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Author: Ms. Jara Kaye Villanueva
The Philippines, jksvillanueva@gmail.com

SITE SUITABILITY ANALYSIS FOR PHILIPPINE EARTH OBSERVATION GROUND STATION

Abstract

Last 2016, Diwata-1 was successfully launched and was deployed into orbit from International Space Station. Also known as PHL-Microsat-1, it is the first Philippine microsatellite to undertake earth observation missions. This is a breakthrough in the Philippine Space history and a presumed to be a start of space technology expansion in the country. Site selection for ground stations is considered to be an investment in a long term development and project implementation.

This paper presents a site suitability analysis for Philippine EO (Earth Observation) Ground Station. The aim of the study is to propose suitable locations for the establishment of these ground stations through the incorporation of Geographic Information System (GIS) tools and Multi-Criteria Decision Analysis (MCDA). Prior to the GIS processing of the layers, parameters are initially defined and then divided into three groups: risks, constraints, and factors. Under the factor parameters, three aspects are considered including physical, environmental, and accessibility. Each layer map covering the entire Philippine boundary was prepared and processed using Geospatial tools. Weights were defined using Analytical Hierarchy Process (AHP) and were standardized using Fuzzy Membership Algorithm. Areas are classified into suitable, moderately suitable, and not suitable. Validation using Sensitivity Analysis (SA) was conducted to assess the model. Final site suitability maps were created as a final output.