

## Chapter 5

### Conclusion and Discussion

#### 5.1 Conclusion and Discussion

##### *Conclusion*

The maximum period average rainfall of 35.46 mm was at Mae Lan, while the minimum period average rainfall of 18.91 mm was at Khok Pho.

According to the study of one-way analysis of variance, the pattern of the distribution of the rainfall appears to be similar at each station: the highest quantity is in the period 61-73 (October 28-December 31), a medium quantity is in the period 26-60 (May 6 – October 27) and the lowest quantity is in the period 1-25 (January 1-May 5).

However, based on the two-way analysis of variance, we found differences between the amounts of rainfall occurring at different locations. The stations may be classified into three groups as follows: (1) highest rainfall location (Sai Buri, Mai Kaen, Mae Lan and Pattani Airport), (2) medium rainfall location (Pattani, Yarang, Panare, Mayo, Nong Chik, Yaring, Kapho, Khok Pho (SHS), Thung yang Dang) and (3) lowest rainfall location (Khok Pho).

We also investigated methods for displaying spatio-temporal maps of the rainfall patterns based on cross-sections of three-dimensional contour maps (“ice-cream” plots).

##### *Discussion*

As stated above, the pattern of the distribution of the rainfall was found to be similar, with the highest quantity in period 61-73 (October 28-December 31), a medium quantity in period 26-60 (May 6 –October 27) and the lowest quantity in period 1-25 (January 1-May 5). This finding agrees with Hemsuhree (1997), who reported that the highest quantity is between October and December, medium quantity is between May and October and lowest quantity is between January and April.

The minimum average rainfall occurred at Khok Pho, while the maximum average rainfall occurred at Khok Pho. This finding again confirms the result of Hemsuhree (1997), who reported that the minimum average rainfall occurred at Khok Pho.

## **5.2 Problems with the Data and the Analysis**

There were two problems with the data collection: (a) missing or incomplete records, and (b) errors.

For some stations (Thung Yang Dang and Mae Lan), data collection commenced later than in other stations. Also, there were several stations containing stretches of missing data.

Also, mistakes were found in the data. Precisely the same data were recorded in Khok Pho (SHS) station and Mai Kaen station during December 1-31, 1987.

The statistical method used for analysis (two-way analysis of variance) assumes that the observations are independent. This assumption is unlikely to be true for regional data, which are likely to be spatially correlated.

Finally, the methods considered for graphical analysis, particularly the methods for producing spatio-temporal maps, need to be developed further.

## **5.3 Future Research**

This study shows several opportunities for further research, as follows.

First, although we found statistically significant differences in the rainfall incidences at different locations in Pattani province, the statistical method did not allow for spatial correlation in the data. Further studies of such data should make appropriate adjustment for spatial correlation.

Second, it would be desirable in any future study of rainfall patterns to get data over a wider area and for a longer period of time, with a view to investigating long-term patterns, including El Nino and La Nina phenomena.

Finally, it would be desirable in further studies to fully investigate the possibilities of using geographical information systems methods and software, particularly with respect to three-dimensional contour maps and their projections.