High resolution remote sensing in study of tundra vegetation responses to reindeer herding, anthropogenic disturbances and climate change on Nenets and Yamal peninsula.

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Tundra vegetation responses to reindeer herding, anthropogenic disturbances and climate change on Nenestia and Yamal peninsula is studied using very high resolution satellite images (Quickbird-2). Two districts in northwest Russia - Nenets Autonomous (NAO) and Yamalo-Nenets Autonomous (YNAO) contain Russia's most productive proven energy sources for the present and the foreseeable future. Traditional Nenets reindeer herding is has been the major landuse of these areas, supplemented by hunting and fishing. The Academy of Finland is funding the project: ENVIRONMENTAL AND SOCIAL IMPACTS OF INDUSTRIAL DEVELOPMENT IN NORTHERN RUSSIA (ENSINOR). The ENSINOR project will undertake a multidisciplinary analysis of the environmental and social consequences of energy development in northern Russia. Intensive surveys of (i) Anthropology - local perceptions of recent (last 30+ years) past and present environmental and socio-economic change; (ii) Geography – high-resolution satellite mapping of the extent of visible changes in pastures. Aim is to detect changes in tundra vegetation during last 20-30 years using new satellite data (ASTER TERRA, SPOT) and old archive satellite images (SPOT, Landsat MSS/TM). Field survey is planned to conduct together with botanical ground truthing with falsecolour camera images and spectrometer measurements of different habitats and landuse patterns; (iii) Botany – on-the-ground classification of critical habitats for reindeer which will be connected to satellite image classifications.