

ESTIMATING EVAPOTRANSPIRATION OF PADDY FIELD AND TEAK PLANTATION USING REMOTE SENSING

INTRODUCTION

In the tropical region like Thailand where 90% of the mean annual rainfall occurs during April to October, the exploration and the evaluation of water resource potential is essential to find the ways to store and meet the demand around the year. Only 30% to 40% of annual rain water become subsurface and surface flow. Over a period of one year, change in ground water storage is very small, and can be neglected. Major portion of the rain water fluxes as evapotranspiration. Accurate estimation of evapotranspiration indirectly evaluates the water resource potential for our use. Although evapotranspiration depends on geology, topography, state of climate; primarily it depends on the types and density of vegetation, because evapotranspiration correlates to vegetative activities. Evapotranspiration is limiting factor and implied to soil moisture variation. The variation of soil moisture indicated the status of watershed that can describe to reduce the damage from flood and drought effect.

The development of Geographic Information System (GIS) and Remote Sensing (RS) technology has proved that vegetation has a good response in the reflectance of electromagnetic spectrum, registered from the AVHRR sensor of satellite. Therefore, relationship between vegetative activity and spectral reflectance from vegetation will help in the estimation of evapotranspiration of wide areas in certain period. The method has considerable advantage that it integrates all the spatial variations of evapotranspiration over a catchment.

Paddy field and Teak plantation represent the main crops in northern of Thailand. These types of land use usually consume great amount of water in almost all large watershed in northern of Thailand. Therefore it is worthy to investigate

evapotranspiration loss from these land use types for the benefit of water yield management in the future.

OBJECTIVES

1. To investigate energy balance, micrometeorological characteristics and evapotranspiration of paddy field and teak plantation by using Bowen Ratio technique,
2. To find out the relationship among evapotranspiration, remote sensing data and micrometeorological data of these 2 land use types
3. To find out the suitable models that can estimate actual evapotranspiration by using simple climatic data and remotely sense data.