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Identification of Paddy Planted Area Using ALOS PALSAR Data

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ABSTRACT

Agricultural land has a strategic function as the primary food provider for the people of Indonesia. Various methods of agricultural production estimation, particularly food crops, provide different information. It can be a source of error in decision making. Satellite data, provides information periodically, wide coverage area, can be used as a source of information on the condition of agricultural lands and even remote areas. The advantages of SAR data that does not depend on sunlight and can penetrate of clouds and fog can fill the lack of optical data. ALOS PALSAR data has been used for analysis and ALOS AVNIR-2 is for checking of land cover visually, with acquisition date on 10 May 2007. Sampling of each rice crop growth period used several of rice field conditions in each period, on one scene data. Results showed a possibility to use soil moisture conditions derived from ALOS PALSAR for estimating rice planting area. On a scatter diagram between backscatter of ALOS PALSAR and near infrared of ALOS AVNIR-2 showed a specific pattern for each growing period of paddy. The results of the analysis produce distribution maps of the rice planting area Subang area, West Java Province. However, validation of the method used remains to be done. Remote sensing results of this study are expected to provide better information and can contribute in the planning of higher quality agricultural land.

KEYWORDS

Rice Planting Area, Moisture Content, ALOS PALSAR

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References

- [1] Central Bureau of Statistics, " Indonesian Statistics Year 2000 (Statistik Indonesia Tahun 2000)," Central Bureau of Statistics (Badan Pusat Statistik Indonesia), Jakarta, 2000.
- [2] State Secretariat of Republic of Indonesia, Decreasing Area of Food Crops Need Caution (Penyusutan Luas Lahan Tanaman Pangan Perlu Diwaspadai), 2000. http://www.setneg.go.id/index2.php?option=com_content&do_pdf=1&id=4617
- [3] L. Samarakoon, " Overview of Remote Sensing Technology for Disaster Risk Management," MODIS Workshop, Bangkok, 15-16 January 2007, pp. 1-79.
- [4] A. Rosenqvist, M. Shimada and M. Watanabe, " ALOS PALSAR: Technical Outline and Mission Concepts, Japan Aerospace Exploration Agency," Proceeding of 4th International Symposium on Retrieval of Bio- and Geophysical Parameters from SAR Data for Land Applications, Innsbruck, 16-19 November 2004, pp. 1-7.
- [5] Earth Remote Sensing Data Analysis Center—ERSDAC. Earth Remote Sensing Data Analysis Center, " Overview of the ALOS, PALSAR User' s Guide," PALSAR Data Service Section, Technical Department II, Earth Remote Sensing Data Analysis Center (ERSDAC), Tokyo, 2006, pp. 1-15.
- [6] Central Bureau of Statistics, " Indonesian Statistics Year 2004 (Statistik Indonesia Tahun 2004)," Central Bureau of Statistics (Badan Pusat Statistik Indonesia), Jakarta. 2004.

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- [7] A. Abdurachman, Wahyunto and Dan R. Shofiyati, " Biophysical Criteria in the Determination of the Main Paddy Field in Java (Kriteria Bio-Fisik Dalam Penetapan Lahan Sawah Abadi Di Pulau Jawa)," *Journal of Agricultural Research and Development (Jurnal Penelitian dan Pengembangan. Pertanian)*, Vol. 24, No. 4, 2005, pp 131-136.
- [8] Ashari, " Fenomena Konversi Lahan Sawah di Pulau Jawa," *Warta Penelitian dan Pengembangan Pertanian*, Vol. 25 No. 2. 2003, pp. 1-2.
- [9] Irawan. " Behavior of Indonesian Rice Supply and Its Implications for Increased Production (Perilaku Suplai Padi Indonesia dan Implikasinya terhadap Peningkatan Produksi)," *Prosiding Perspektif Pembangunan Pertanian dan Kehutanan tahun 2001 ke Depan*, Pusat Penelitian dan Pengembangan Sosial Ekonomi Pertanian, Badan Penelitian dan Pengembangan Pertanian, 2001.
- [10] Local Government of West Java Province, " Map of Land Use of West Java Province (Peta penggunaan lahan Provinsi Jawa Barat)," Local Government of West Java Province, Bandung, 2005.
- [11] M. Shimada, N. Itoh, M. Watanabe, T. Moriyama and T. Tadono, " PALSAR Initial Calibration and Validation Results," *Proceeding SPIE*, 20 December 2006, pp 6359-6367.
- [12] R. Sonobe, H. Tani, X. Wang and M. Fukuda, " Estimation of Soil Moisture for Bare Soil Field Using ALOS/PALSAR HH Polarization Data," *Agricultural Information Research*, Vol. 17, No. 14, 2008, pp. 171-177. doi:10.3173/air.17.171
- [13] A. Oldak, T. J. Jackson and P. Starks, " Mapping near-Surface Soil Moisture on Regional Scale Using ERS-2 SAR Data," *International Journal of Remote Sensing*, Vol. 20, No. 22. 2003, pp. 4579-4598. doi: 10.1080/0143116031000070463
- [14] A. Weimann, M. Von Sch?nermark and A. Schumann, " Soil Moisture Estimation with ERS-1 SAR Data in the East-German Loess Soil Area," *International Journal of Remote Sensing*, Vol. 19, No. 2, 1998, pp. 237-243. doi:10.1080/014311698216224
- [15] Y. Kim, S. Hong, J. Park, E. Lee and H. Lee, " Radar Backscattering Measurements of Paddy Rice Field using L, C, and X-band Polarimetric Scatterometer," *Proceeding of ISRS*, 2007.
- [16] J. L. Havlin, J. D. Beaton, S. L. Tisdake, Dan W. L. Nelson, " Soil Fertility and Fertilizers: An Introduction to Nutrient Management," 6th Edition, Prentise Hall, Upper Saddle River, 1999.