The Operation and Service of National Land Satellite 1

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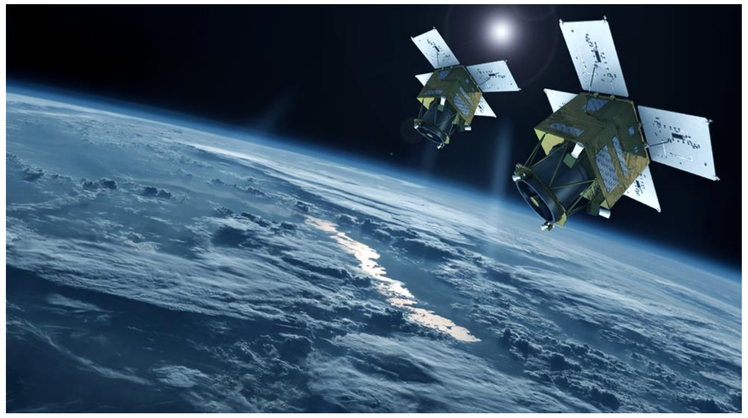
Satellite Introduction

Korean National Land Satellite 1(CAS500-1) has been launched with a mission to map national geospatial information and to monitor land resource and disasters on March 22, 2021.



Configuration and Features

Satellites	**Two 500kg Satellites**
Size / Weight	1.4×1.4×2.4m / 500 kg
Mission Track / Lifespan	Altitude 497.8km Solar Synchronous Orbit(polar orbit) / 4 Years
Resolution/ Observation Width	Panchromatic 0.5m(1band), Color 2m(4bands) / 12km
Spectral Resolution	Panchromatic/Color : 450 ~ 900nm, (Blue, Green, Red, NIR)
Budget	Total 243.5 billion won
Mission	Ground observation for land · resource management, disaster response, and national geospatial information utilization
Observation Area	Korean Peninsula(Within 800㎞X1,000㎞) Polar regions(South · North) and overseas area, etc.
Features	(Satellite cycle) 4.6 days(unit phase difference 180°) (Korean Peninsula passing) Up to 4 times per satellite

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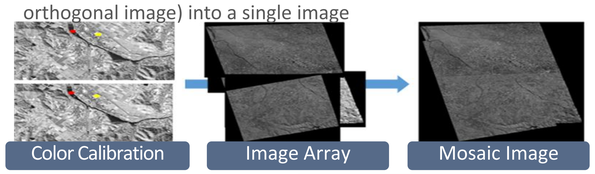
Product of National Land Satellite

The product of National Land Satellite is classified to 4 levels: Basic geometry image based on initial satellite position (Level 1); Precise Ortho-rectified image (Level 2); Reproduced 2D/3D information only with Level 2 (Level 3); and Reproduced 2D/3D information with Precise image(Level 2/3) and other spatial information (Level 4).

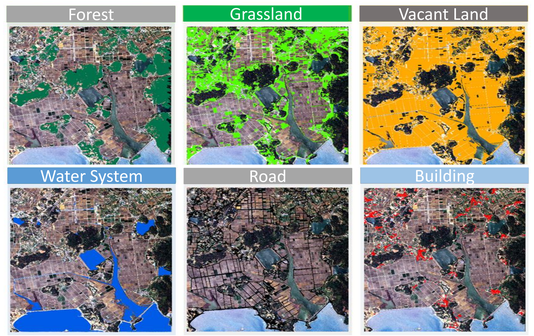
Mosaic Image (Level3)

Integration of 2 or more images (after producing precise orthogonal image) into a single image



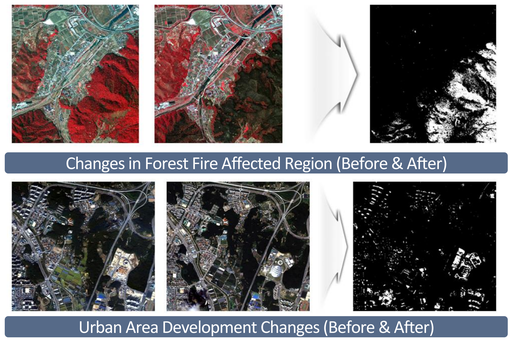
Geospatial Object Extraction (Level4)

Reflection of object characteristics and image segmentation based on pixel values by utilizing precise orthogonal images



Change Detection (Level4)

Detection of changes in structures, forest, and topography by multiple satellite images (at different times) of the same area

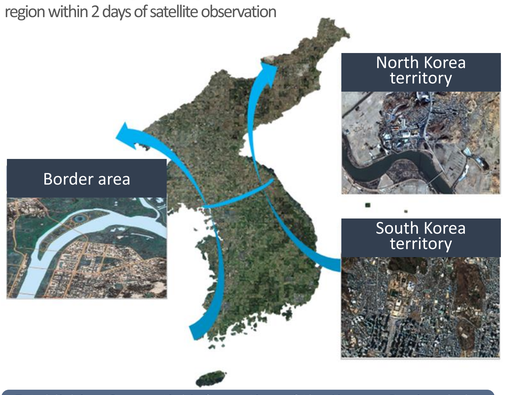


Main Application

The Korea national land satellite can be used to monitor disaster damage**, especially for monitoring climate change caused by increasing greenhouse gas emissions through increasing plastic waste**. In addition, it is expected that it can be used to generate high value-added spatial information such as 3D spatial information through convergence between various spatial information and land satellite information.

Construction of Land Infrastructure

Extraction of orthogonal images, 3D models, etc of border · North Korean region within 2 days of satellite observation

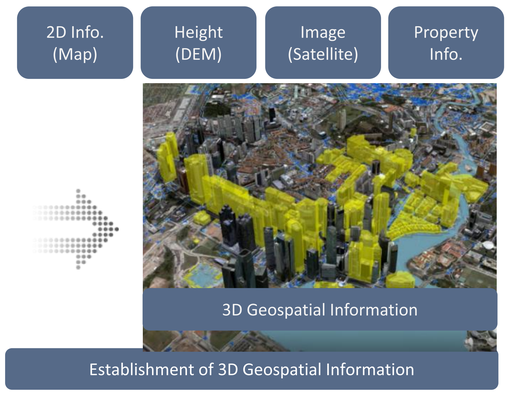


Disaster Monitoring

Monitoring of damages and status of natural disaster(landslides, forest fire) affected areas

High-Value Geospatial Information

Generation of valuable geospatial information(e.g., 3D) through convergence of various geospatial information and satellite information



Course List

(1) waste plastic management
(2) plastic alternative and material development
(3) analysis and risk assessment
(4) 4th industry convergence as subject areas of the post-plastic cooperative course to foster convergence talents in various fields. Including industry-university linked practice and research projects, we are granting internships and employment support through 6 participating companies.

3rd International Symposium on Plastic Pollution

Post plastic, a Specialized program of the Graduate School
University of Seoul, South Korea

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