

ON A METHOD OF FORECASTING THE DAILY DISCHARGE  
OF THE MEKONG AT VIENTIANE BY MEANS OF TANK MODEL

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1. The purpose of the present paper is to calculate the daily discharge of the Mekong at Vientiane from the daily precipitations of several rainfall stations shown in Fig. 1 by means of the tank model.

2. The method of forecasting is nearly the same as that used for the Mae Nam Chao Phraya. At first, the authors tried two types of models, one is the type used for Tha Pla, Kaeng Luang and Wang Kra Chao, and the other that used for Nakhon Sawan. Both the types, however, could not give good results. The latter type of model usually gave smooth hydrographs and seemed to fit for large basins, and so it was expected to give good results, but the obtained hydrograph was smoother than the observed one. On the contrary, the calculated hydrograph by the former type of model was less smooth than the observed one.

3. Therefore, we try the mixture of both types, assuming that the area of 70% of the basin is simulated by the Nakhon Sawan type and that of 30% of the basin by the Tha Pla type.

4. The obtained model parameters are shown in Fig. 2. The mean of the data of five rainfall stations is obtained by equally weighted

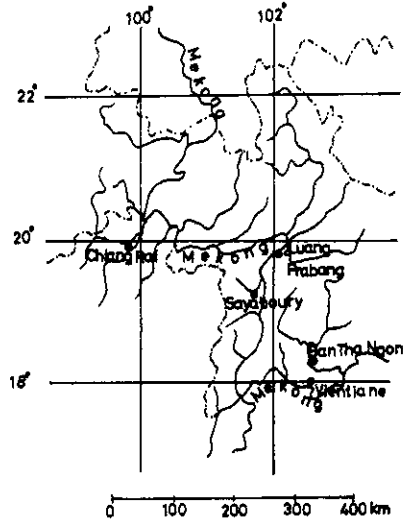


Fig. 1

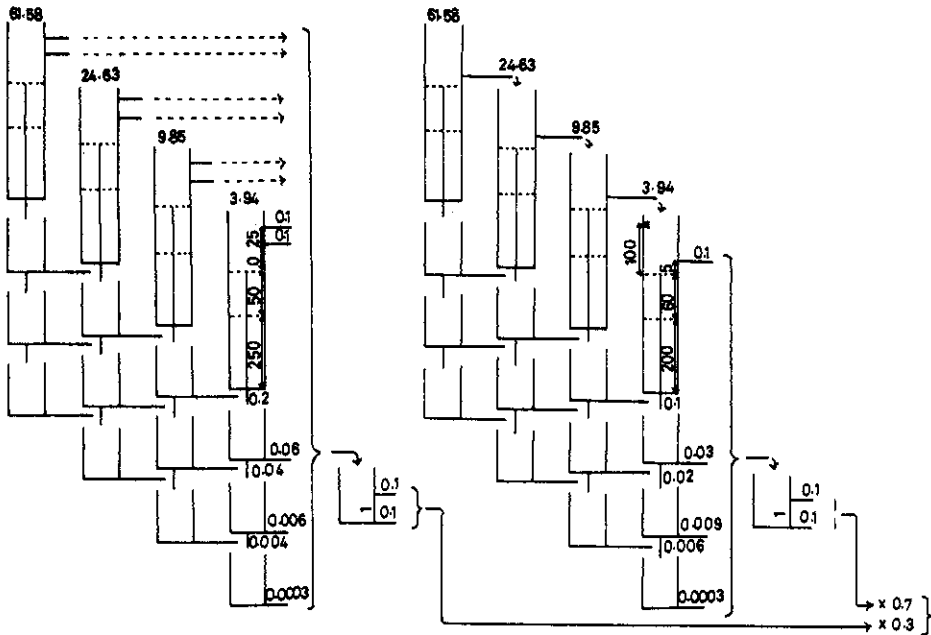


Fig. 2 Model parameters obtained

average, and the correction factors for the areal mean are given in Table 1.

Table 1 The correction factors for the areal mean rainfall

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
← 1.0 →		← 0.9 →		← 1.3 →		← 0.9 →					

Table 2 The daily evaporation (mm/day)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5.0	5.6	6.2	6.3	5.4	5.2	4.9	4.2	3.9	4.8	4.8	4.8

The daily evapotranspirations are given by Table 2, which are the monthly means of the daily data at Roiet.

The time lag given to the output of tank model is four days.

5. The calculated and observed monthly discharges are shown in Fig. 3, and the calculated and observed daily hydrographs are shown in Fig. 4.

6. The results are not so good, but considering that there are no rainfall data in the upper part of the Mekong and that every rainfall station is in a biased position, we must be satisfied with such unfavorable results. It can be expected that we will get far better results if we can use more representative rainfall data.

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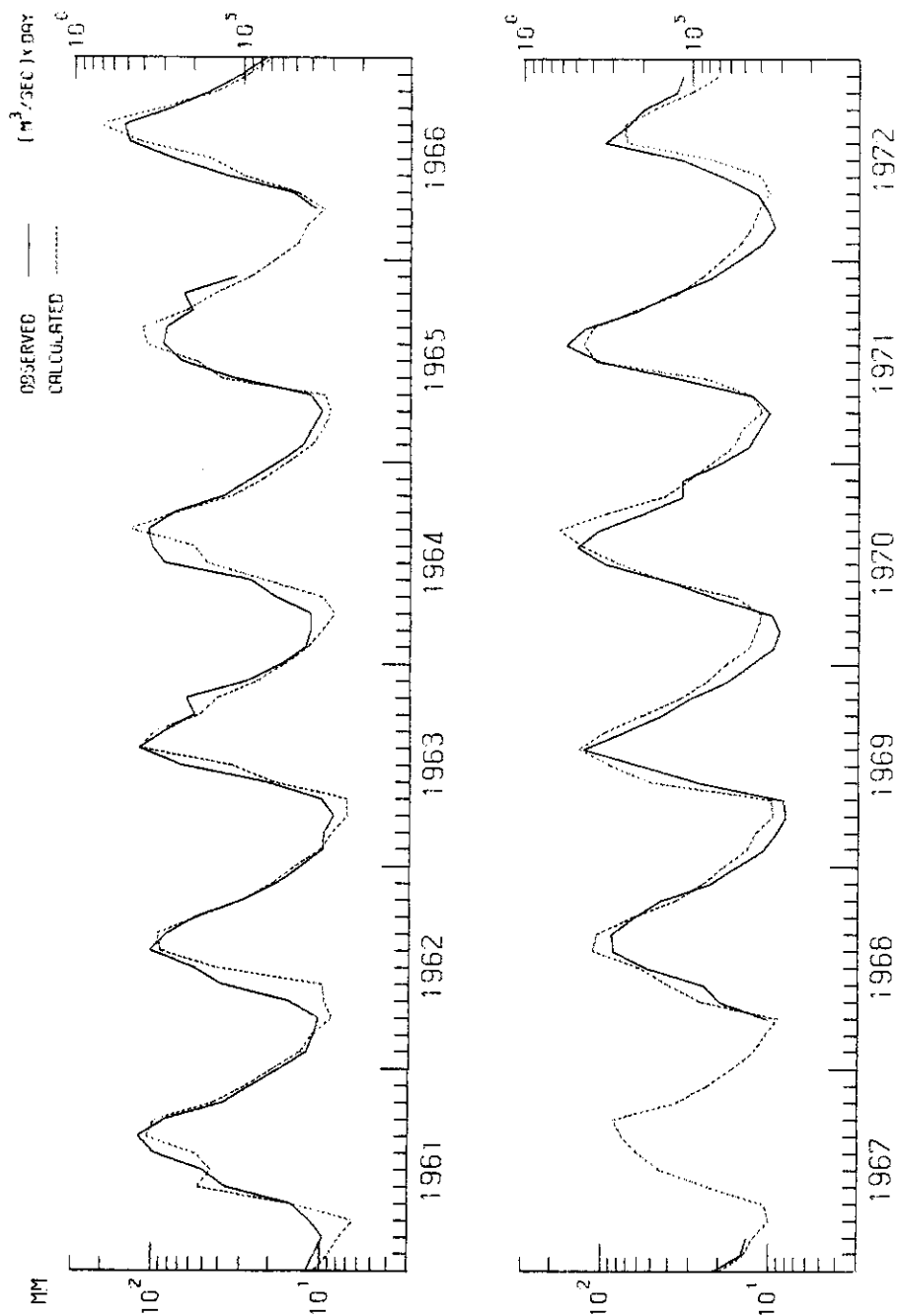


Fig. 3 Monthly discharges of the Mekong at Vientiane

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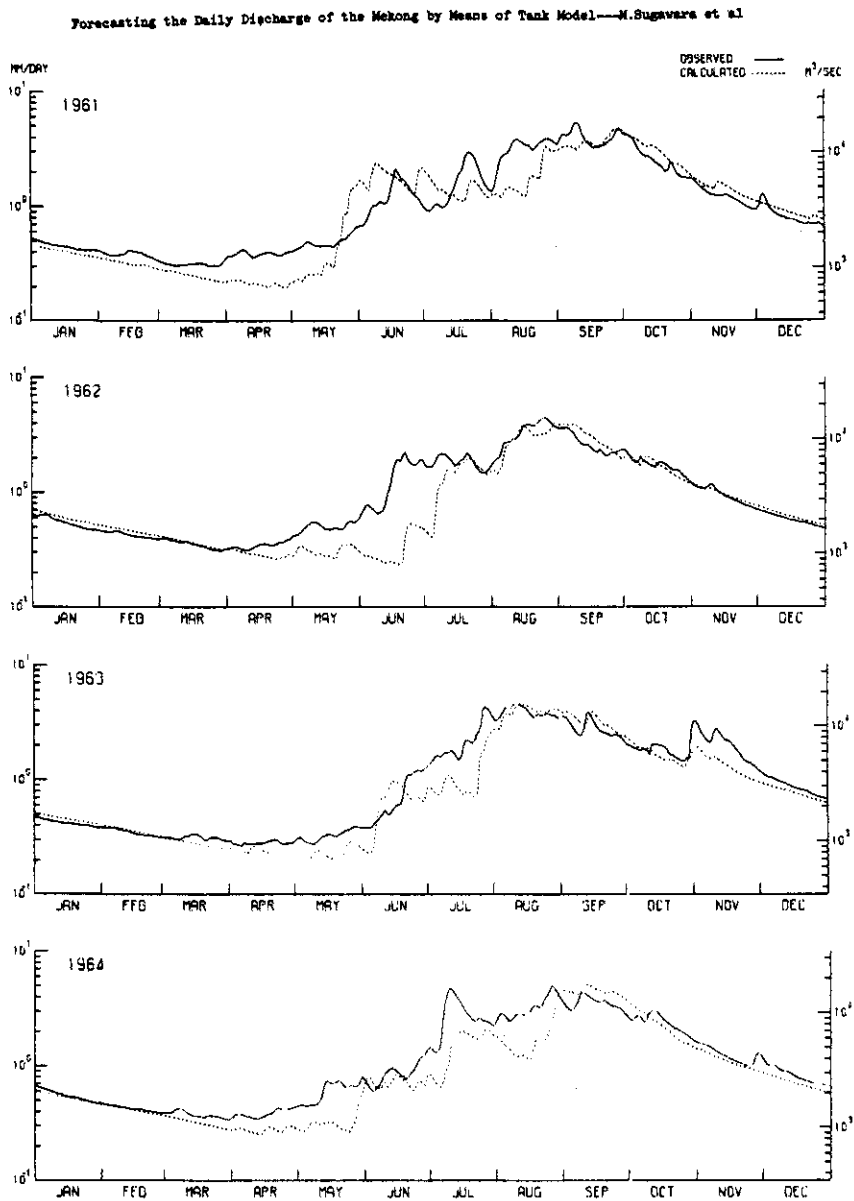


Fig. 4-1 Daily discharges of the Mekong at Vientiane

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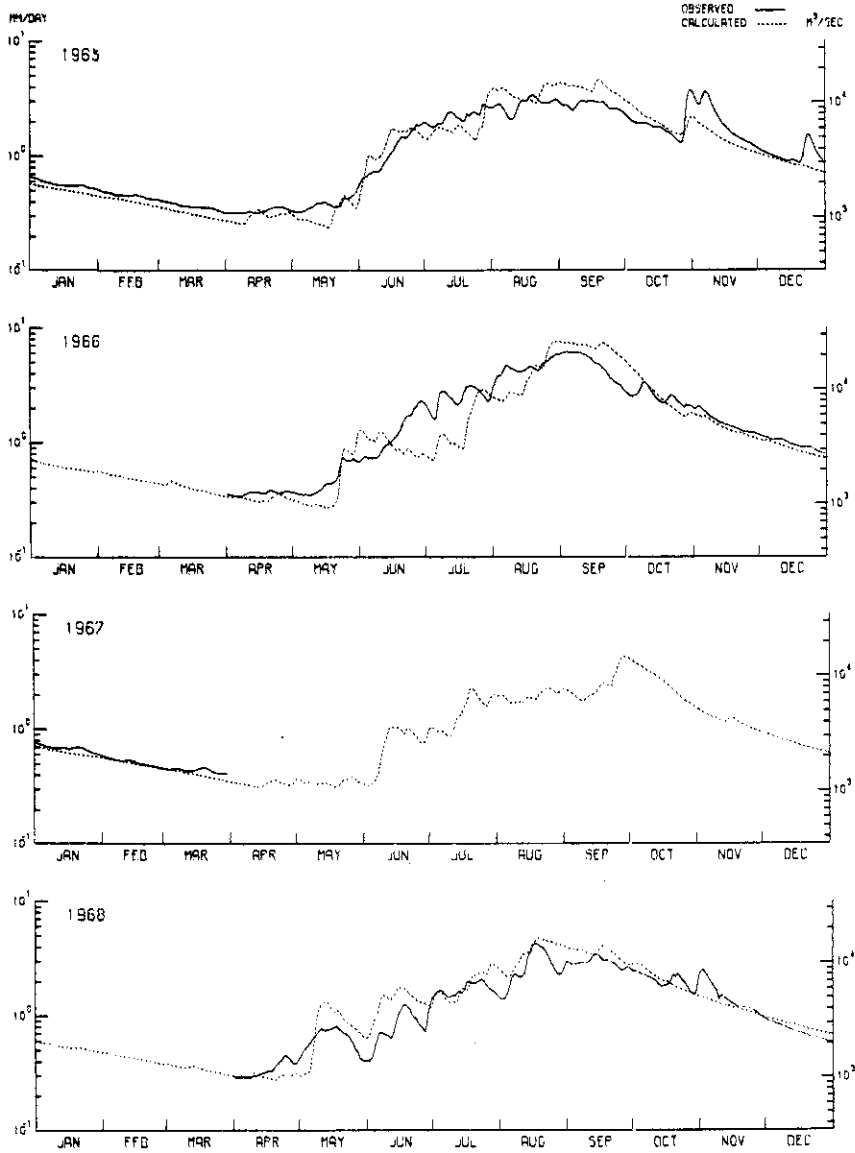


Fig. 4-2 Daily discharges of the Mekong at Vientiane

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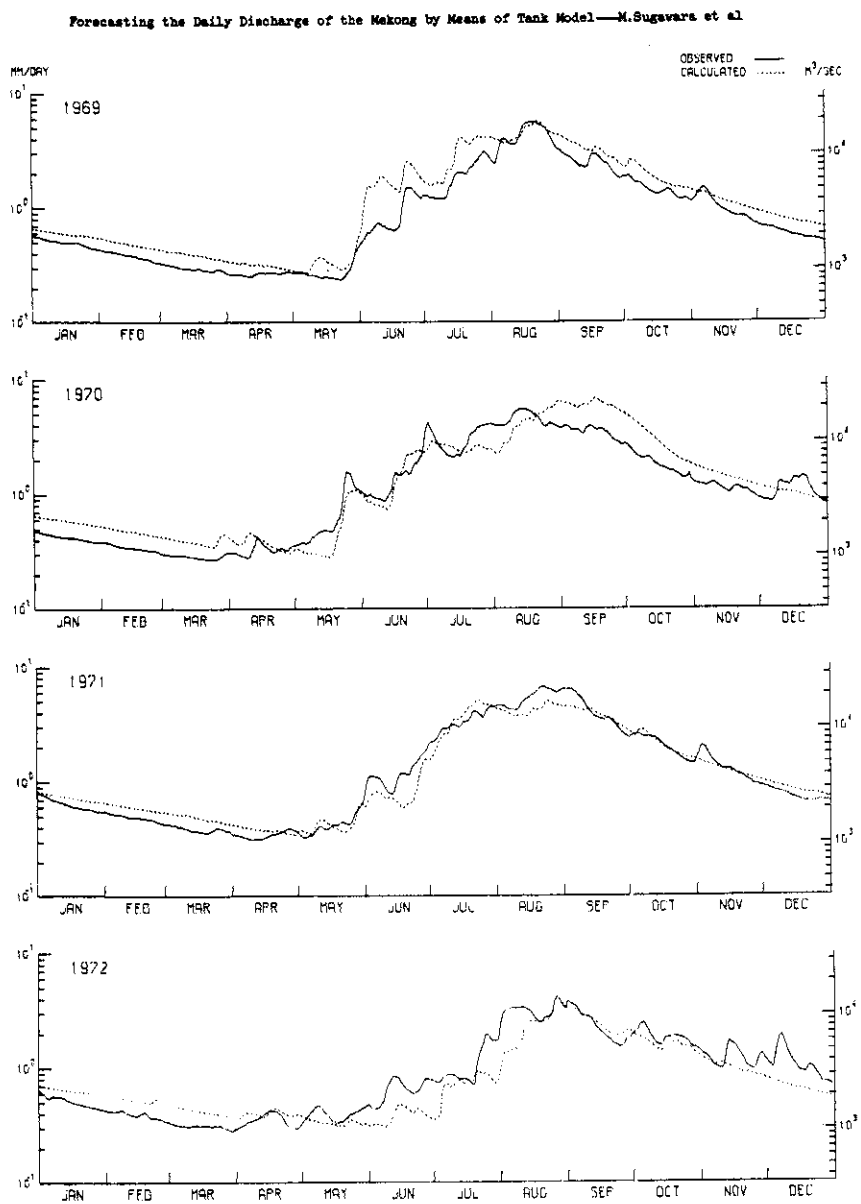


Fig. 4-3 Daily discharges of the Mekong at Vientiane

ビエンチェンにおけるメコン河の  
日流量をタンク・モデルにより算  
出する方法について（英文）

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ビエンチェンにおけるメコン河の日流量が、中流部流域内の数地点の雨量から、4×4型のタンク・モデルにより算出された。流域の70%はゆるやかなハイドログラフを与える型のモデルにより、30%はやや速い流出を与える型のモデルで近似された。

上流に関する情報をまったく欠き、中流部の小地域の雨量だけしか利用できなかったにしては、結果はそう悪くないと言ってよい。

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