

THE USE OF THIN PLATE SPLINE TO CHART THE DISTRIBUTION DIARRHAE DISTRICTS AND CITIES IN THE PROVINCE OF EAST JAVA

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ABSTRACT

This study investigated Thin Plate Spline method as an alternative in spatial data processing, which was applied to chart the distribution of diarrhoe in the districts and cities in East Java. Spatial data were those obtained from maps containing two information, i.e., information on location and observation/response.

The objective of this study was to make an estimation using Thin Plate Spline, to determine optimum lambda parameter with GCV, and to apply Thin Plate Spline model by charting proportions of diarrheal patients to the locations of districts and cities in East Java.

This study was an applied research, in which data were obtained from secondary sources. The secondary data were spatial ones, presenting as the data on the locations of districts/cities in the Province of East Java as determined by their latitude and longitude in a map of East Java.

Data on total population in those districts/mayoralities were obtained from the results of Census by Central Bureau of Statistics, Province of East Java, in 2000, while data on total number of diarrheal patients were taken from the report of Health Office, Province of East Java.

After Thin Plate Spline program was created in the computer, charting of diarrheal dispersion in districts and mayoralities in East Java was made for patients aged less or equal to 14 years, for patients aged more than 14 years and, finally, for total diarrheal patients along with the output that presented as a contour image of the dispersion. The contour image was integrated with the map of East Java, and the appropriateness of the results were analyzed by comparing them to the actual data in 37 districts and cities in East Java.

Keywords: *spatial data, lambda parameter, GCV, contour image*