

# Land Use/Geographical Data

## Representative Patent 03

- ❖ Title of Invention : **Image geometric correction methods and apparatus for the same**
- ❖ Application Number. : KR2016-0111695

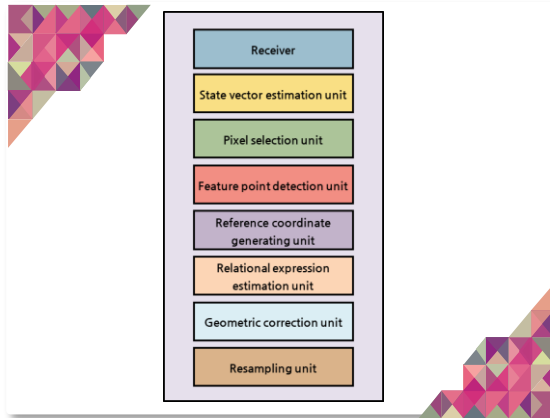
### Application of Technology and Field of Use

- ◆ Real-time surface satellite image correction, Weather forecast
- ◆ Real-time satellite imagery has geometrical curvature

- Image data collected and transmitted from an artificial satellite is geometrically distorted due to causes such as changes in the position and attitude of the satellite, changes in speed of the satellite, and rotation of the earth.

- ◆ In the case of geostationary orbit satellites, the registration results between images after resampling is not accurate.

- In the case of the geostationary orbit satellites that should perform positioning and resampling in real time, the registration results between images is not accurate, so the border appears protruding in the area where the images overlap.



<Representative drawing>

### Features of Technology

- Receiving posture information of an artificial satellite and a first image from the artificial satellite
- Generating a grid at regular intervals in the first image, and extracting a first pixel that is a pixel of the first image positioned at a grid point on the grid
- Detecting common feature points between the first image and a second image
- Generating reference coordinates of a map coordinate system based on the posture information and the feature points
- A geometric correction step of estimating a map coordinate point, which is a coordinate point of the map coordinate system corresponding to the first pixel, based on the reference coordinates, and geometrically correcting the first image based on the estimated map coordinate point

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### Technical Effects

#### ◆ Possible to perform accurate geometric corrections even when the surface is obscured by clouds

- By additionally extracting a feature point that is the standard of geometric correction from a portion overlapping with another image, it is possible to perform accurate geometric correction using the feature point even in the case that a landmark cannot be found on the ground surface.

#### ◆ Even when performing real-time resampling, there is little interruption in video

- Because geometric correction is performed by detecting the feature point, accurate information on the boundary line can be obtained even in the case of matching images.



<Earth's surface image taken from satellite>

### Social, Environmental, Economical Effects

#### ◆ Possible to accurately monitor Earth's surface based on error-free images

- It is possible to perform accurate ground surface monitoring by lowering an error rate with actual map coordinates by performing accurate geometric correction regardless of weather conditions and the presence or absence of landmarks.

#### ◆ Possible to be used as weather forecast data

- When matching satellite images, accurate information about the boundary is obtained, and it is possible to monitor and predict the weather without any interruption.