

TESIS

PERBANDINGAN METODE PEMULUSAN (SMOOTHING), METODE REGRESI TRIGONOMETRI DAN METODE ARIMA DALAM PERAMALAN

**Aplikasi Pada Data Penderita Penyakit Diare
Di Kota Gorontalo**



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**ILMU KESEHATAN MASYARAKAT
PROGRAM PASCASARJANA
UNIVERSITAS AIRLANGGA
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TESIS

**Untuk Memperoleh Gelar Magister
Dalam Program Studi Ilmu Kesehatan Masyarakat
Pada Program Pascasarjana Universitas Airlangga**

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Tanggal 9 November 2001**

LEMBAR PENGESAHAN

TESIS INI TELAH DISETUJUI
TANGGAL : 9 NOVEMBER 2001

Oleh :

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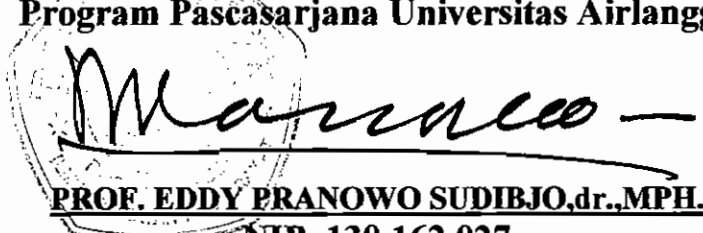
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ABSTRACT

The objective of this research is to exam forecasting method by comparing the three methods, which are smoothing method, trigonometry regression method, and ARIMA method. From those three methods will be tested which one is the best in order to forecast the total people suffering from diarrhoea disease in Kota Gorontalo.

The criteria used in determining the best methods are: *Mean Square Error (MSE)*, *Mean Absolute Deviation (MAD)*, *Mean Absolute Percentage Error (MAPE)* which is the lowest, the significant parameter, and white noise residually.

The data used is secondary data about people suffering from diarrhoea disease which listed in Kantor Dinas Kesehatan Kota Gorontalo used from January 1995 to December 2000 (72 months).

The first step is to identify data, aim to know data pattern which is going to be forecasted, so that the suitable forecasting method is applicable. To identify this, data plot is used and the results is data has the seasonal and trend pattern, but not stationer in mean or variants. To become stationer, this data should be done by seasonal and non-seasonal differencing.

The next step is to analyze data by using Exponential Smoothing method with Winter's method, Trigonometry method, and ARIMA method. From the result, the fact that ARIMA method $(0,1,1)(0,1,1)^{12}$ is the best method because having MSE/MSD grade, MAD, MAPE the lowest, comparing with Winter's method and Trigonometry Regression method. These three method have significant parameter and white noise error residually.

Keywords: Forecasting

Seasonal