1099-65-18   **Dr. Kanadpriya Basu*** (`kbasu@utep.edu`), 500 W. University Ave., El Paso, TX 79968, and **Dr. Maria C. Mariani** (`mcmariani@utep.edu`), 500 W. University Ave., El Paso, TX 79968. *Local regression type models applied to Geophysics and high frequency market data.* Preliminary report.

In this work we applied locally weighted scatterplot smoothing techniques(Lowess/Loess) to Geophysical and high frequency financial data. We first analyze and applied this technique to the California earthquake geological data. A spatial analysis was performed to show that the prediction of the earthquake magnitude at a fixed location is very accurate up to the relative error of 0.01%. We also applied the same method to the high frequency data set arising in the financial sector and obtained similar satisfactory results. The application of this approach to the two different data sets demonstrate that the overall method is accurate and efficient, and the Lowess approach is much more desirable than the Loess method. Comparing with previous modeling implementations, this model serve completely different information out of the geophysics data: Instead of doing time series analysis, our local regression model perform a spatial analysis. For high frequency data, our model predicts the curve of best fit where data are dependent on time. (Received November 21, 2013)

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