

Onset Date for Rice Cultivation over Yom Basin in Thailand

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Abstract

A study of Onset date for rice cultivation over Yom Basin in Thailand using Backward and Forward Rainfall accumulation method. In this publication used daily rainfall data from 104 rainfall stations over Yom Basin during 1976 to 2000. The result shown that the onset date for rice cultivation over Yom Basin in Thailand started on 8th May until 9th June along the upper of Yom Basin though the lower of Yom Basin. The Ending date of cultivation over the upper Yom Basin lies on 29th September though the lower of Yom Basin on 21st October.

1. Introduction

There are 25 major river basins in Thailand. There are 7, 3, 5, 3 and 7 basins in the Northern, Northeastern, Central, Eastern and Southern part. Yom basin was selected to study which was in northern part of Thailand. Many people who lived in this basin are farmer, mainly paddy field, horticulture and field crops. Farmers therefore traditionally grow only rainfed wetland rice crop, so amount and distribution of rainfall is the important. If we know the onset date for cultivation over Yom basin, it will be the best. Fig 1 showed landuse map

2. Materials and method

2.1 Site and description and data collection

Fig 2 showed the location of rainfall stations involved in the network of 104 stations over Yom basin in Thailand. Daily rainfall were selected due to their continuity and quality during the period 1976 to 2000.

2.2 Model description

Backward and forward accumulation method is presented to determine the onset and termination of the wet season, base on daily rainfall data. Morris and Zandstra (1972) choose 200 mm. accumulated rainfall for initiation of puddling-wet land preparation of rice fields. Some conclusions can be drawn from this graphical representation. The onset of the rainy season in Khon kaen, Thailand is much more gradual compared to the end of the rainy season. The termination date is chose 100 mm. backward accumulation rainfall.

2.3 Data analysis

2.3.1 Forward accumulation rainfall

The datasets were in rows and column . The date column is Julian-day. Accumulate rainfall since 1st January forward until equal or more than 200 mm.. then stop. Record number of Julian-day for each year and average number of Julian-day

2.3.2 Backward accumulation rainfall

Accumulate rainfall since 31st December backward until equal or more than 100 mm.. then stop. Record number of Julian-day for each year and average number of Julian-day

2.3.3 GIS program

Julian-days were analyzed contour lines using Sufer program version 8.0. Export contour lines from Sufer program and import to ArcInfo program. Build topology for this map into Geographic Information System (GIS).

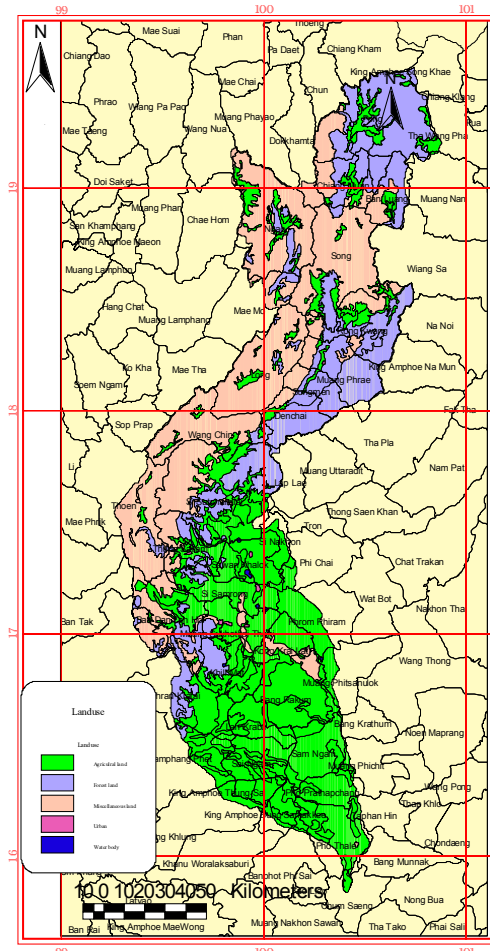


Fig 1 Landuse over Yom Basin

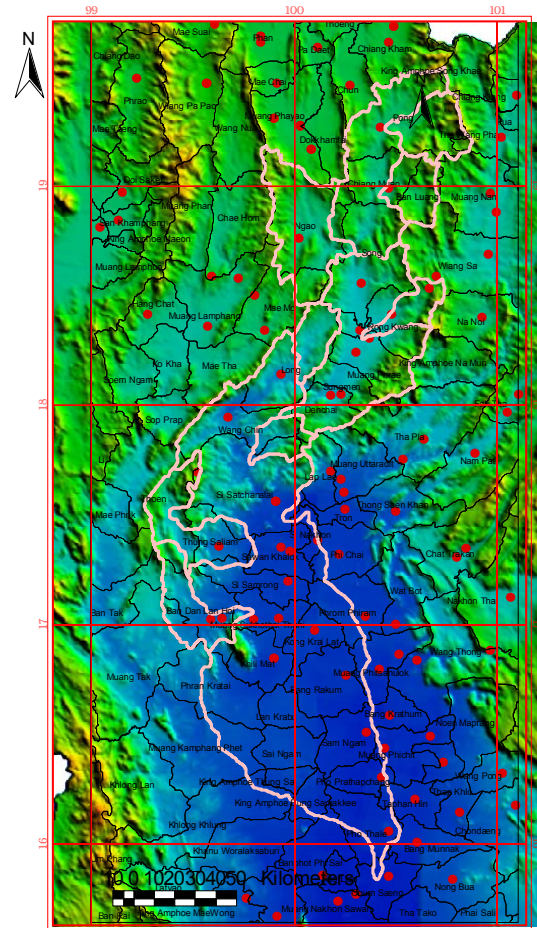


Fig 2 Rainfall Stations over Yom Basin

3. Result and discussion

The result of this study found that the onset date over Yom Basin on 28th April to 9th June for the each area. The onset date started on the upper of Yom Basin though the lower of Yom Basin. (Fig 3) The onset date is meaning that there was enough moisture in the ground for wetland rice . So the farmer can prepare their rice field and select the date to cultivation. The ending date of cultivation lies on 29th September to 21st October these date showed that the farmer cannot prepare rice field for cultivation (Fig 4)

This case study used only daily rainfall to analyze. The area are shown the onset date and ending date for rice cultivation over Yom Basin in Thailand (Fig 3 & Fig 4) would be help the user's planning. The user must be consider dry spell, crop water requirement, actual water consumption of crop, frequency and duration of rainfall and disaster .

4. Conclusions

Rice is the significant commodity for Thai's economy. It is the country's stable food, by-products of rice is also importance for human and animal consumption. Farmers enjoy their earning from selling rice as well as the country gains a large amount of foreign exchange from exporting of rice. Generally the rice in Thailand is harvested after the fields become dry at the end of the rainy season (September – October). Typical result of the study will give the farmers who lived in Yom Basin to knows the system to study appropriate timing for cultivation rice. I hoped that the informations in this document will not only give some ideas for planning to cultivate rice but will also encourage more detailed of the method of GIS and apply for another rainfed areas in the world.

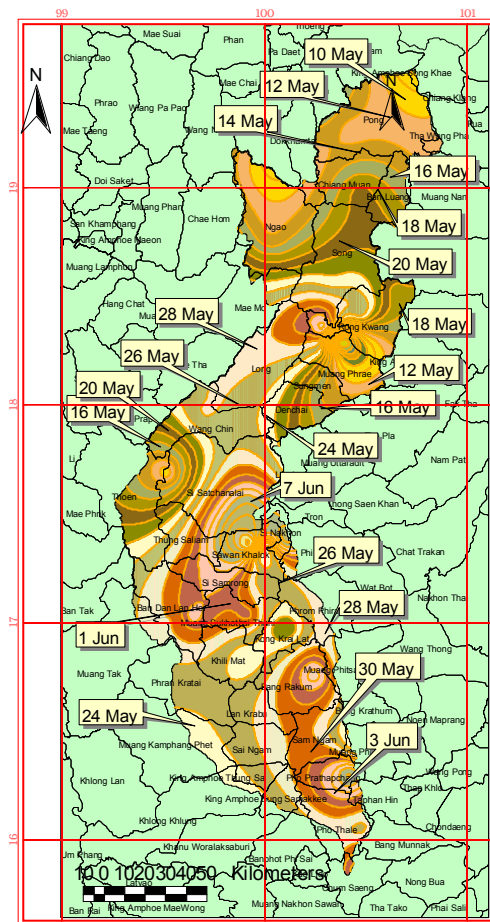


Fig 3 Onset Date for Rice Cultivation over Yom Basin in Thailand

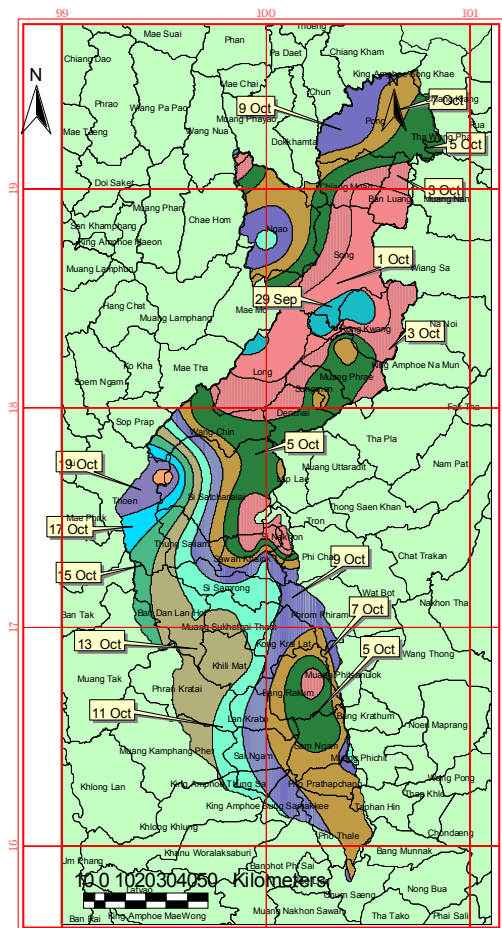


Fig 4 Ending Date for Rice Cultivation over Yom Basin in Thailand

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