Land use/land cover change monitoring using ALOS PALSAR data in Fuzhou, China

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Abstract: The ever-advancing urban fringe is consuming agriculture areas, placing greater demand on the remaining land. These changes need to be carefully monitored to ensure that future growth is sustainable. This research project (PI:347) is intended to develop the methodologies for monitoring the land use/land cover changes by the synergistic use of ALOS PALSAR and archived SAR data, with emphasis on the monitoring of urban expansion and land use changes of agriculture fields.

This presentation will focus on two issues: (1) Regional scale land cover mapping by ALOS PALSAR FBD data for the whole Fujian province and (2) land use/land cover change mapping by the combination use of historical SAR data in 1990s and PALSAR data. As for the land cover mapping issue, we exploited the multitemporal SAR intensity, interferometric coherence and polarimetric parameters from HH/HV PALSAR data. In particular, the interferometric coherence was investigated in respects of time interval, spatial baseline and radar frequency difference (C vs L band) for urban area and vegetation mapping. We proposed a procedure of urban growth monitoring by INSAR technique using PALSAR and historic ERS or JERS-1 SAR.

As results of our research, two products will be presented: (1) a land cover map from ALOS PALSAR for the whole Fujian province and (2) urban growth maps of Fuzhou city from 1995 to 2000 and then to 2007, emphasizing on the changes between urban and agricultural area.

Keywords: ALOS PALSAR, InSAR coherence, Land cover, Land use, Urban growth

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