A CONSIDERATION OF TEMPORAL CHANGE IN GRASSLAND DISTRIBUTION ON THE TOHOKU DISTINCTION, JAPAN

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ABSTRACT: Grassland is important for sustainable agriculture. It absorbs vast amount of CO_2 out of the atmosphere. Grassland is also valuable because it produce animal feed crop as pasture grass. Japanese government had been promoted pasture establishment on 1960's. It is known that many of pasture areas in Japan are located on hilly-mountainous area. More than 30 years have passed on 70% of public pasture area, and deterioration is reported from some of them. On the other hand, natural grassland area in Japan has been decreased since after the World War II. It is necessary to clarify the temporal changes of the grassland distribution in Japan.
In this study, we point out relationship between topographic features and grassland distribution. Geographical information system (GIS) and remote sensing technology is powerful tool to analyze the relation between grassland and geographical or topographical effects.
The study area is the Tohoku region, northeastern region of Japan. Japan. Iwate is a prefecture in in Tohoku distinction. Iwate prefecture has the largest grassland area in Tohoku region. We use the results of vegetation survey conducted by Ministry of the Environment (MOE) of Japan on 1979 to extract grassland area. To determine the grassland area after 2006, land cover and land use map generated from ALOS AVNIR-2 data by JAXA/EORC is applied.
The total area of the grassland in Iwate prefecture is decreasing for these 30 years. On 1979, it was 76,653ha, and it changed to 25,680ha on 2006. We classify the grassland based on the slope angle. Less than 8 degree slope angle area is defined as flat area, 8 to 15 degree area is moderate slope area, and more than 15 degree area is steep slope area. The proportion of grassland for each class is calculated on each year. In the steep slope area, grassland ratio decrease from 1979 to after 2006. On the other hand, grassland ratio increases in flat area.