

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:

$$RR_{ij} \geq nnmm$$

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. SU_{nn}

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:-

$$TN_{Xkj} = \max(Tn_{kj})$$

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

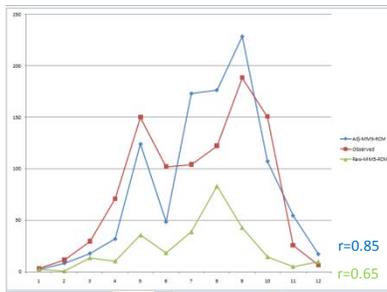
Let Tx_{ij} and Tn_{ij} be the daily maximum and minimum temperature respectively on day i in period j . If I represents the number of days in j , then:

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

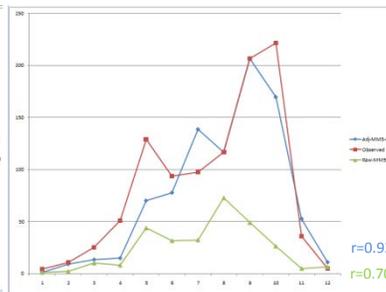
Appendix B

The annual cycle of rainfall (monthly averaged)

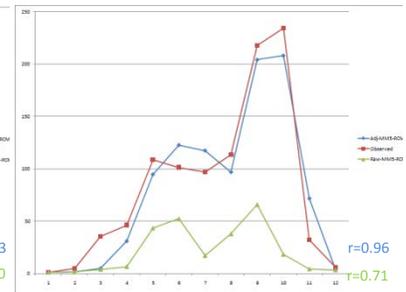
The mean annual cycles of rainfall in the reference period 1990-1999 for all stations are shown below.



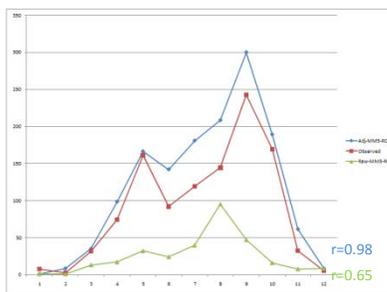
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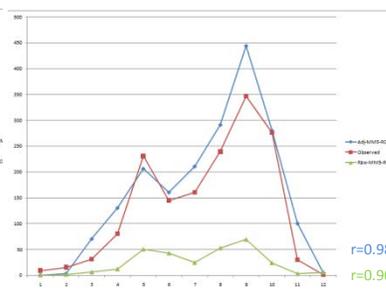
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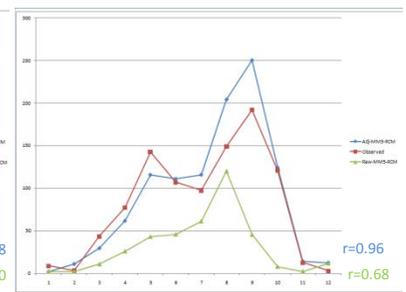
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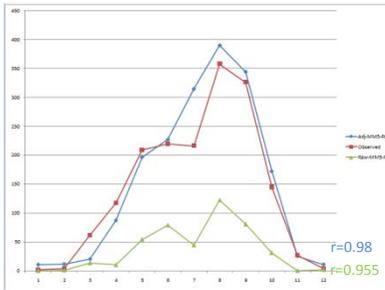
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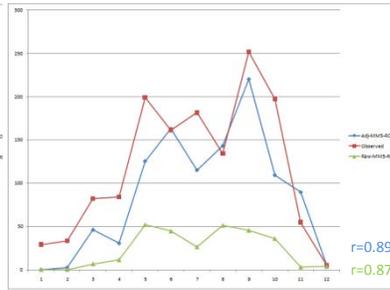
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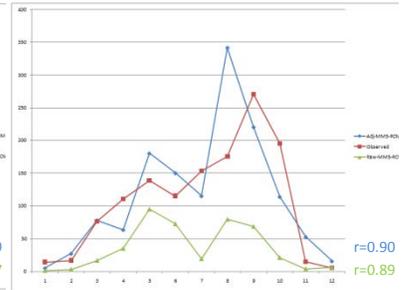
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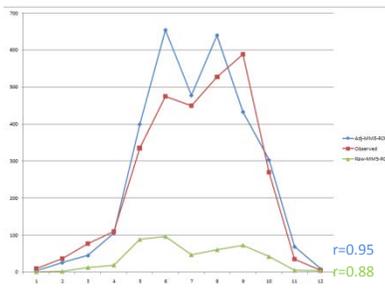
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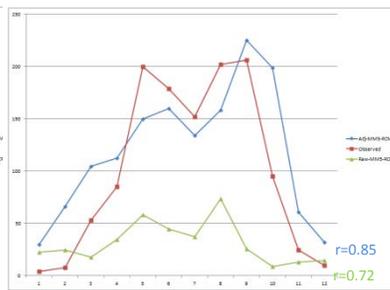
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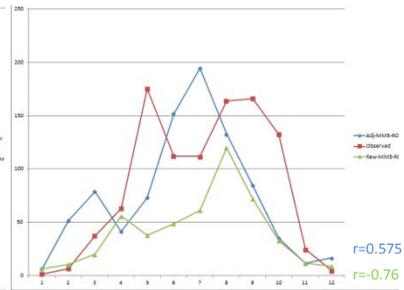
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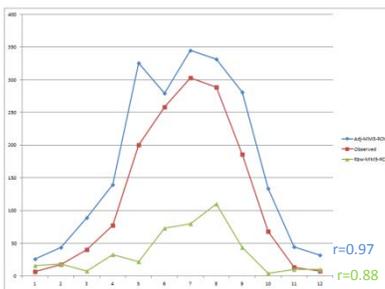
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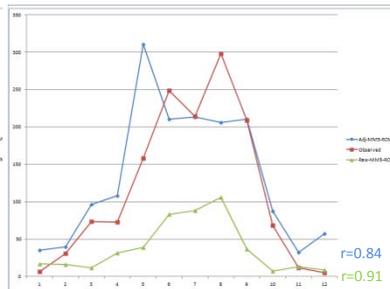
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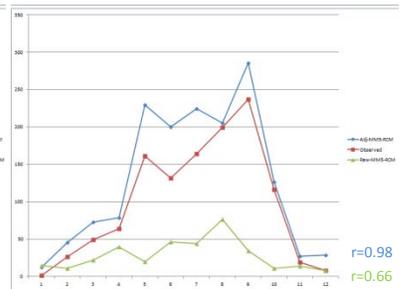
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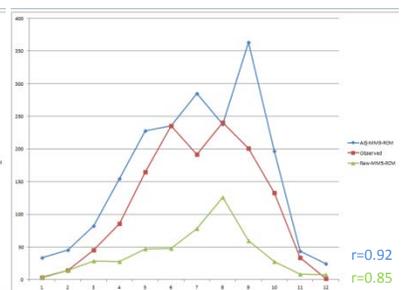
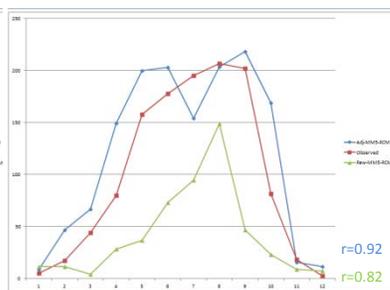
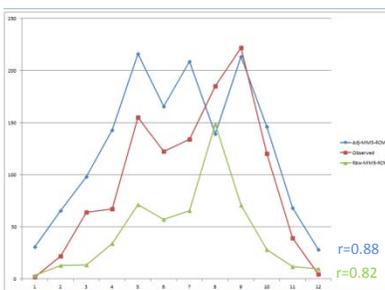
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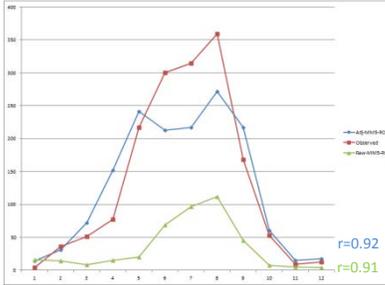
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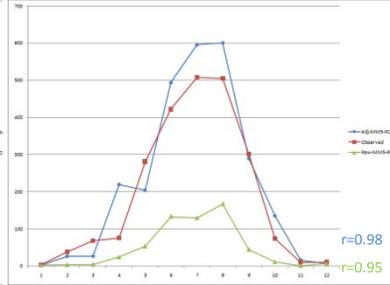
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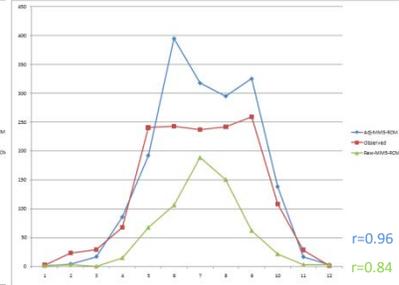
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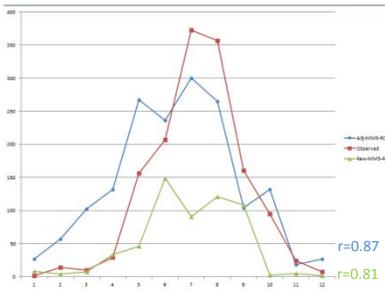
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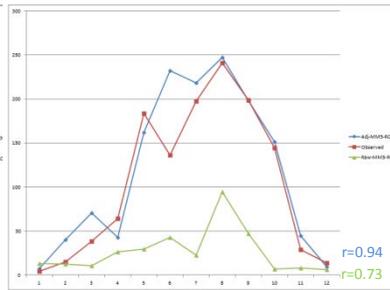
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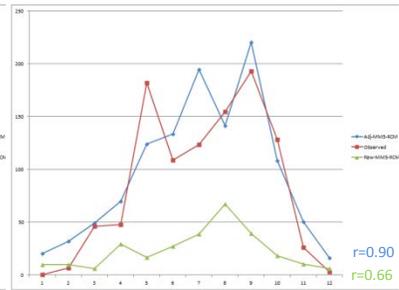
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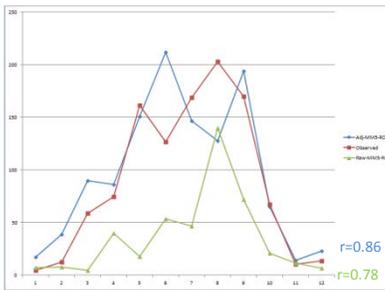
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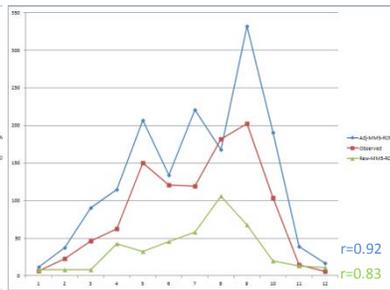
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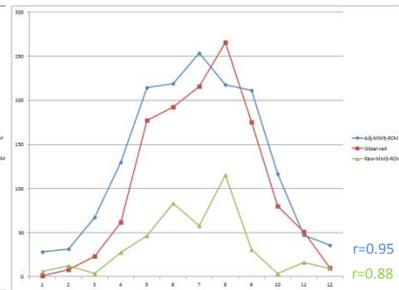
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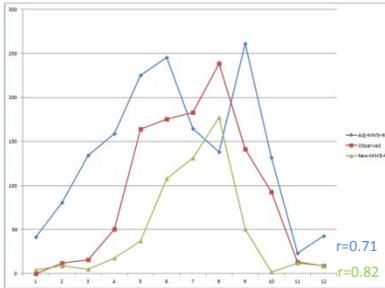
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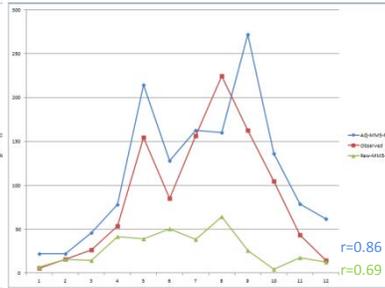
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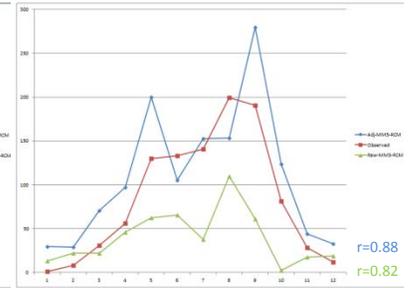
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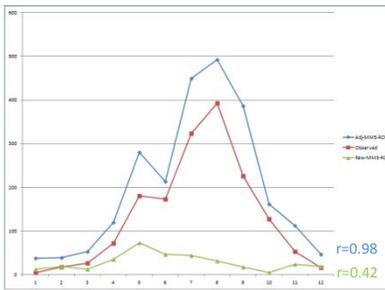
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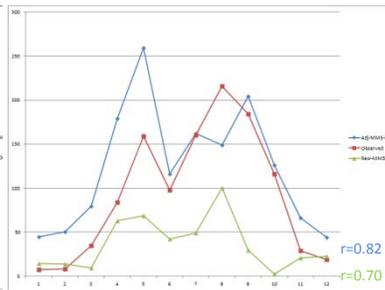
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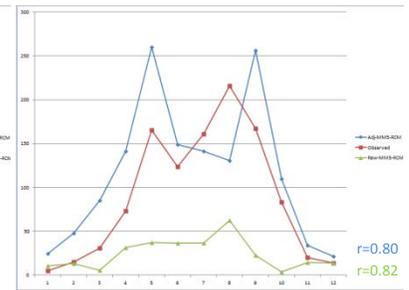
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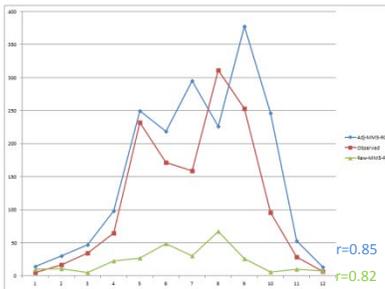
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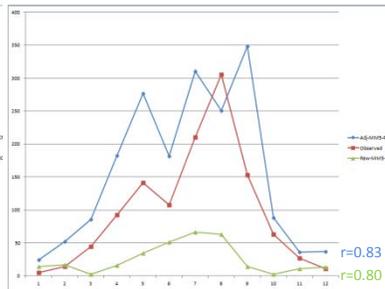
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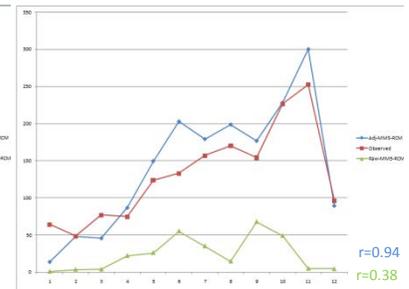
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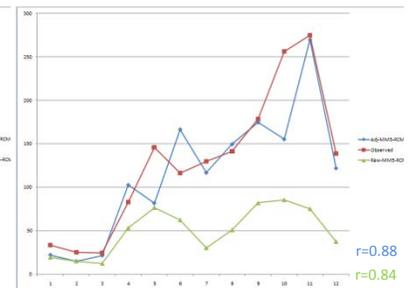
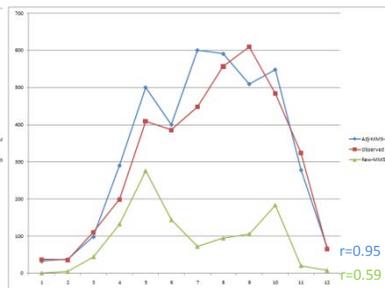
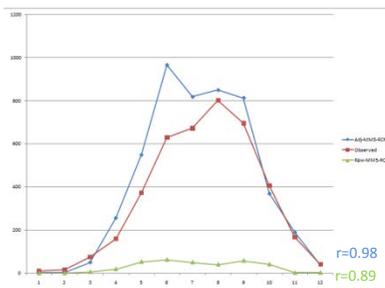
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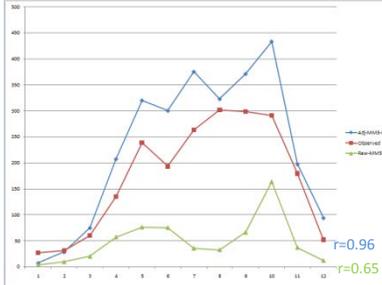
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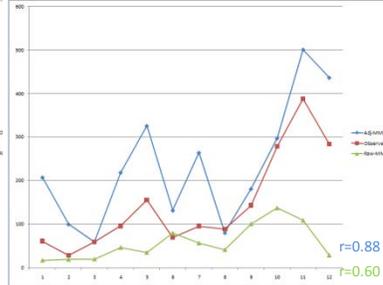
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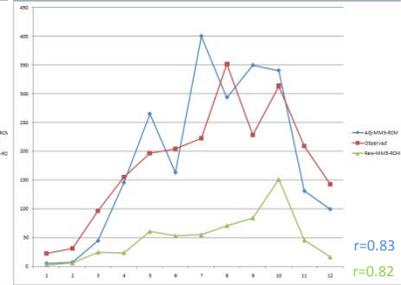
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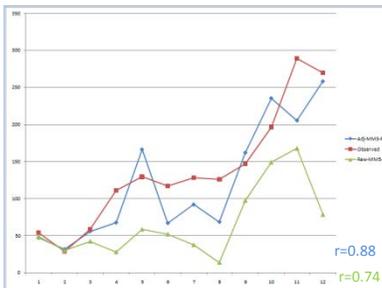
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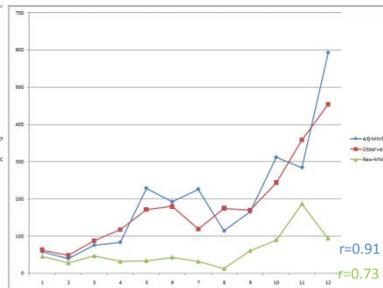
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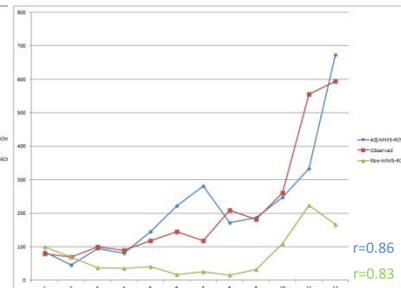


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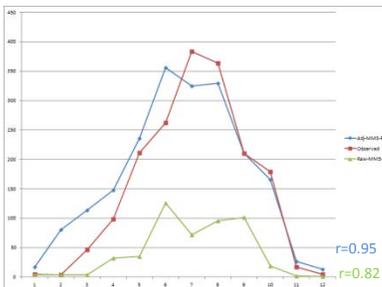


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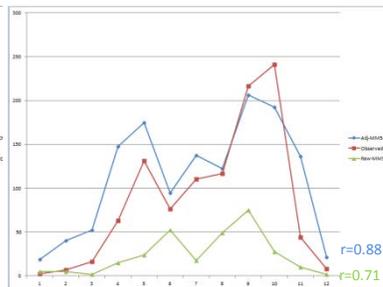
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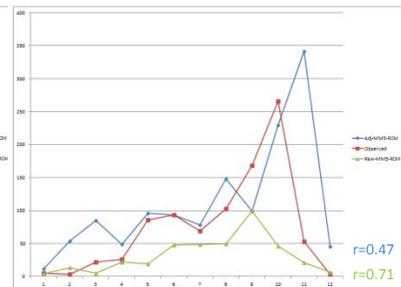
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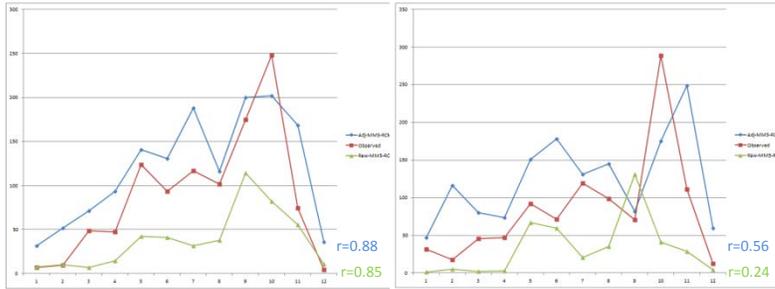
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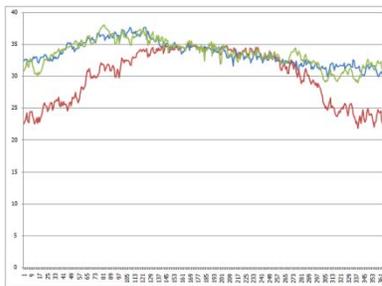
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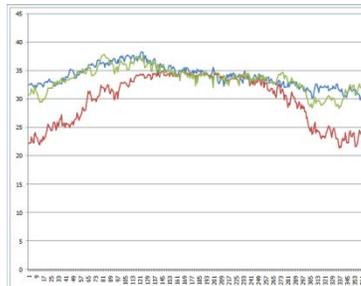
Appendix C

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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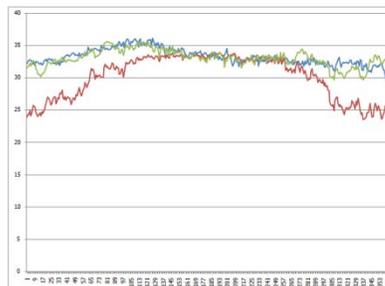
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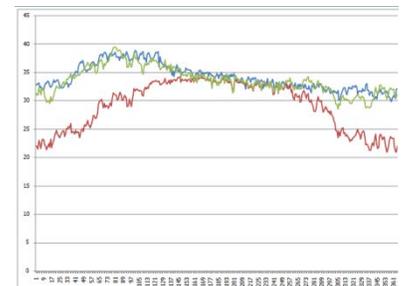
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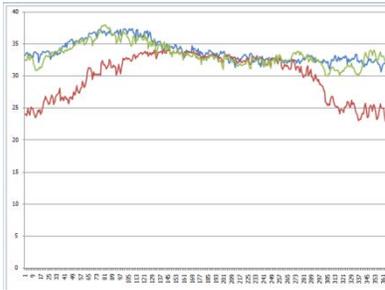
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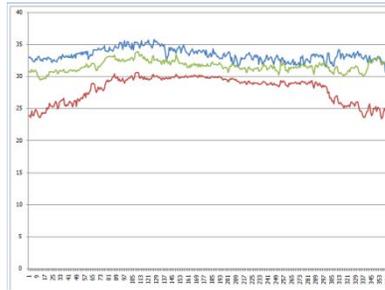
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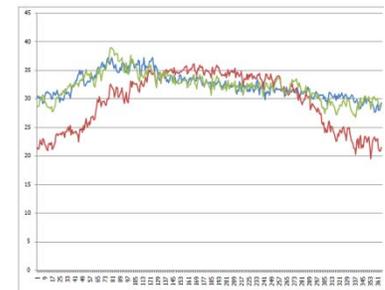
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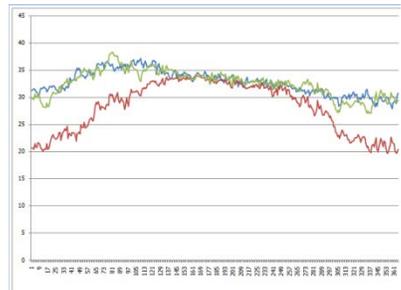
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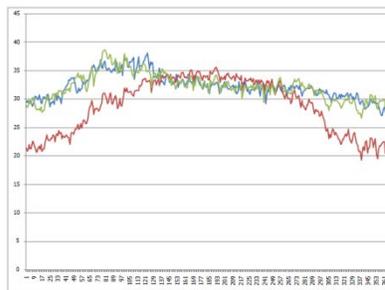
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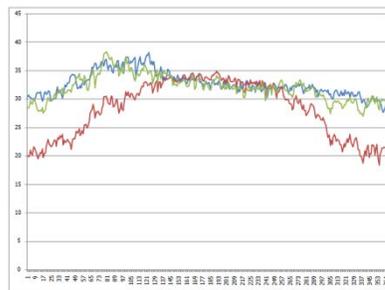
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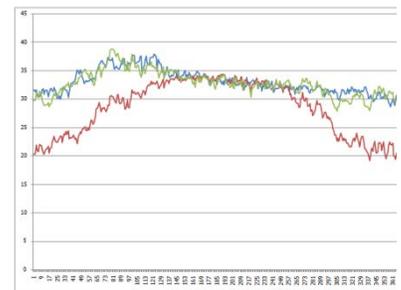
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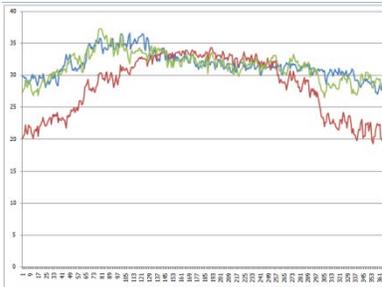


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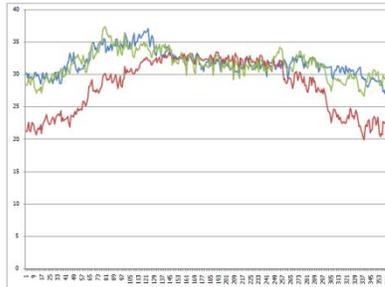


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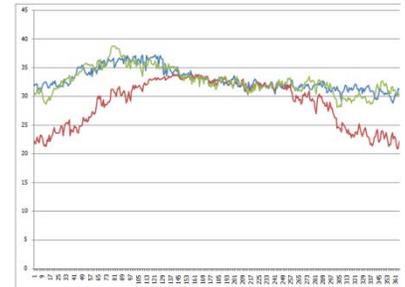
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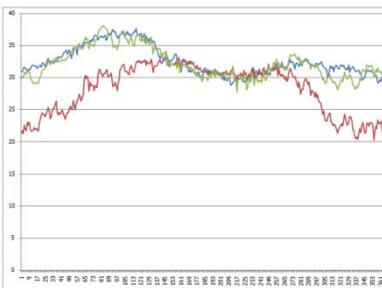
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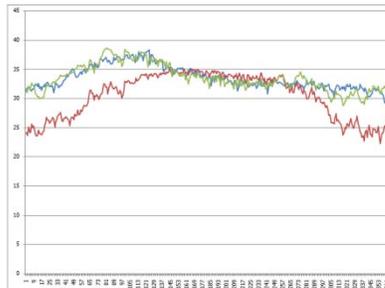
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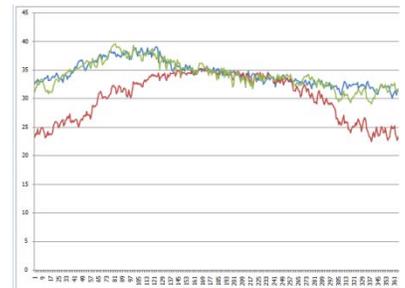
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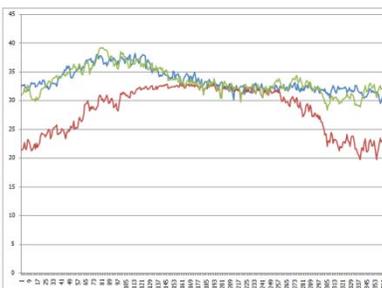
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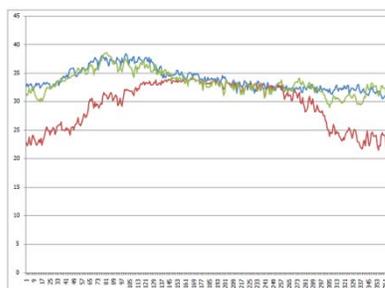
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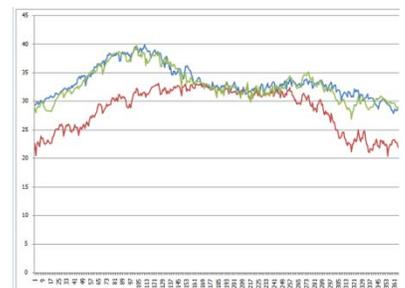
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Phitsanulok



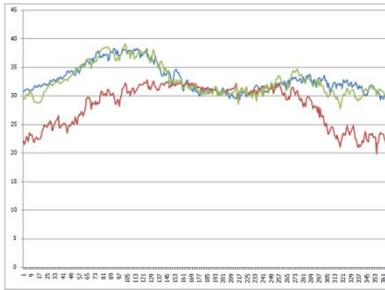
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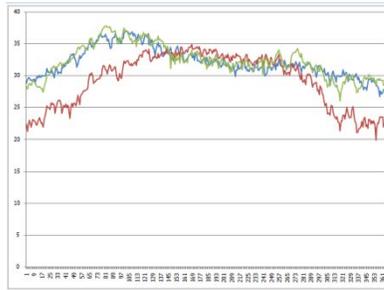
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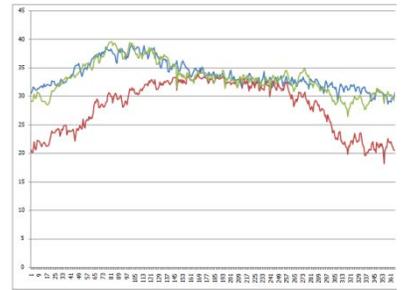
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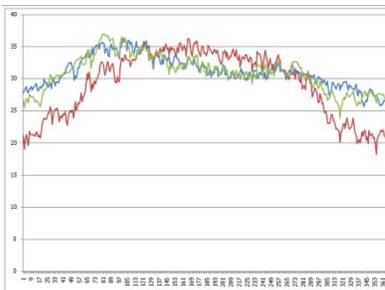
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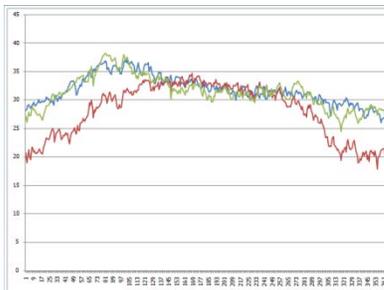
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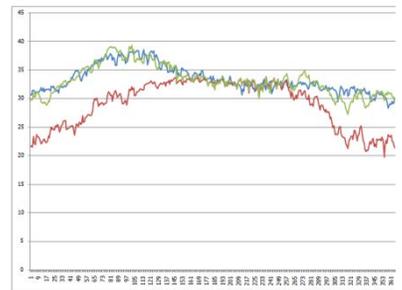
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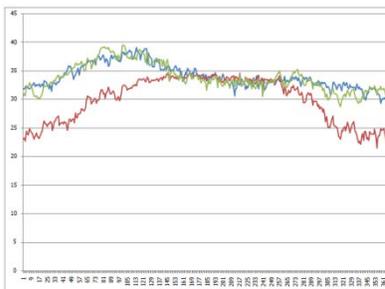
Chiang Rai



Phayao



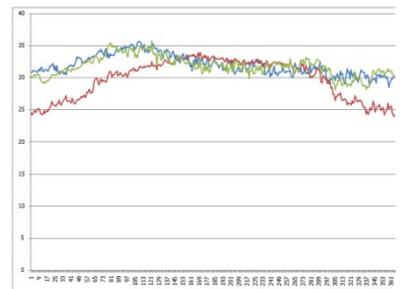
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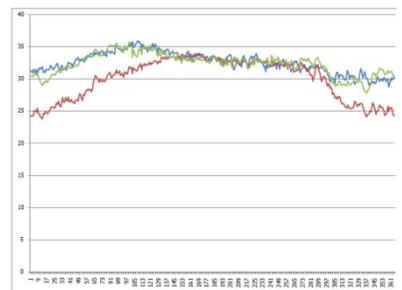
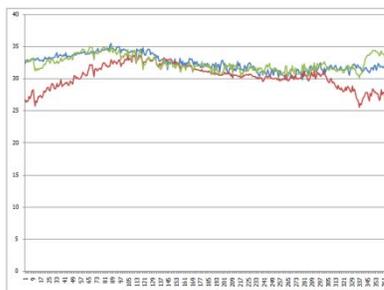
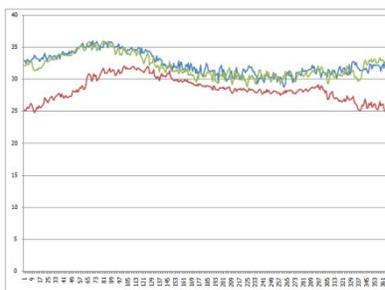
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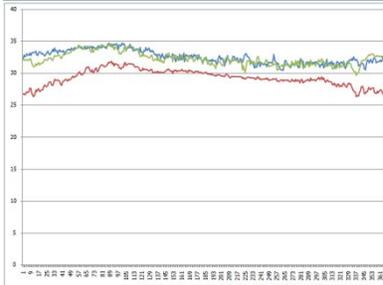
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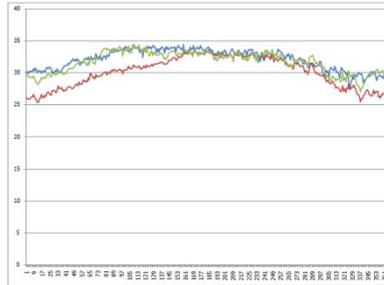
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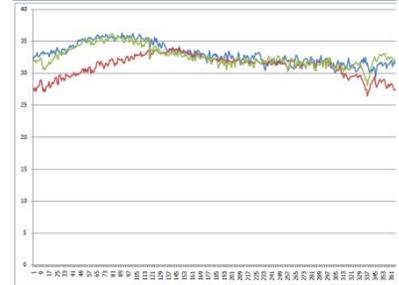
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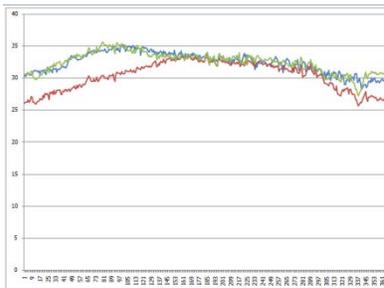
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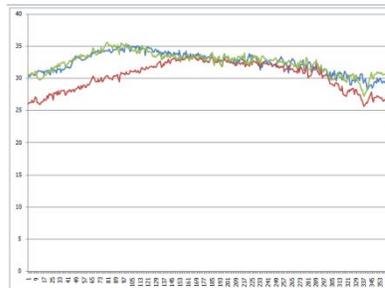
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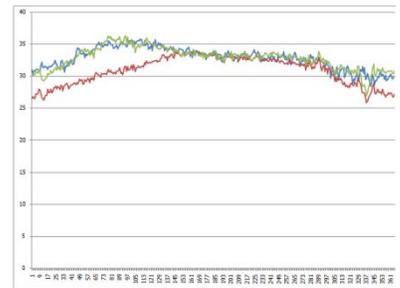
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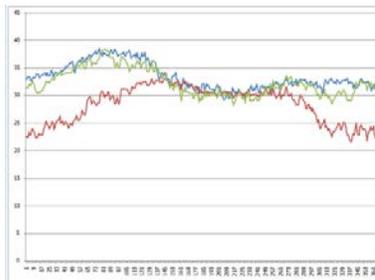
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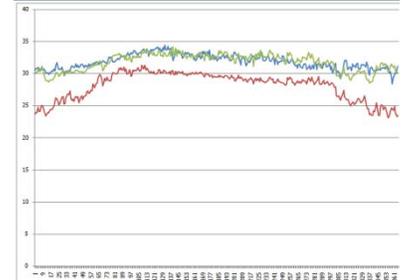
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Yala Agro met



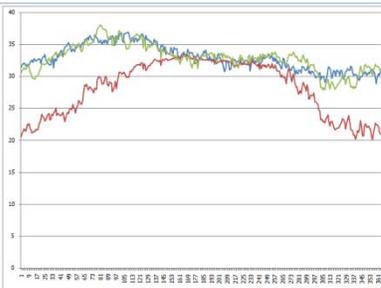
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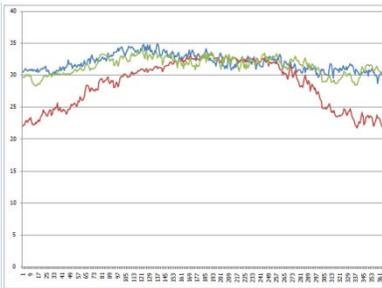
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Khanchanaburi

Phetchaburi



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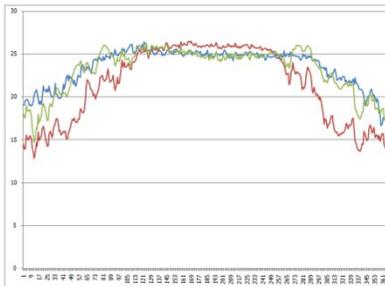


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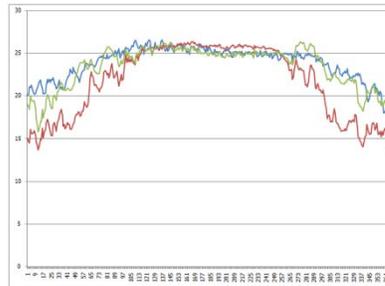
Appendix D

The annual cycle evaluation of minimum temperatures

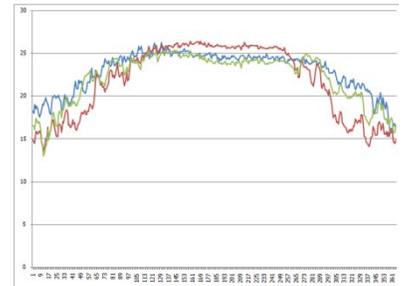
The red, green, and blue lines represent the minimum temperature from raw-MM5-RCM, Adj-MM5-RCM, and observed data, respectively. (The correlation coefficient between the observed and MM5-RCM minimum temperature are represented in figure 5.18 (a))



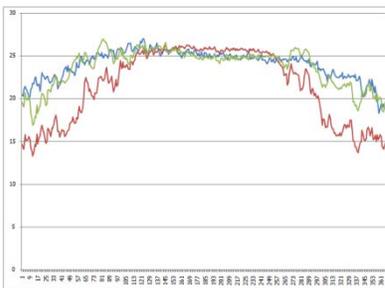
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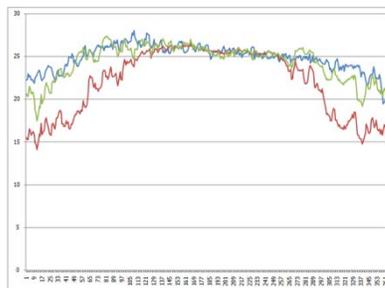
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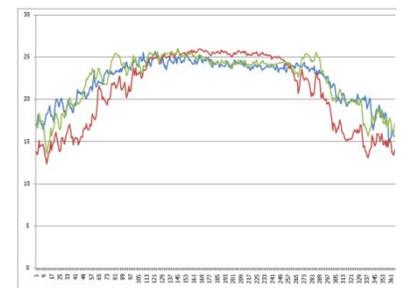
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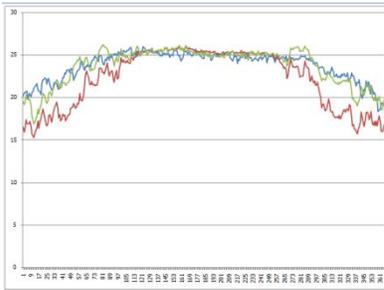
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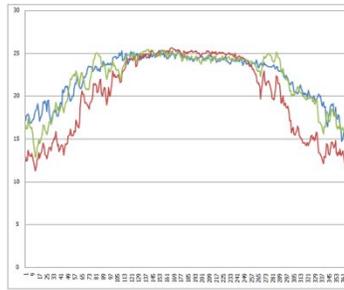
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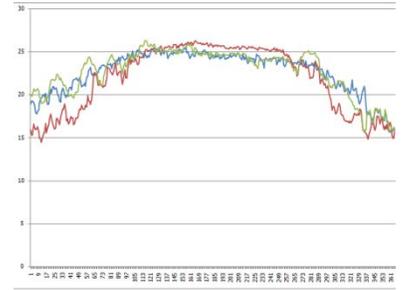
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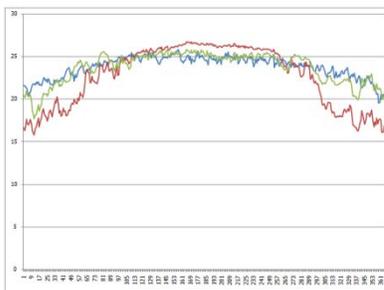
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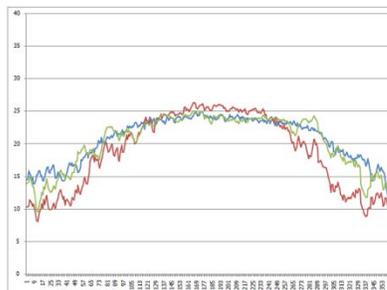
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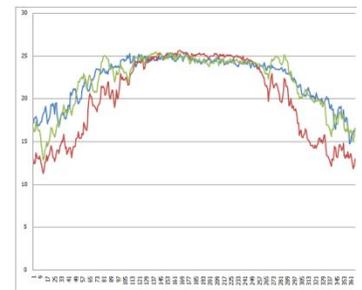
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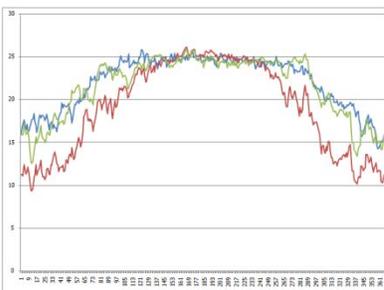
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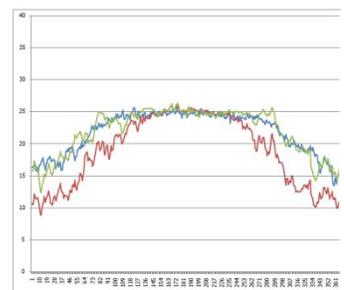
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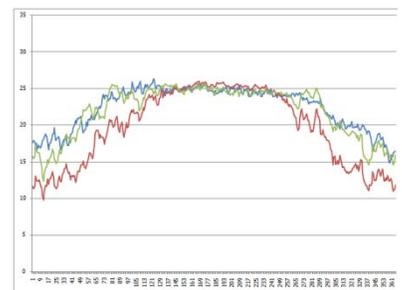
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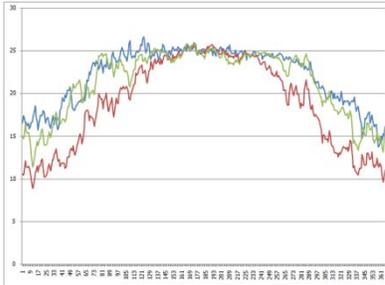


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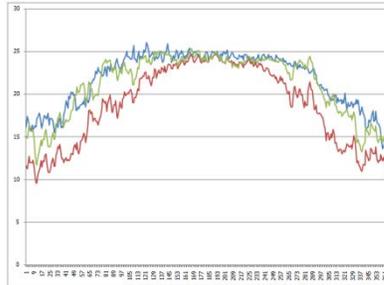


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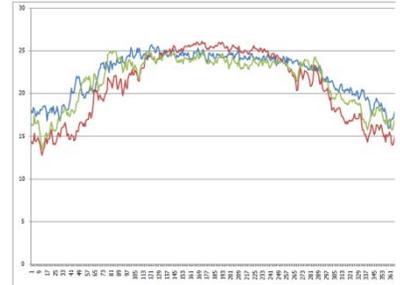
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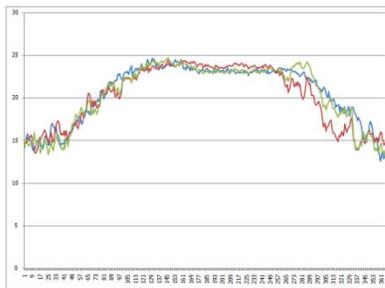
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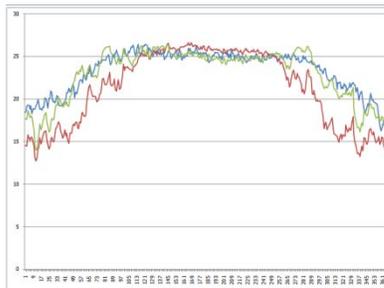
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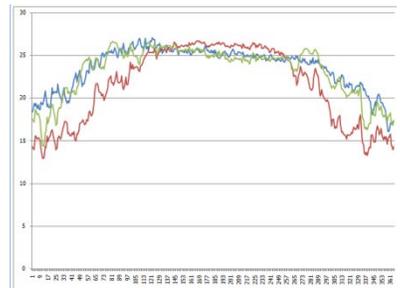
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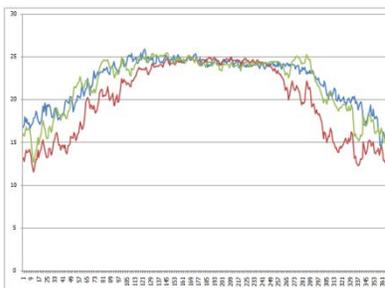
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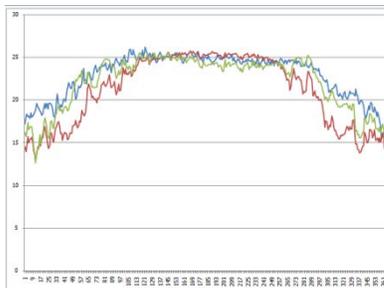
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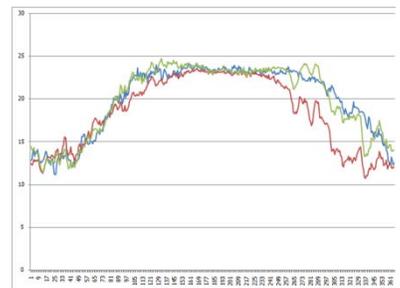
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Phitsanulok



Nakhon Sawan



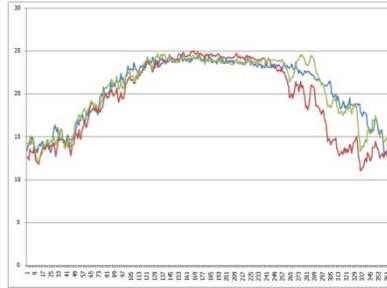
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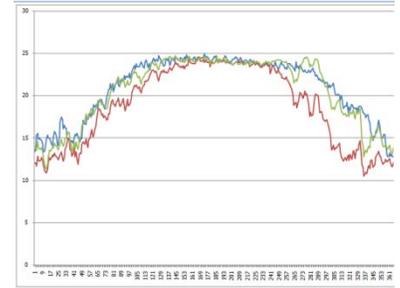
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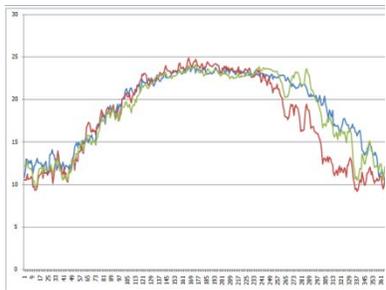
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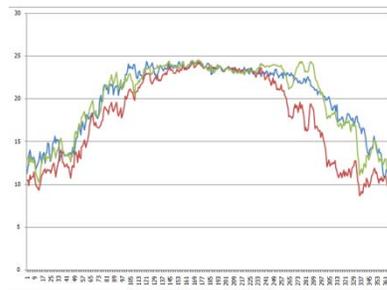
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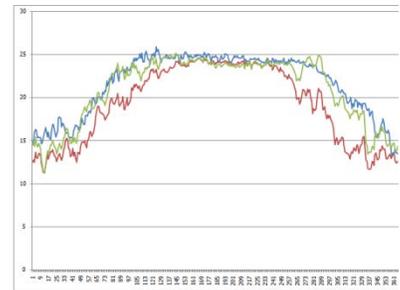
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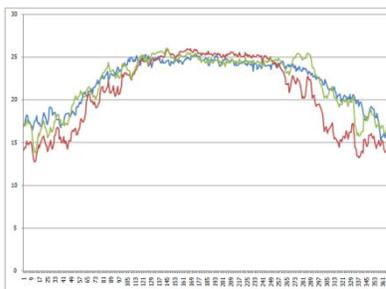
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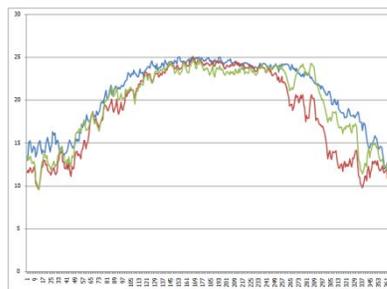
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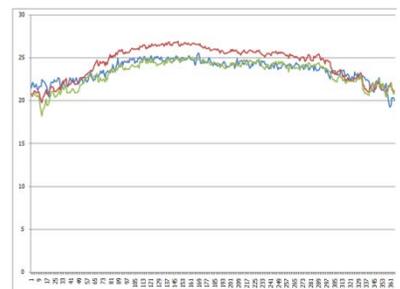
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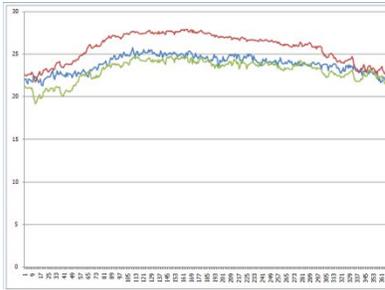
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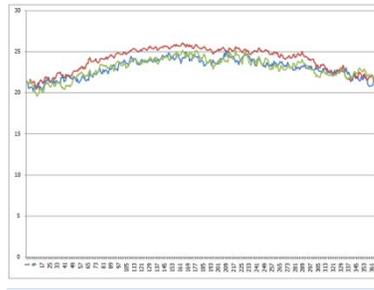
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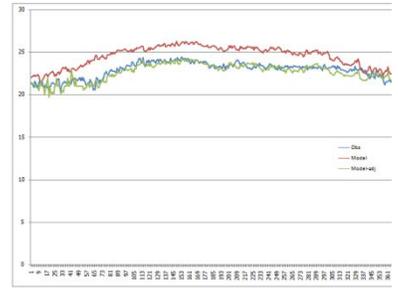
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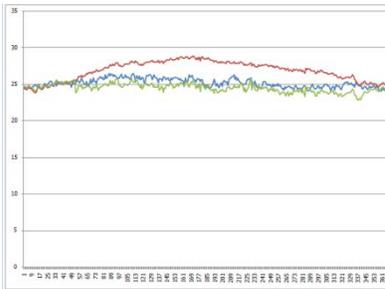
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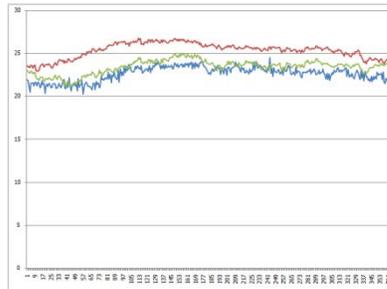
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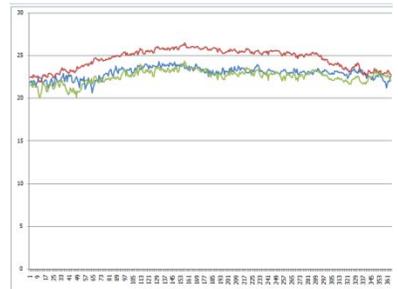
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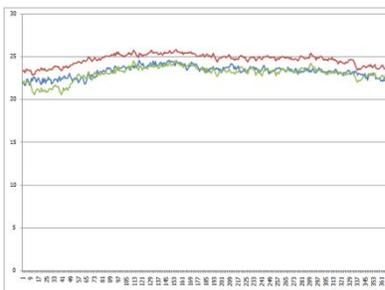
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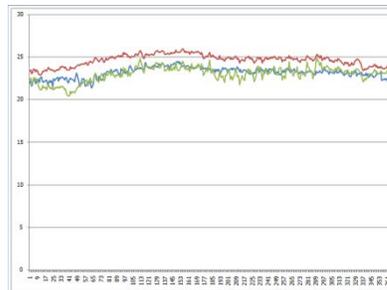
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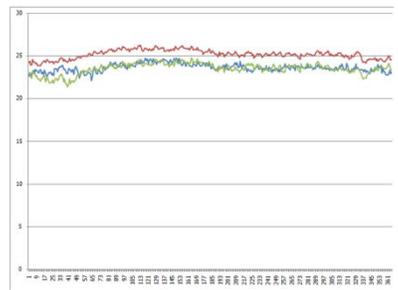
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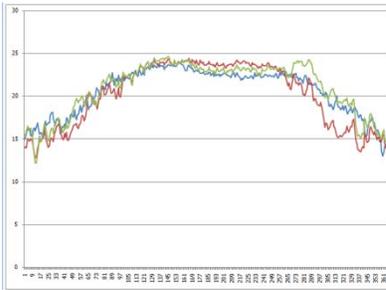
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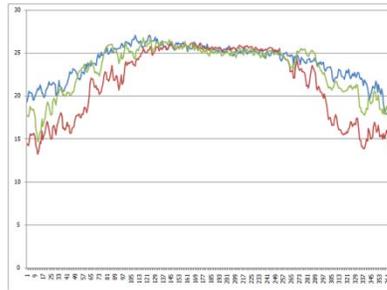
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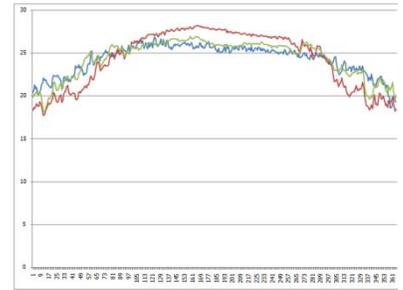
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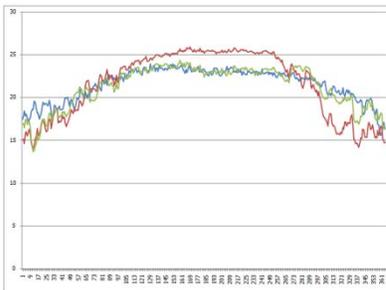
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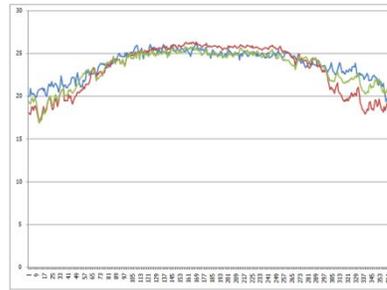
Khanchanaburi



Phetchaburi



Nong Phlub Agro met



Prachuap Khiri Khan

CURRICULM VITAE

Name	Miss Supanee Maijandee
Date of birth	August 11, 1979
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Education	
1997	Certificate of High School, Thawangpha Pittayakom, Nan
2002	Bachelor of Science (Physics) Faculty of Sciences, Chiang Mai University, Chiang Mai
2005	Master of Science (Applied Physics) Faculty of Sciences, Chiang Mai University, Chiang Mai
Scholarship	
2009	Ph.D. scholarship from Rajamangala University of Technology Lanna
2010	Research Fund from National Research Council of Thailand (NRCT)
Working experience	
2005 – 2007	Lecturer, Rajamangala University of Technology Lanna, Chiang Mai