Isarithm Mapping of Pandemic Covid-19 Significant Area with Kriging Surface and Semi-Variance Analysis.

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Abstract

Isarithm mapping shows statistical data aggregated over predefined regions. Pandemic Covid-19 situations can be represented as isarithm maps, depending on interpolation surface techniques. Kriging is the probabilistic interpolation surface that estimates semi-variance between pairs of data points over a range of distances. This study indicates a variance map of Thailand Covid-19 spreading, which gives any measure of uncertainty in the interpolated values and also being the example of estimation map for the pandemic significant area. Absolutely results are described.

Keywords: Isarithm mapping, Cocid-19, Probabilistic interpolation, Semi-variance

Figure 5

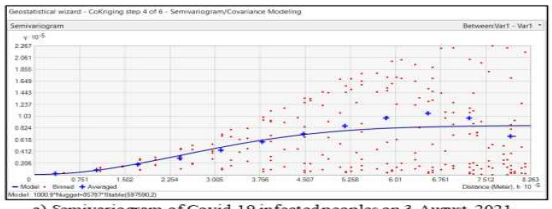
Main Intro:

- ❑ Currently, the world is in a situation of the covid-19 epidemic.
- ❑ I have applied the isarithm map method to be used with the geographic information program. To be intended as an epidemiological statistical surface mapping model.
- ❑ The data of covid-19 infected people of the Department of Disease Control were used for analysis.
- ❑ The isarithm thematic mapping involves a lot of fundamental statistical concepts.

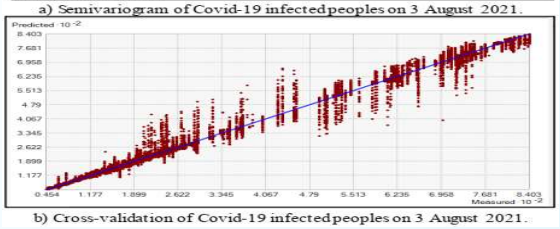
Semivarience and Semivariogram

- ❑ Semivarience is the geostatistical method to express the degree of relationship between points on a surface. The semivariance is simply half the variance of the differences between all possible points spaced a constant distance apart. The semivariance at a distance d = 0 should be zero because there are no differences between points that are compared to themselves.
- ❑ The semivariogram is a plot of semivariance as a function of the distance between the observations and is the source of information used in kriging to achieve optimal weighting functions for mapping. Kriging uses the semivariogram, or rather a mathematical model of the semivariogram, in calculating estimates of the surface at the grid nodes.

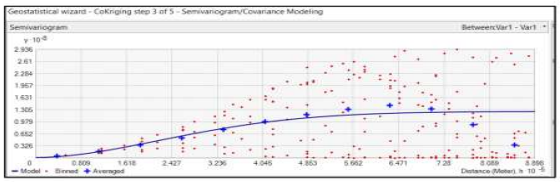
Semivariogram of Ordinary Co-Kriging Methods:



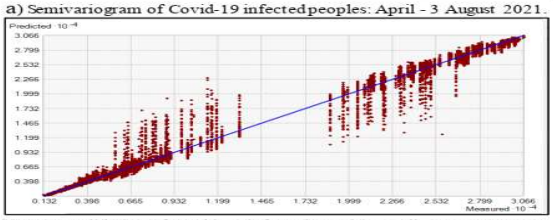
a) Semivariogram of Covid-19 infectedpeoples on 3 August 2021.



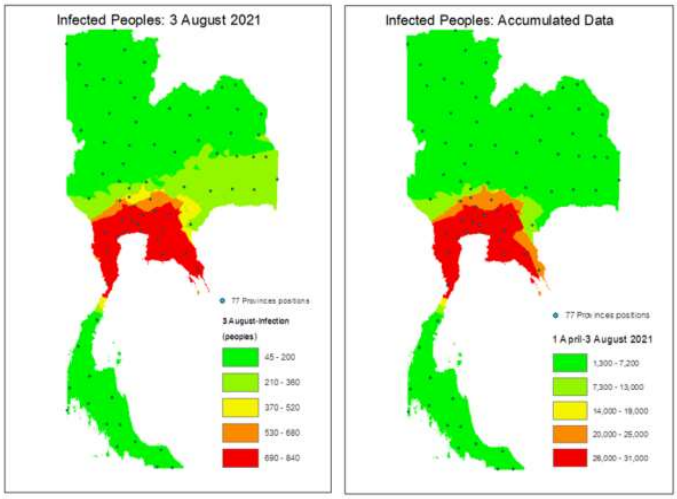
b) Cross-validation of Covid-19 infectedpeoples on 3 August 2021.



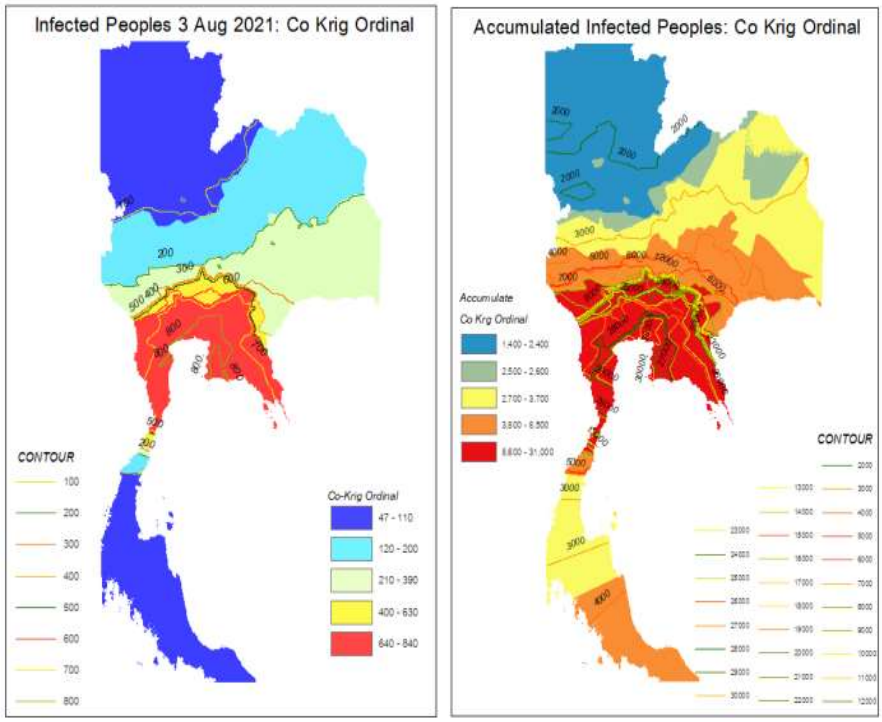
a) Semivariogram of Covid-19 infectedpeoples: April - 3 August 2021.



b) Cross-validation of Covid-19 infectedpeoples: April - 3 August 2021.



COVID-19 Infected peoples of THAILAND.



a)Infectedpeoples 3 August 2021. b) Accumulated infectedpeoples, April-August 2021

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The Results.

- ❑ From the co-kriging method to consider the semivariogram. Those achievements can be used to create an isarithm map, with map symbols and isarithm lines as a summary of the situation of covid-19 infection cases in Thailand, according to the range. all the time specified.