reports investigations on land degradation processes in the Ódáðahraun region, northeastern Iceland, using land cover classification based on Landsat TM satellite data and field studies. The main objective is to increase understanding of the geomorphological features and processes, and their relation to land degradation in the study region. A floating Landsat TM quarter scene from July 1992, covering an area from the northern margin of Dyngjujökull to Öxarfjörður, was subjected to unsupervised Isodata clustering. Extensive field checks with detailed descriptions of various land-cover types allowed subsequent analyses of the classification resulting in 19 land cover classes in three surface categories: lavas, sediments and miscellaneous (including vegetation, snow, ice, etc.). The image interpretation also revealed several sediment bodies, which may indicate the characteristics of the geomorphological processes operating in the region: 1) the elongated SSW–NNE oriented aeolian sand stretches in the western half of the study area, and 2) the distinctive flood deposits along the Jökulsá á Fjöllum course, demonstrating the magnitude of the past catastrophic jökulhlaups (glacial outburst floods). The presented land cover classification will serve as the basis for planning and focusing future investigations on the past and present geocological processes operating in the region.*