ABSTRACT

APPLICATION OF K-MEANS ALGORITHM CLUSTERING METHOD AS DETERMINATION OF FIRE POINT PRONE AREAS IN WEST KALIMANTAN PROVINCE

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Forest and land fires are disasters that often occur in Indonesia. In 2007, 2012 and 2015 forest fires that occurred in Sumatra and Kalimantan attracted global attention because they brought smog pollution to neighboring countries. One of the regions that have the highest fire hotspots is West Kalimantan Province. Forest and land fires have an impact on health, especially on the communities surrounding the scene, as well as on the economic and social aspects. This problem must be overcome by knowing the location of the area of fire and can analyze the causes of forest and land fires.

With the impact caused by forest and land fires, the purpose of this study is to apply the clustering method using the k-means algorithm to determine the hotspot prone areas in West Kalimantan Province and evaluate the results of the cluster that has been obtained from the clustering method using the k-means algorithm. Data mining is a suitable method to find informations in hotspot areas. The data mining method used is clustering because this method can process hotspot data into information that can inform areas prone to hotspots. This clustering uses the k-means algorithm, which grouped the data based on similar characteristics.

The hotspots data obtained are grouped into 3 clusters with the results obtained for cluster 0 as many as 284 hotspots including prone areas, 215 hotspots including non-prone areas and 129 points that belong to very prone areas. Then the clustering results are evaluated using the davies bouldin index (DBI) method with a value of 3.112 which indicates that the clustering results of 3 clusters are not optimal.

Keywords: Clustering, Hotspot, K-Means