$$\dot{Y}_t = 92.00544 + 2.564t - 12.14*\cos(.5236t) - 7.187*\sin(0.5236t) \quad (22)$$

IX. Fitted Values And Fitted Errors

Table 3. Appendix 1 shows for the Traditional method, the Period(t) column 1,Actual values (Y_t) column 3,Fitted values($\dot{Y}_t$) column 4, Fitted Errors(e_t) column 5 ,Amplitude column 6, squared Errors$(e_t)^2$ column 7,First difference error squared $(e_t-e_{t-1})^2$ column 7 and in Z-values column 8. Appendix 2 is for the Adaptive method.

The forecast error ($e_{t)}$ is given as,

$$e_t = Y_t - \mathring{y}_t \quad (23)$$

X. The Sum Of Squares Errors (SSE) Or Error Lack Of Fit

The sum of squares of errors is given by the equation

$$SSE = \sum_{t=1}^{n} (e_t^2) \quad (24)$$

XI. ANALYSIS OF THE RESULTS

Results obtained using our coefficients and those of Fourier are shown in table 3. Figure 2a. Shows the seasonal amplitudes obtained from using the old method of Fourier coefficients showing a mean level dependence and a stable system. While the seasonal amplitudes from new method coefficients is as shown in Figure 2,B. indicating a trend level ,and hence an unstable system. While Table 3 a summary of the fit statistics obtained using the Traditional coefficients method and the Adaptive coefficients. The Adaptive method gave a lower Sum of Squares of Errors than the Traditional method.

XII. Conclusion

The adaptive or new method gives a better result in the statistics of both fitted and forecast.

TABLE IV

FIRST ,HARMONIC,N =132	New method, SSE=94853	Old method, SSE=114525.7	DIFFERENCE =19673.7
FIRST HARMONIC, N=144	New method, SSE =125063	Old method, SSE=150055	DIFFERENCE =24992
SECOND HARMNIC, N= 132	New method, SSE =184676	Old method, SSE=192260	DIFFERNCE= 7584
SECOND HARMONIC, N=144	New method, SSE=250199.6	Old method, SSE=258429.8	DIFFERENCE =8230.2

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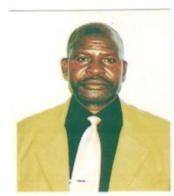

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