Identifikasi Zona Alterasi Hidrotermal dan Mineralisasi Pada Wilayah Panas Bumi Cisukarame, Sukabumi Dengan mengintegrasikan Metode Penginderaan Jauh dan Survey Lapangan = Identification of Hydrothermal Alteration and Mineralization Zones In Cisukarame Geothermal Area, Sukabumi by Integrating Remote Sensing and Field Surveys Methods

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Abstrak

Daerah Cisukarame, sukabumi merupakan salah satu area prospek panas bumi di Indonesia yang masuk kedalam wilayah kerja panas bumi. Namun, belum adanya kegiatan eksplorasi yang memanfaatkan potensi daerah tersebut, sehingga studi terus dilakukan untuk dapat menjadi bahan pertimbangan area yang akan di eksplorasi. Pemetaan alterasi dapat menjadi indikator suatu area memiliki potensi panas bumi serta keberadaan mineralisasi yang dapat dieksplorasi lebih lanjut. Oleh karena itu, penelitian bertujuan menentukan tipe, zonasi, serta penggambaran dalam model penampang mengenai alterasi hidrotermal dan mineralisasi pada Daerah Cisukarame. Metode yang digunakan adalah integrasi antara metode penginderaan jauh berupa analisis Fault Fracture Density (FFD), Land Surface Temperature (LST), dan Principal Component Analysis (PCA) dengan metode survey lapangan berupa petrografi dan X-Ray Diffraction (XRD). Hasil penelitian menunjukan bahwa integrasi antara penggunaan metode FFD dan LST dengan survey lapangan terdapat manifestasi panas bumi berupa alterasi, sumber air panas, dan kolam air panas yang ditemukan terutama pada sekitar aliran Sungai Cisukarame. Berdasarkan integrasi analisis PCA, petrografi, dan XRD terdapat tiga tipe alterasi pada daerah penelitian yaitu filik, propilitik, dan argilik. Alterasi pada daerah penelitian berasosiasi dengan mineralisasi berupa pirit dengan tipe endapan berupa epitermal sulfidasi rendah. Model penampang alterasi menggambarkan sebaran alterasi pada daerah penelitian berdasarkan penarikan satu garis penampang.

.....The Cisukarame area, Sukabumi is one of the geothermal prospect areas in Indonesia which is included in the geothermal working area. However, there is no exploration activity that utilizes the potential of the area, so studies continue to be carried out to be considered for areas to be explored. Alteration mapping can be an indicator of an area that has geothermal potential and the presence of mineralization that can be explored further. Therefore, this study aims to determine the type, zoning, and depiction in the cross-sectional model regarding hydrothermal alteration and mineralization in the Cisukarame area. The method used is the integration of remote sensing methods in the form of Fault Fracture Density (FFD) analysis, Land Surface Temperature (LST), and Principal Component Analysis (PCA) with field survey methods in the form of petrography and X-Ray Diffraction (XRD). The results showed that the integration between the use of FFD and LST methods with field surveys contained geothermal manifestations in the form of alteration, hot springs, and hot springs which were found mainly in the vicinity of the Cisukarame River flow. Based on the integration of PCA, petrography, and XRD analysis, there are three types of alteration in the study area, namely phyllic, propylitic, and argillic. Alteration in the study area is associated with mineralization in the form of pyrite with a low sulfidation epithermal type of deposit. The cross-sectional model of alteration describes the distribution of alterations in the study area based on the drawing of one

cross-sectional line.