IAF EARTH OBSERVATION SYMPOSIUM (B1)
Earth Observation Applications, Societal Challenges and Economic Benefits (5)

Author: Ms. Bernadette Joy Detera
Moon Village Association (MVA), Japan, bernadette@keio.jp

SUPPORTING SUSTAINABLE TOURISM THROUGH EARTH OBSERVATION AND TWITTER
DATA: A CASE OF SKI TOURISM INDUSTRY IN JAPAN

Abstract

Remote sensing and Earth Observation (EO) data allow for monitoring various phenomena in the environment, be them in land, water and air, providing measurements in precise accuracies that could support environmental policies. With increasing availability and improving accessibility of satellite imagery, however, EO data is not only being used for climate action but has attracted other stakeholders and applications of EO in other domains. In this paper, the concept of using EO data to support the tourism industry is presented through a case study of the ski industry in Niseko, Japan's most famous ski resort attracting tourists from all over the world. Using Google Earth Engine, five atmospheric substances were calculated. Changes over several ski seasons were calculated together with corresponding snow cover in Niseko. These changes indicate the environmental condition over the past years. To estimate the volume of economic activity, nighttime light data were collected together with Twitter data. Geo-tagged tweets over the ski periods were collected and integrated with time-series data of the atmospheric substances. Finally, these results were compared with the data from years 2020 and 2021 to better understand the effect of COVID-19 which has greatly reduced the number of tourists in the area. Although other indicators would be necessary, this study provides insights on the sustainability of ski tourism in Niseko.