



APPENDICES

ลิขสิทธิ์มหาวิทยาลัยเชียงใหม่

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Appendix A

Indices definitions

Definitions for indicators listed in table 3.3 are described below.

1. SDII

Let RR_{wj} be the daily precipitation amount on wet days, $w(RR \geq 1mm)$ in period j . If W represents number of wet days in j , then:

$$SDII_j = \frac{\sum_{w=1}^W RR_{wj}}{W}$$

2. Rnn

Let RR_{ij} be the daily precipitation amount on day i in period j . If nn represents any reasonable daily precipitation value then, count the number of days where:

$$RR_{ij} \geq nn$$

3. Rx1day

Let RR_{ij} be the daily precipitation amount on day i in period j . Then maximum 1-day values for period j are:

$$Rx1day_j = \max(RR_{ij})$$

4. Rx5day

Let RR_{kj} be the precipitation amount for the 5-day interval ending k , period j .

Then maximum 5-day values for period j are:

$$Rx5day_j = \max(RR_{kj})$$

5. CWD

Let RR_{ij} be the daily precipitation amount on day i in period j . Count the largest number of consecutive days where:

$$RR_{ij} \geq 1mm$$

6. CDD

Let RR_{ij} be the daily precipitation amount on day i in period j . Count the largest number of consecutive days where:

$$RR_{ij} < 1mm$$

7. SUnn

Let Tx_{ij} be the daily maximum temperature on day i period j . Count the number of days where:

$$Tx_{ij} > nn^{\circ}$$

8. TxX

Let Tx_{kj} be the daily maximum temperatures in month k , period j . The maximum daily maximum temperature each month is then:-

$$TXx_{kj} = \max(Tx_{kj})$$

9. TnX

Let Tn_{kj} be the daily minimum temperatures in month k , period j . The maximum daily minimum temperature each month is then:-

$$TNx_{kj} = \max(Tn_{kj})$$

10. Tx90P

Let Tx_{ij} be the daily maximum temperature on day i in period j and let Tx_{in90} be the calendar day 90th percentile centred on a 5-day window (calculated using method from Appendix D). The percentage of time is determined where:

$$Tx_{ij} > Tx_{in90}$$

11. Tn90P

Let Tn_{ij} be the daily minimum temperature on day i in period j and let Tn_{in90} be the calendar day 90th percentile centred on a 5-day window (calculated using method from Appendix D). The percentage of time is determined where:

$$Tn_{ij} > Tn_{in90}$$

12. DTR

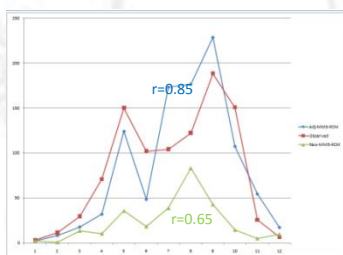
Let Tx_{ij} and Tn_{ij} be the daily maximum and minimum temperature respectively on day i in period j . If I represents the number of days in j , then:

$$DTR_j = \frac{\sum_{i=1}^I (Tx_{ij} - Tn_{ij})}{I}$$

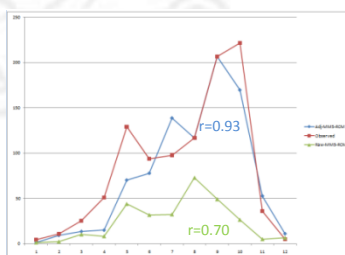
Appendix B

The annual cycle of rainfall (monthly averaged)

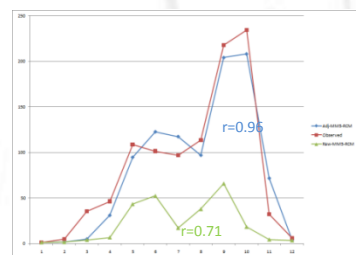
The mean annual cycles of rainfall in the reference period 1990-1999 for all stations are shown below.



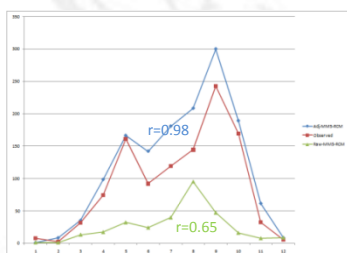
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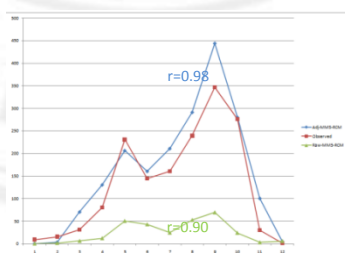
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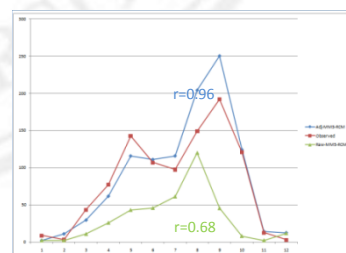
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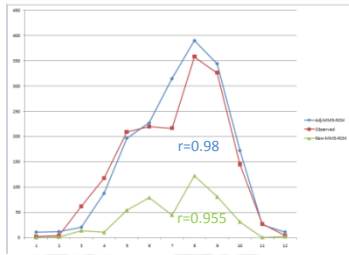
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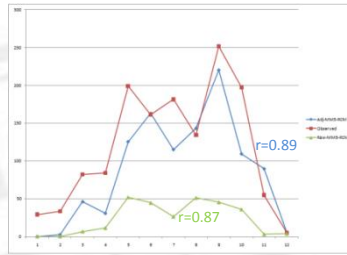
Bangkok Metropolis



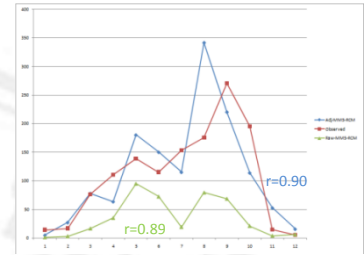
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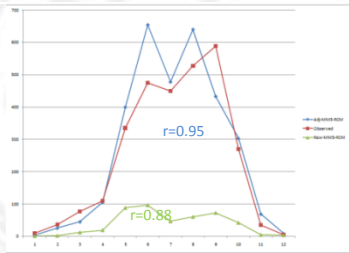
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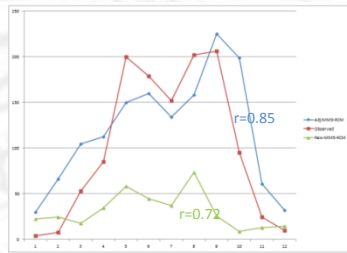
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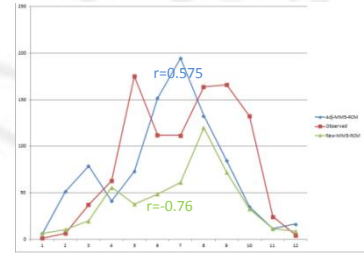
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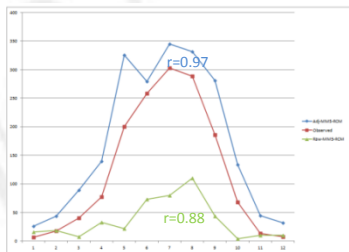
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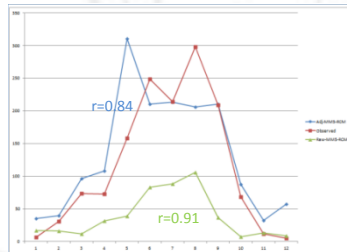
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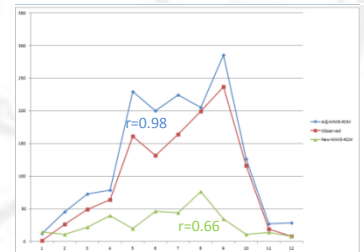
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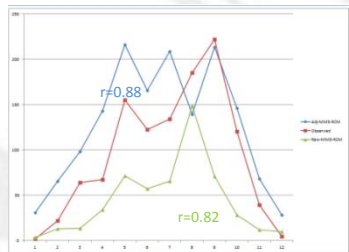
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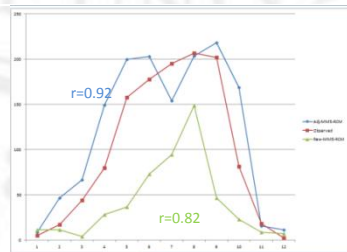
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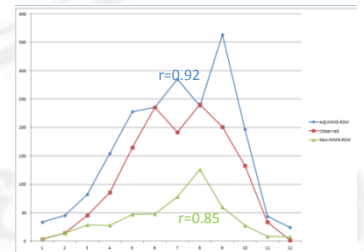
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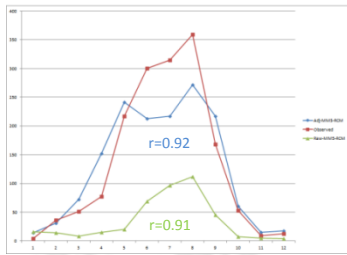
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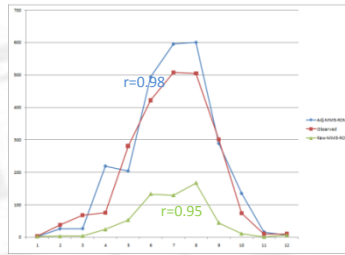
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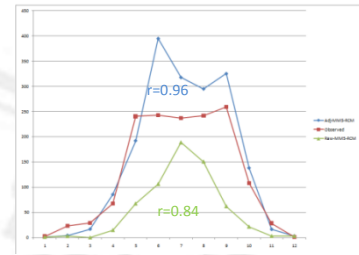
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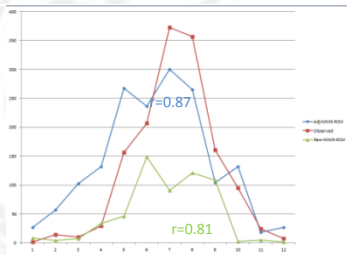
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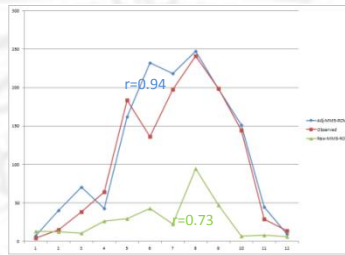
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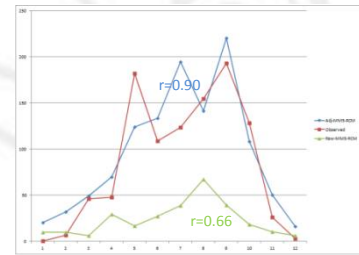
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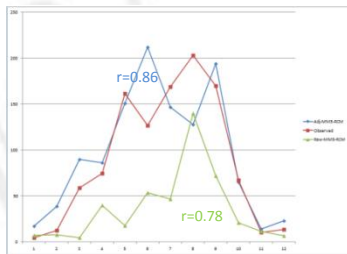
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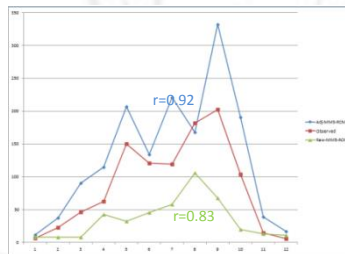
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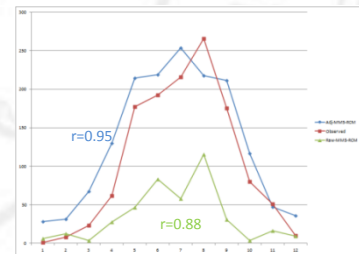
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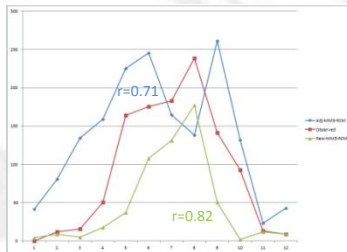
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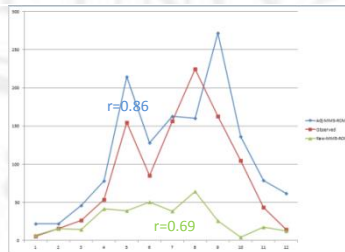
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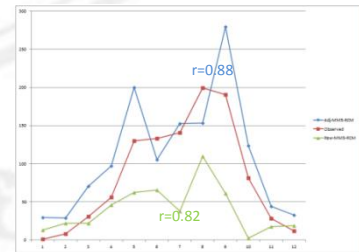
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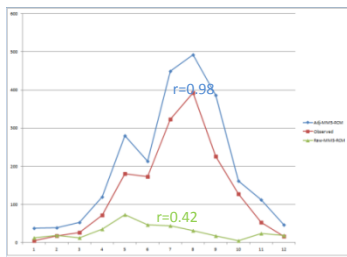
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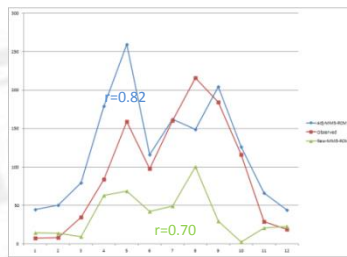
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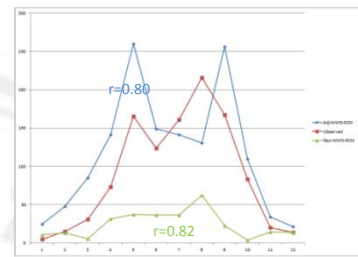
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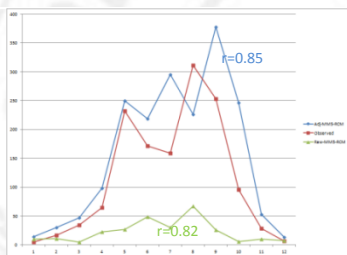
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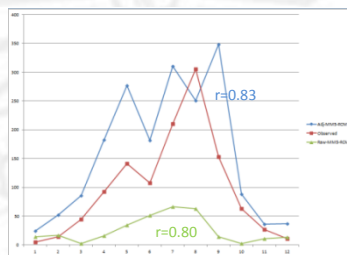
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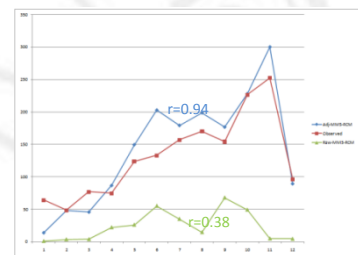
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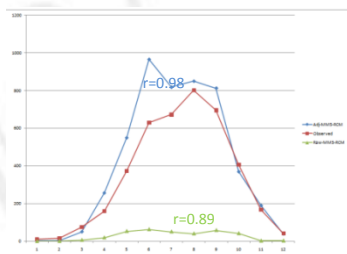
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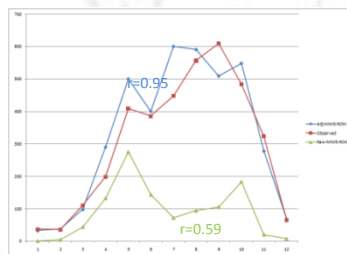
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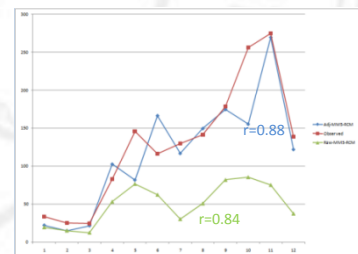
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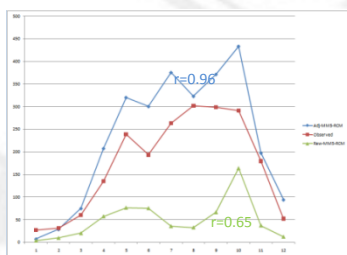
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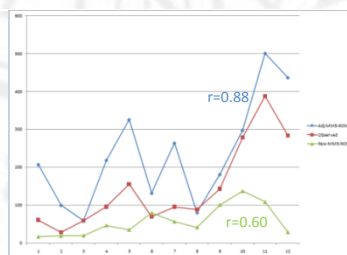
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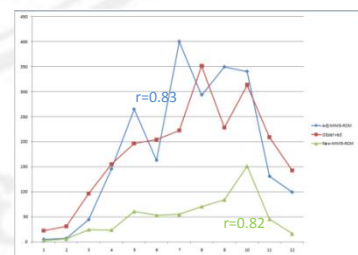
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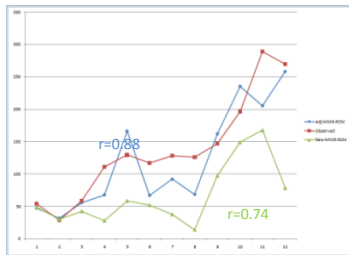
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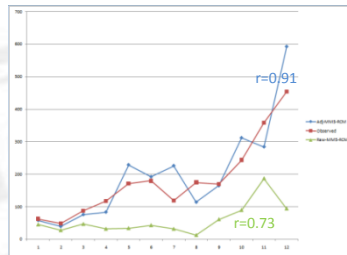
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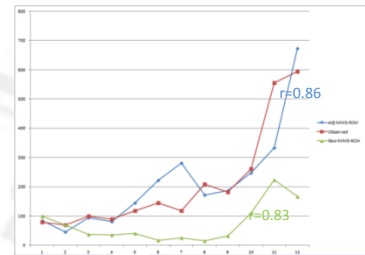
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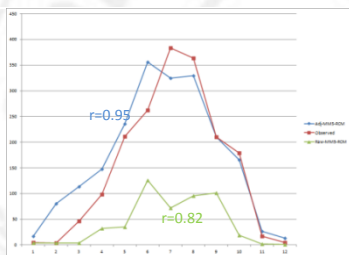
Hat Yai (airport)



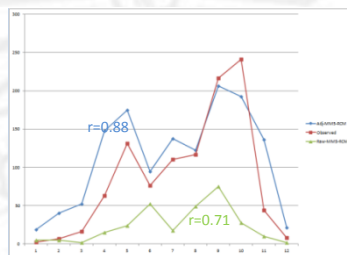
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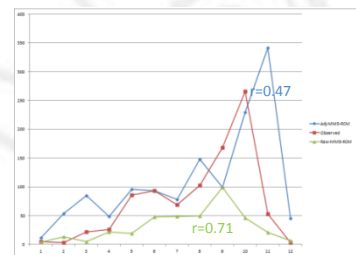
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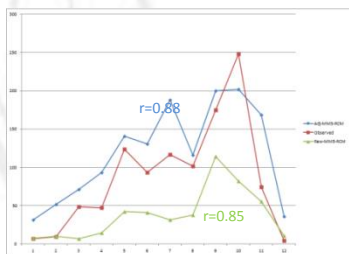
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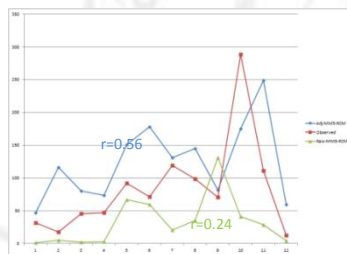
Khanchanaburi



Phetchaburi



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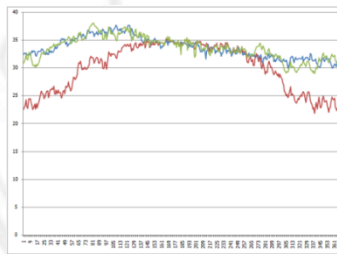


Prachuap Khiri Khan

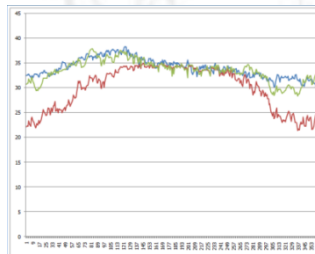
Appendix C

The annual cycle evaluation of maximum temperatures

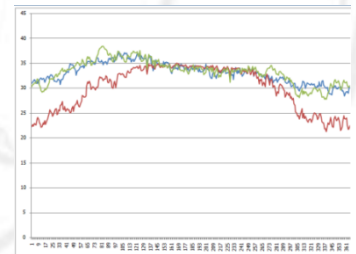
The red, green, and blue lines represent the maximum temperature from raw-MM5-RCM, Adj-MM5-RCM, and observed data, respectively. (The correlation coefficient between the observed and MM5-RCM maximum temperature are represented in figure 5.9 (a))



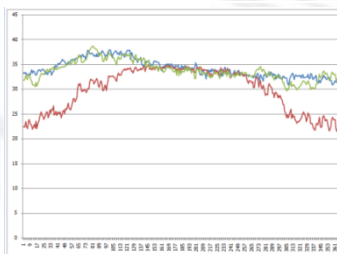
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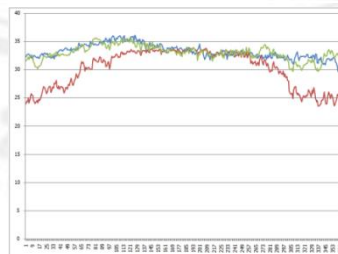
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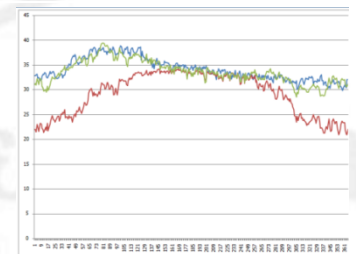
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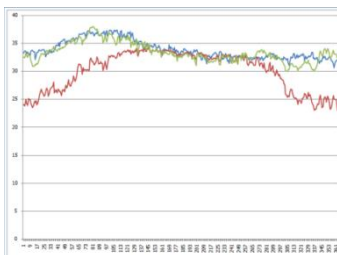
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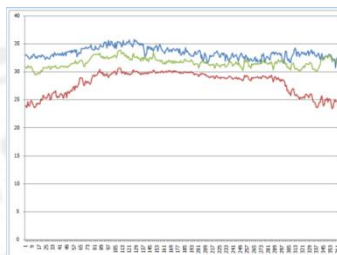
Bangkok Metropolis



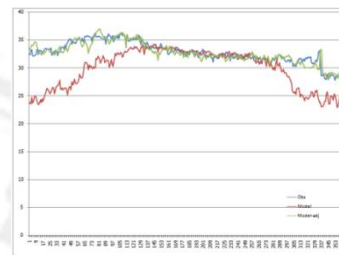
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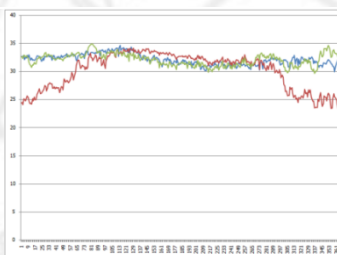
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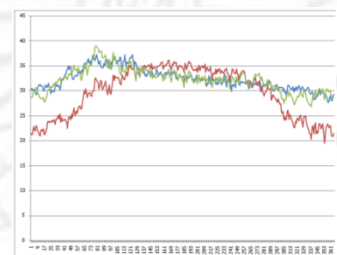
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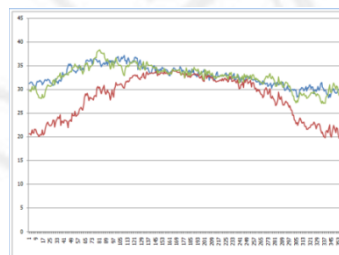
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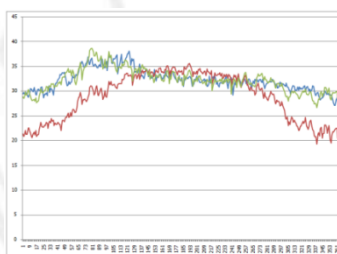
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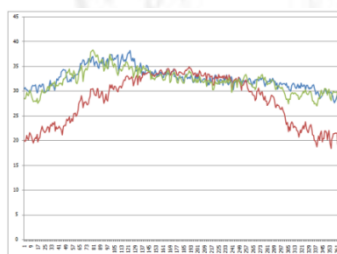
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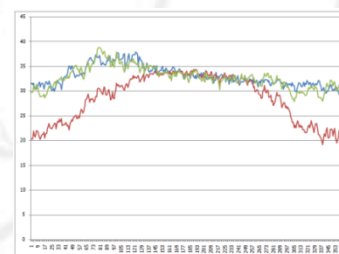
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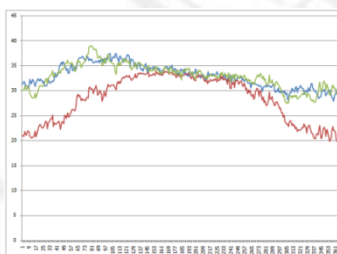
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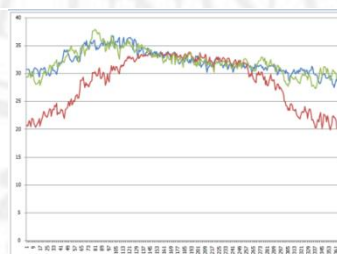
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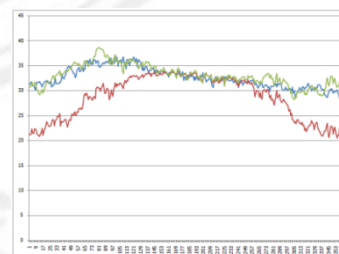
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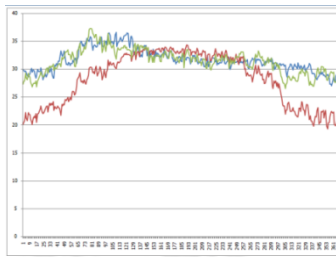
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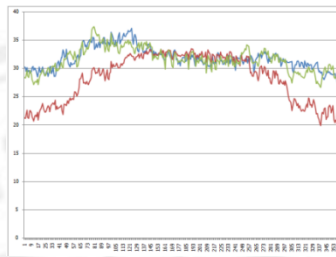
Roi Et



Surin



Sakon



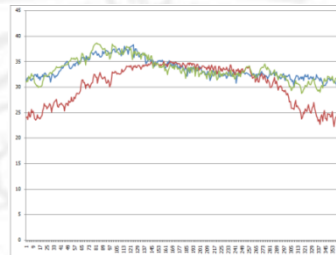
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Ubon Ratchasima



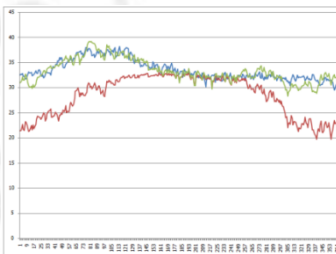
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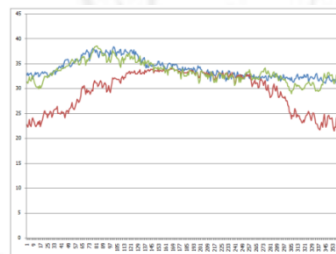
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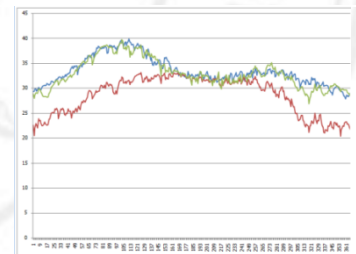
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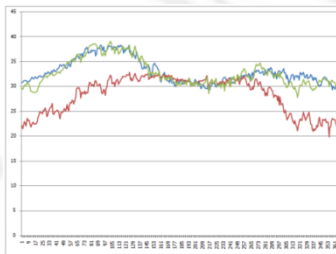
Phetchabun



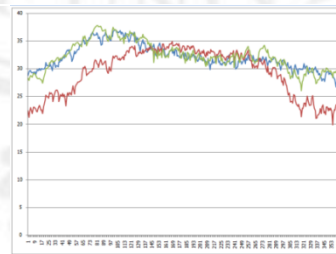
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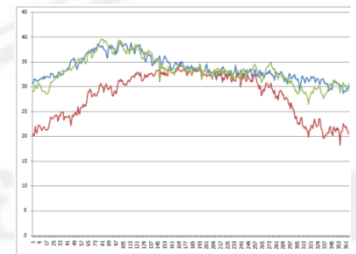
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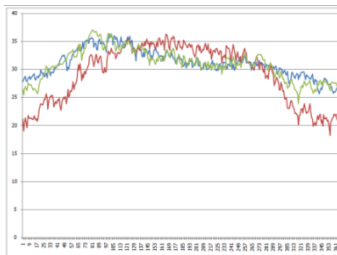
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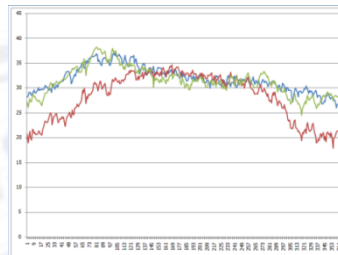
Chiang Mai



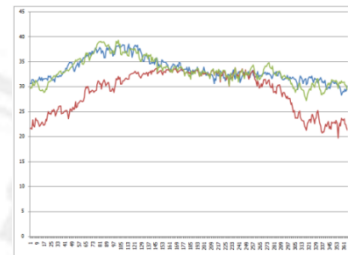
Lampang Agromet



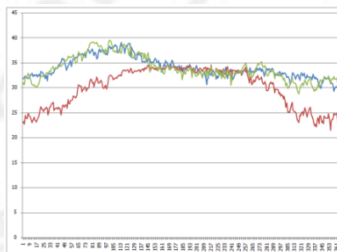
Chiang Rai



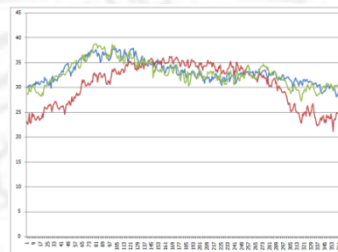
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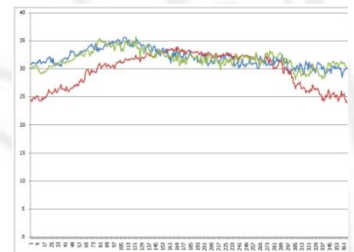
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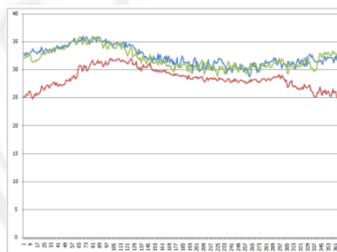
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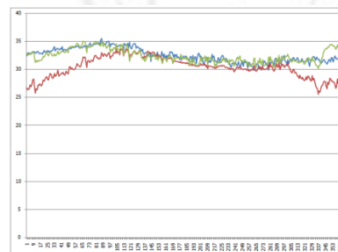
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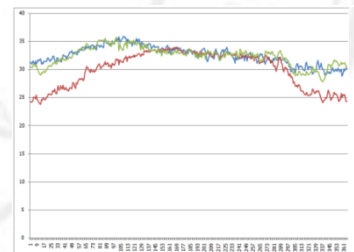
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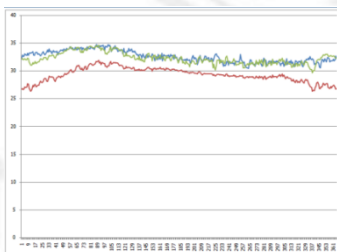
Ranong



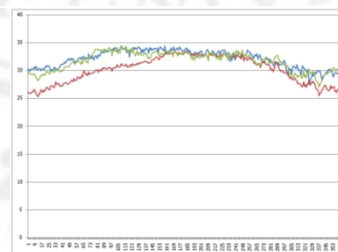
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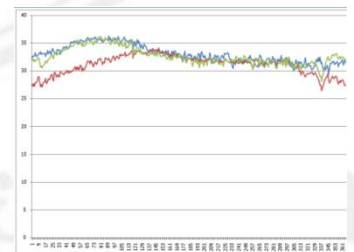
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Phuket

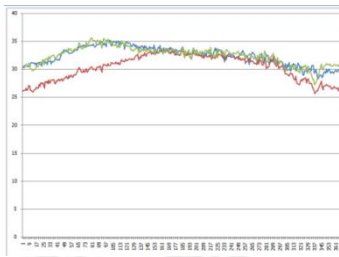


Nakornsi Thammarat

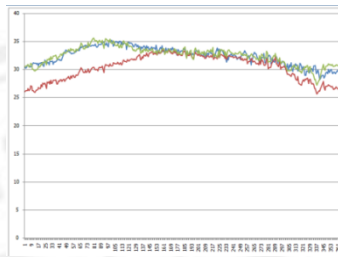


Trang (Airport)

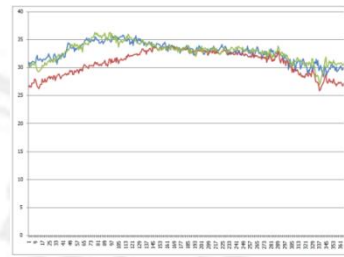
Agro met



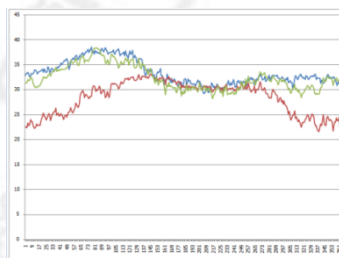
Hat Yai (airport)



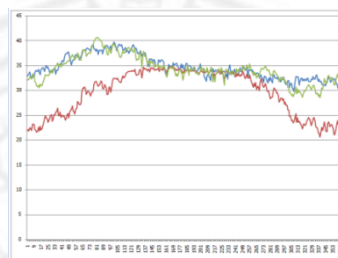
Yala Agro met



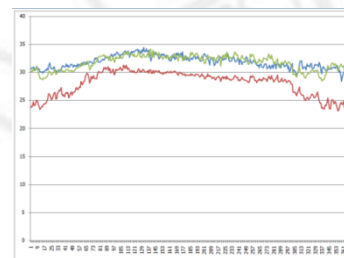
Narathiwat



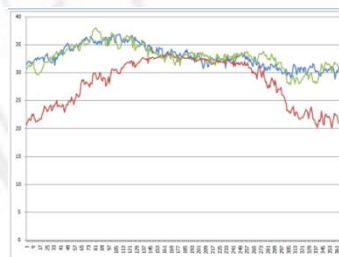
Thong Pha Phum



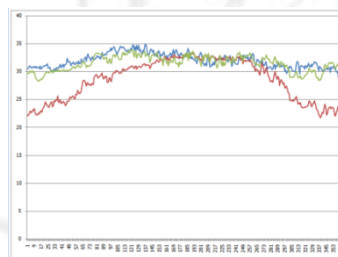
Khanchanaburi



Phetchaburi



Nong Phlub Agro met

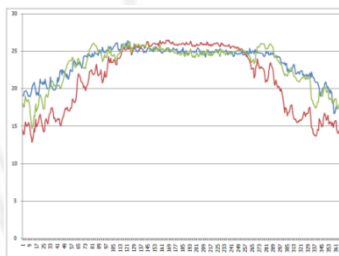


Prachuap Khiri Khan

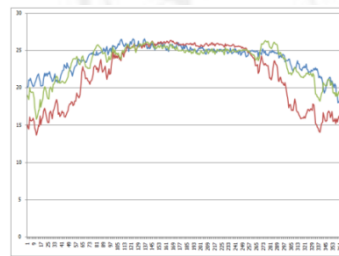
Appendix D

The annual cycle evaluation of minimum temperatures

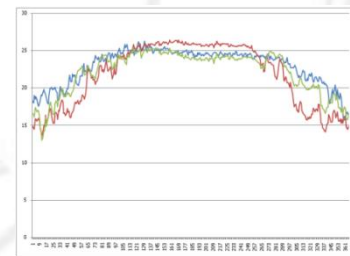
The red, green, and blue lines represent the minimum temperature from raw-MM5-RCM, Adj-MM5-RCM, and observed data, respectively. (The correlation coefficient between the observed and MM5-RCM minimum temperature are represented in figure 5.18 (a))



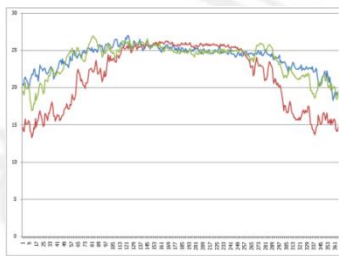
Chai Nat Agro met



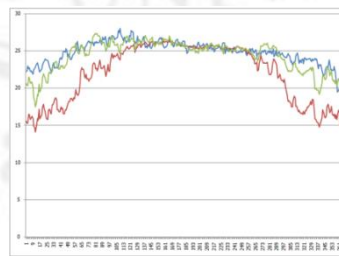
Suphan Buri



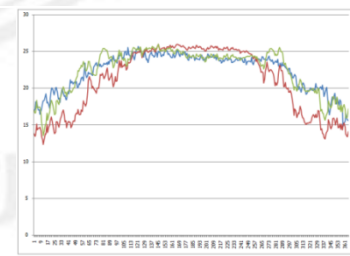
Kamphaeng Sean Agro
met



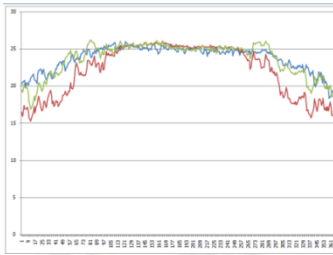
Lop Buri



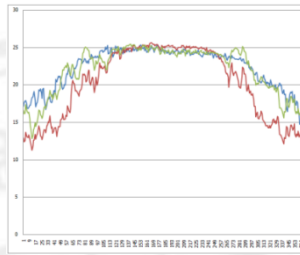
Bangkok Metropolis



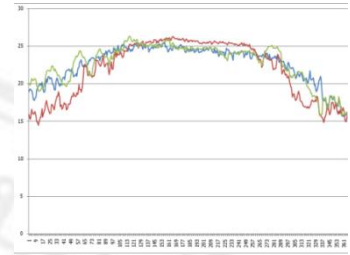
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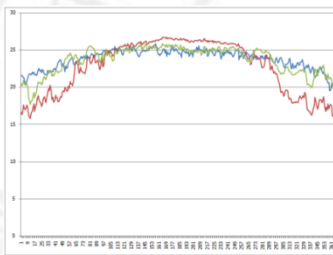
Prachin Buri



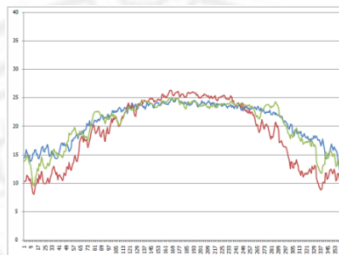
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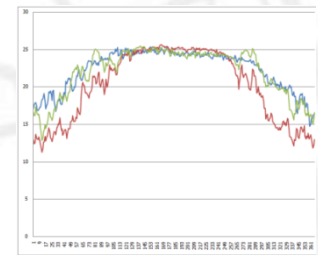
Chacherngsao Agro met



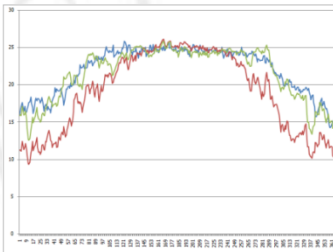
Chanthaburi



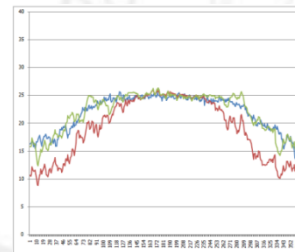
Loei



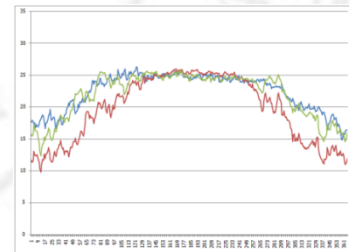
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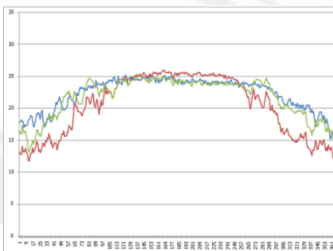
Nong Khai



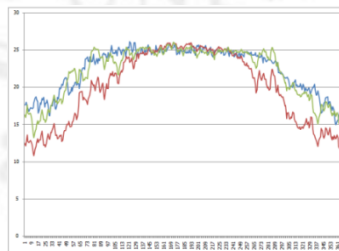
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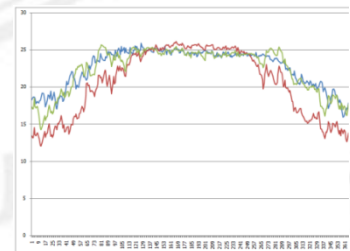
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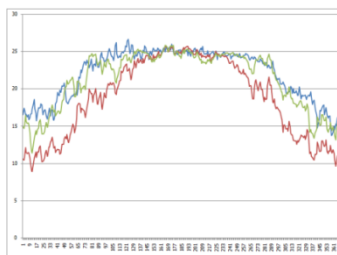
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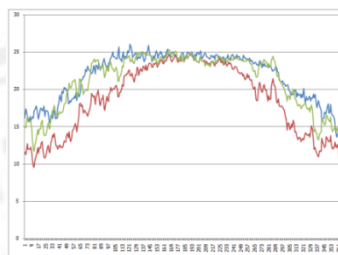
Roi Et



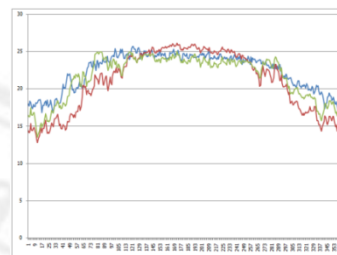
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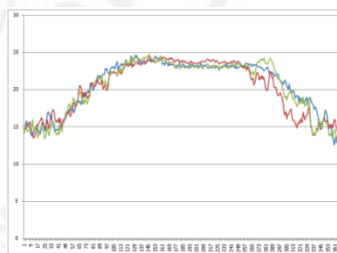
Sakon Nakhon



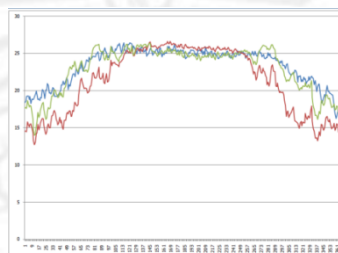
Nakhon Phanom



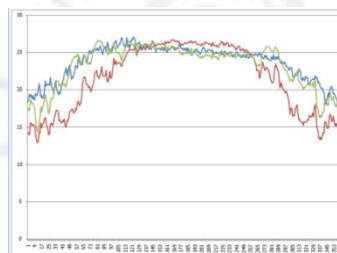
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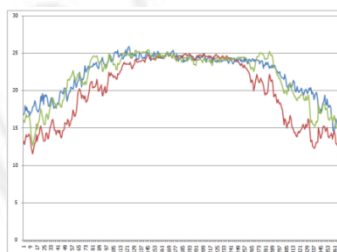
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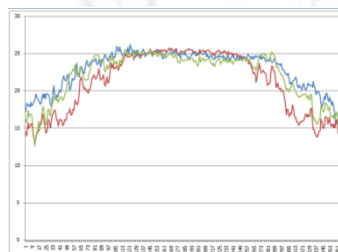
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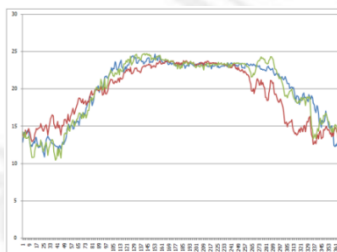
Phetchabun



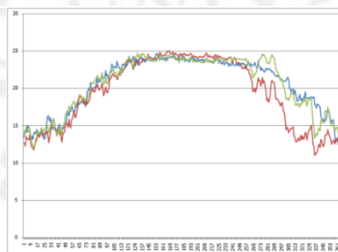
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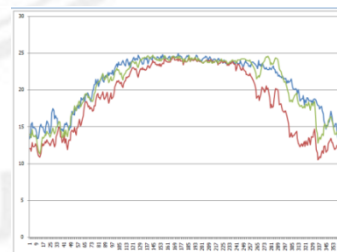
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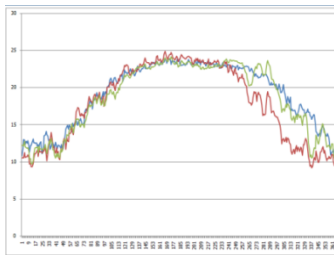
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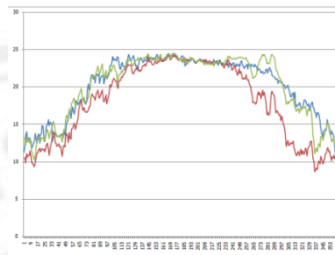
Chiang Mai



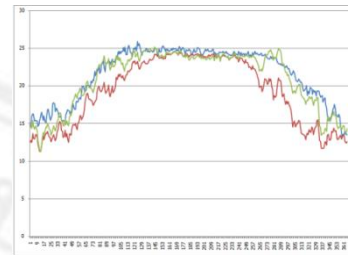
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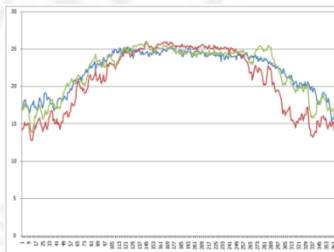
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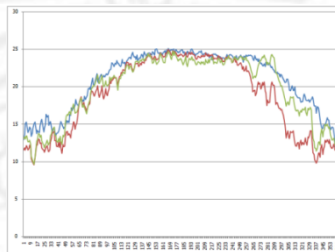
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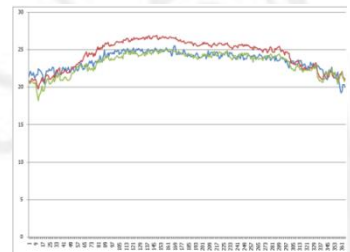
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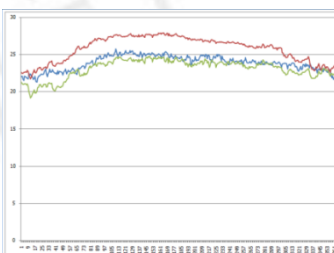
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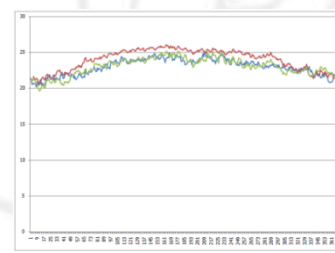
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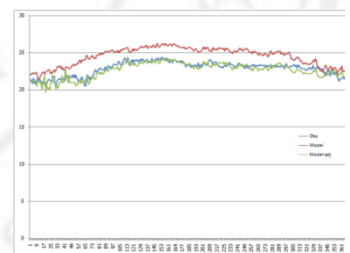
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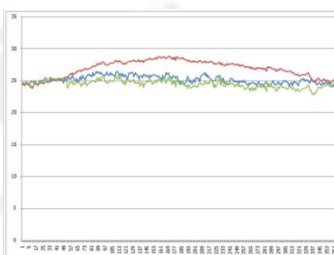
Ranong



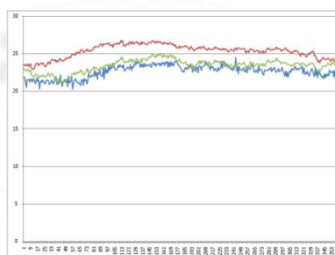
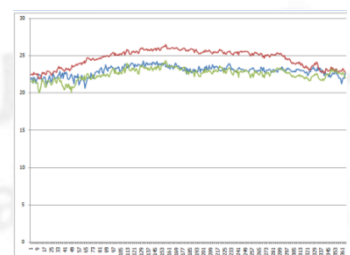
Takua Pa



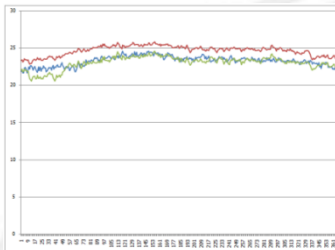
Surat Thani (Airport)



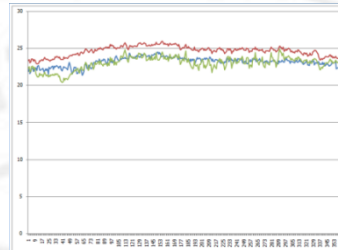
Phuket

Nakornsi Thammarat Agro
met

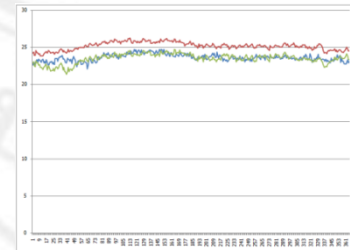
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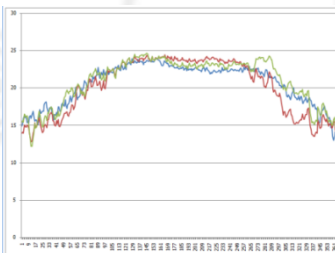
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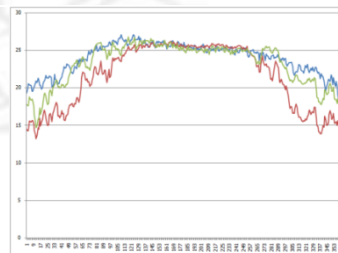
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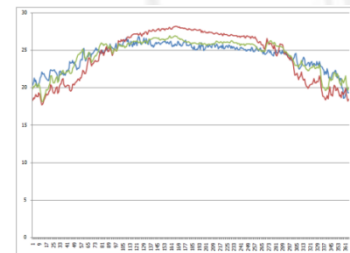
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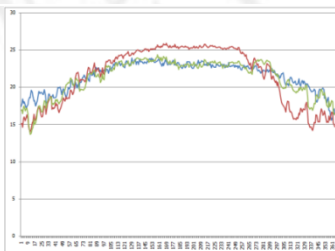
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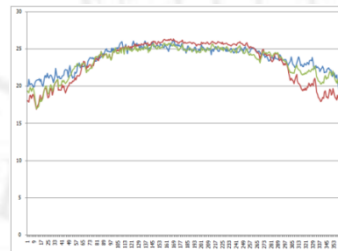
Khanchanaburi



Phetchaburi



Nong Phlub Agro met



Prachuap Khiri Khan

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