

Utilization Of PS–InSAR Method Optimizing In Land Subsidence Disaster Mitigation In Bandung City (Indonesia)

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SUMMARY

Spatial technology dependency in monitoring and analyzing every natural disaster events in the currently time is very high. Especially in the Indonesia territory, which has a wide variety the characteristics of natural disasters and the scale of the natural disaster area. It is requires a lot of combination of spatial technologies to be able quick assessment of natural disaster impact in disaster mitigation concepts. One of the many terrestrial technologies that are part of the natural disaster mitigation process is the radar technology. The ability of radar technology that can penetrate cloud cover and large area coverage to be one of the advantages of quick assessment process. Application of PS-InSAR technology that has advantages in minimizing the decorrelation effects and get a good accuracy than other radar methods. Make it as research material in this study, especially the analysis of the influence of the data reduction, a combination of data level and the coherence differences apply. In this study, the study area is Bandung city area with a land subsidence as natural disasters research subject. This technique is used to analyze subsidence in Bandung City, West Java-Indonesia by assessing 19 ALOS PALSAR images (Japanese L band spaceborne) during the periods of July 2007-February 2011. After PS-InSAR processing, the land subsidence results will be validate with land subsidence observations using a GPS method. The results of land subsidence velocity in Bandung city have a various value results between $0,6 \pm 0,4$ cm/year and $2,1 \pm 1,2$ cm/year. The result of validation has resulted such as $1,4 \pm 1,4$ cm/year (PS InSAR-DInSAR) and $1,6 \pm 0,7$ cm/year (PS-InSAR-GPS). Analysis of the effect of PS-InSAR processing results of the combined use of data ALOS PALSAR level 1.0 and 1.1 as well as differences in the determination of the value of coherence was also performed. The objective of this research is to get a light processing in PS-InSAR method as part of quick assessment in disaster management concept. Also this research shows a capability of data optimalization in PS-InSAR technique as basic concept of LPS-InSAR processing.