

**INVESTIGATION OF FLOOD PATTERN USING ANOVA  
STATISTIC AND REMOTE SENSING  
IN MALAYSIA**

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## Abstract

Flood is an overflow or inundation that comes from river or other body of water and causes or threatens damages. In Malaysia, there are no formal categorization of flood but often broadly categorized as monsoonal, flash or tidal floods. This project will be focus on flood causes by monsoon. For the last few years, the number of extreme flood was occurred and brings great economic impact. The extreme weather pattern is the main sector contributes for this phenomenon. In 2010, several districts in the states of Kedah neighbour-hoods state have been hit by floods and it is caused by tremendous weather pattern. During this tragedy, the ratio of the rainfalls volume was not fixed for every region, and the flood happened when the amount of water increase rapidly and start to overflow. This is the main objective why this project has been carried out, and the analysis data has been done from August until October in 2010. The investigation was done to find the possibility correlation pattern parameters related to the flood. Anova statistic was used to calculate the percentage of parameters was involved and Regression and correlation calculate the strength of coefficient among parameters related to the flood while Remote Sensing image was used for validation between the calculation accuracy. According to the results, the prediction is successfully which the coefficient of relation in flood event is 0.912 and proved by Terra-SAR image on 4<sup>th</sup> November 2010. The rates of change in weather pattern give the impact to the flood.

# **CHAPTER 1**

## **INTRODUCTION**

### **1.1 BACKGROUND**

Now days, at the rural area or urban area were face with the natural flood and flash flood in the certain periods. Normally the flood will be happened without any sign. So, the residents were not alert and beware about the flood and impact to them. Flood problem still happening in the urban area currently. Previously, flood problem only occur at the rural area. The residents didn't realize when exactly the flood would be happened. Moreover, increasing of the developing and exploration of new living area also agriculture activities will be the top reason why the Mother Nature has giving the reflection as a flood problem. In conjunction for problem solving, the element of technologies can be developing to prevent the risk and impact of flood to the residents. Consequences of this flood problem will be affected of socio-economic living and physically loss damage. For example in 1998 of the South China flood, twenty million people in their socio-economic lives was disrupt and physical loss and damage in thousands of inhabitants was died which estimate around twenty Billion US Dollars [1].