

Natsinee Buadee 2012: Robust Regression Model Using the Weighted Function of Huber and the Bisquare for Rainfall Data. Master of Science (Statistics), Major Field: Statistics, Department of Statistics. Thesis Advisor: Associate Professor Chirash Sukhagate, M.Stat. 162 pages.

The objective of this study was to develop the appropriate model for forecasting of rainfall data per month in six region of Thailand by using the weighted functions of Huber and the Bisquare. For three regression models such as multiple linear regressions is non-weighted and two robust regression models which using the weighted function of Huber and the Bisquare. The model which given the lowest MSE will be the most appropriate model. Data used in this study collected by the Thai Meteorological Department from 120 Weather stations which consisted of six regions of Thailand: North, North East, Central, East, South East and South West. For each region separate by 36 month, 60 month and 132 months; then abstract the effect of the season by ratio to moving average method by 3 month, 4 month, 6 month and non-moving average.

The result of this study is concluded as follows. The best model for the North region is robust regression model by Bisquare weighted function usage 132 months data which abstracted data by ratio to moving average 3 month. The best model for the Northeast region is robust regression model by Bisquare weighted function usage 36 months data which abstracted data by ratio to moving average 3 month. The best model for the Central region is robust regression model by Bisquare weighted function usage 132 months data which non abstracted data by ratio to moving average. The best model for the East region is robust regression model by Bisquare weighted function usage 60 months data which abstracted data by ratio to moving average 3 month. The best model for the South East region is robust regression model by Bisquare weighted function usage 36 months data which abstracted data by ratio to moving average 4 month. The best model for the South West region is robust regression model by Bisquare weighted function usage 132 months data which abstracted data by ratio to moving average 6 month. In conclusion the robust regression model which weight by Bisquare were given the lowest MSE for all data set.

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Thesis Advisor's signature