

Surveillance

Representative Patent 06

- ❖ Title of Invention : **Method and apparatus of processing sar raw data**
- ❖ Application Number. : KR2018-0163257

Application of Technology and Field of Use

- ◆ Synthetic Aperture Radar (SAR) is required to create high-resolution radar images for reconnaissance and surveillance using satellite data.
- ◆ Satellite image information is can be used in various fields such as land surveillance, reconnaissance, urban planning, water resources, agriculture, marine, forestry, mapping, meteorological and climate monitoring, and geological resource utilization.

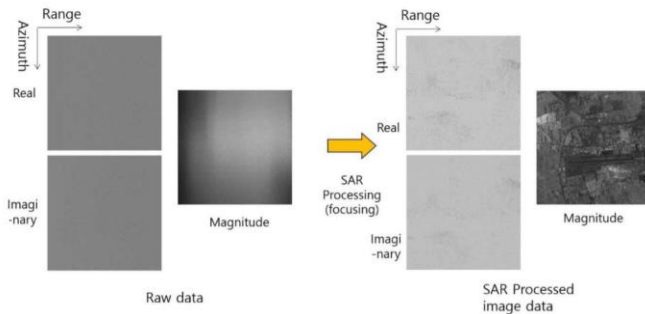
Features of Technology

- Dividing SAR (Synthetic Aperture Radar Image) raw data into one or more pieces of sub-aperture data by a preset number in an azimuth direction
- Multiplying divided subaperture data by a spectral length extension FFT (fast furier transform) in the azimuth direction, chirp scaling function, performing FFT, range compression, secondary range compression (SRC) and bulk range cell migration correction (RCMC) in a range direction, Inverse Chirp-z transform in the range direction, multiplication of a predetermined first function, performing IFFT (Inverse fast furier tranform) in the azimuth direction
- Recombining the divided subaperture data
- Deramping by multiplying the recombination data by a second function, FFT in the azimuth direction, IFFT in the azimuth direction, deramping by multiplying by a third function, FFT in the azimuth direction, Azimus compression by multiplying a fourth function, Inverse Chirp-z transform in the azimuth direction, multiplying a 5th function for phase preservation

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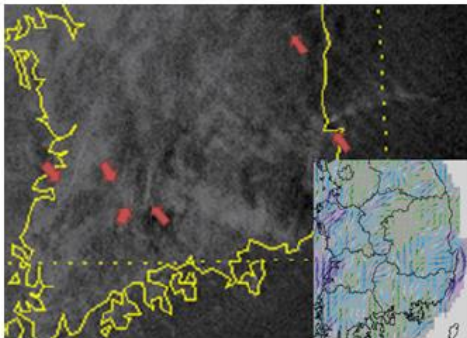
Technical Effects



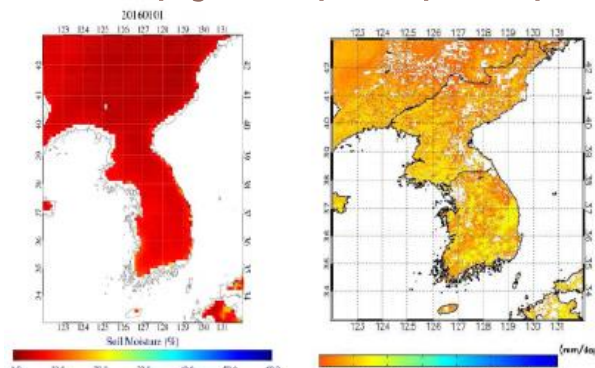
- ◆ Overcoming technical limitations of Baseband Azimuth Scaling Algorithm (BAS), one of the SAR Processing Core Algorithms that form images from SAR raw data
- ◆ Providing SAR raw data processing method according to SARP core algorithm applicable to all SAR operation modes
 - Including Stripmap, scanSAR, TOPS, sliding spotlight, staring spotlight, operation mode between sliding spotlight and staring spotlight.
- ◆ Improvement of image processing accuracy, efficiency and processing speed

Social, Environmental, Economical Effects

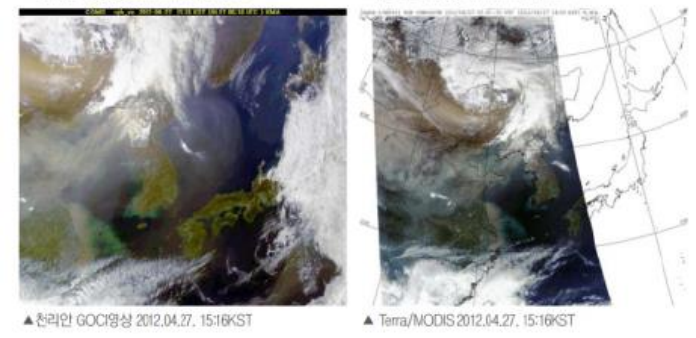
- ◆ Reconnaissance and surveillance effects of disasters, agriculture, forests, oceans, and climate environments using high-quality satellite data



◁Wildfire detection image observed through Chollian GOCI▷



◁Chollian satellite-based soil moisture (left) and evapotranspiration (right)▷



◁Image of yellow dust observed by Chollian Ocean Satellite▷