

DEDICATION

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অ' ব' দজাক।
মোৰ কোঠালৈ সোমাই অহা-
কেৰেচিয়া ব' দজাক।
তাহনিৰ চোতালৰ,
এতিয়াৰ খিৰিকীৰ সিপাৰৰ,
দুয়োটা পথেই তোৰ অহাৰ- ধুনীয়া।
ডিচেম্বৰৰ চিকুণ পুৱা,
টেবুলৰ কিতাপ- বহী,
দুখন চকী, নহ'লে দুটা মুঠা,
দেতাৰ খৰকৈ চলা দুয়োহাত,
আঁখেফুটা কথাৰ কলকলনিৰে
যোগালিৰ সদ- ব্যস্ত ভাবত
কাষত বহি চাই থকা সোণজনীৰ-
বৰ মৰমৰ অ' তই-
কেৰেচিয়াকৈ নামি অহা ব' দজাক।
খাকী, মুগা, বগা কাগজৰ জিল,
জিলমিল জিল-
কেঁচী, আঠা, স্কেল, কলম-
অকণি- অকণি কিতাপৰ বহীৰ পিছা কাপোৰ-
এটা- এটাকৈ পিছাই যোৱা-
দেতাৰ খৰকৈ চলা দুয়োহাত,
অবাস্তৰ প্ৰশ্নৰ ভাঙাৰ দুচকুত লৈ-
কাষত বহি চাই থকা সোণজনীৰ-
বৰ মৰমৰ অ' তই-
কেৰেচিয়াকৈ নামি অহা ব' দজাক।

”

To YOU-

দেতা***

DECLARATION

I, *Parashmoni Borah*, hereby declare that the thesis entitled “**Spectral Signatures in Rainfall and Its Inter-Relationship with Other Meteorological Variables in North-East India**” submitted to the Department of Environmental Science, School of Sciences, Tezpur University is a record of original research work carried out by me. Any text, figures, tables, results that are not of own devising are properly referenced in order to give credit to the original author(s). All sources of assistance have been assigned due acknowledgement. I also declare that neither this work as a whole nor a part of it has been submitted to any other university or institute for any other degree, diploma or award.

Date (Revised): 29-11-2023

Signature: *Parashmoni Borah*

Place: *Tezpur*



TEZPUR UNIVERSITY
(A Central University)

Napaam, Tezpur-784028
District- SONITPUR, ASSAM, INDIA

CERTIFICATE OF THE SUPERVISOR

This is to certify that the thesis entitled **Spectral Signatures in Rainfall and Its Inter-Relationship with Other Meteorological Variables in North-East India** submitted to the School of Sciences, Tezpur University in part fulfillment for the award of the degree of Doctor of Philosophy in Environmental Science is a record of research work carried out by Mr./Ms Parashmoni Borah under my supervision and guidance.

All help received by him/her from various sources have been duly acknowledged.

No part of this thesis has been submitted elsewhere for award of any other degree.

Signature of

Supervisor:

Amit Laksh

Designation: Assistant Professor

School: Sciences

Department: Department of Environmental Science

Date (Revised): *29/11/2023*

Place: *Tezpur*

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Parashmoni Borah.

Place:

Date:

List of Tables

Chapter 2

Table 2. 1 Selected study areas of NER, WMO*= World Meteorological Organisation; Annual Average Climate*= 30 years climate normal (1981-2000) as per the climatological tables of observatories in India issued by the Director General of Meteorology, New Delhi	2-3
Table 2. 2 Summary of the datasets (daily time series)	2-10

Chapter 3

Table 3. 1 1% and 5% critical values for the statistics of the BRT, PT, SNHT and VNRT as a function of N [7]	3-10
Table 3. 2 Result of homogeneity tests applied on annual rainfall series	3-13
Table 3. 3 Result of homogeneity tests applied on seasonal rainfall series (The prefixes of the sites in the 1st column of the table, Win, Prmon, Mon and Pomon denote the four seasons winter, pre-monsoon, monsoon, and post-monsoon respectively)	3-14
Table 3. 4 Result of trend analysis performed on the annual rainfall series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.	3-15
Table 3. 5 Result of trend analysis performed on the seasonal rainfall series over the selected regions; here Win= winter, Premon= pre-monsoon, Mon= monsoon and Postmon= post-monsoon; P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.	3-16
Table 3. 6 Result of trend analysis performed on the monthly rainfall series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.	3-16
Table 3. 7 Result of homogeneity tests applied on annual MaxT series	3-18

Table 3. 8 Result of homogeneity tests applied on seasonal series of MaxT (The prefixes of the sites in the 1st column of the table, Win, Prmon, Mon and Pomon denote the four seasons winter, pre-monsoon, monsoon and post-monsoon respectively)3-19

Table 3. 9 Result of trend analysis performed on the annual MaxT series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively ...3-20

Table 3. 10 Result of trend analysis performed on the seasonal MaxT series over the selected regions; here Win= winter, Premon= pre-monsoon, Mon= monsoon and Postmon= post-monsoon; P= p value obtained from MK test, SS= Sen's slope estimator value; +,*, **, and *** denotes significance level at 80%, 90%, 95% and 99% respectively.

.....3-21

Table 3. 11 Result of trend analysis performed on the monthly MaxT series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, **, and *** denotes significance level at 80%, 90%, 95% and 99% respectively3-21

Table 3. 12 Result of homogeneity tests applied on annual MinT series3-23

Table 3. 13 Result of homogeneity tests applied on seasonal MinT series (The prefixes of the sites in the 1st column of the table, Win, Prmon, Mon and Pomon denote the four seasons winter, pre-monsoon, monsoon, and post-monsoon respectively)3-25

Table 3. 14 Result of trend analysis performed on the annual MinT series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, **, and *** denotes significance level at 80%, 90%, 95% and 99% respectively3-26

Table 3. 15 Result of trend analysis performed on the seasonal MinT series over the selected regions; here Win= winter, Premon= pre-monsoon, Mon= monsoon and Postmon= post-monsoon; P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, **, and *** denotes significance level at 80%, 90%, 95% and 99% respectively3-27

Table 3. 16 Result of trend analysis performed on the monthly MinT series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator

value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively	3-28
Table 3. 17 result of homogeneity tests applied on annual RH series	3-29
Table 3. 18 Result of homogeneity tests applied on seasonal RH series (The prefixes of the sites in the 1st column of the table, Win, Prmon, Mon and Pomon denote the four seasons winter, pre-monsoon, monsoon, and post-monsoon respectively)	3-31
Table 3. 19 Result of trend analysis performed on the RH series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.	3-32
Table 3. 20 Result of trend analysis performed on the seasonal RH series over the selected regions; here Win= winter, Premon= pre-monsoon, Mon= monsoon and Postmon= post-monsoon; P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.	3-33
Table 3. 21 Result of trend analysis performed on the monthly RH series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.	3-34
Table 3. 22 Result of homogeneity tests applied on annual SLP series	3-35
Table 3. 24 Result of trend analysis performed on the SLP series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.	3-36
Table 3. 23 Result of homogeneity tests applied on seasonal SLP series (The prefixes of the sites in the 1st column of the table, Win, Prmon, Mon and Pomon denote the four seasons winter, premonsoon, monsoon and postmonsoon respectively)	3-37
Table 3. 25 Result of trend analysis performed on the seasonal SLP series over the selected regions; here Win= winter, Premon= pre-monsoon, Mon= monsoon and Postmon= post-monsoon; P= p value obtained from MK test, SS= Sen's slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.	3-38
Table 3. 26 Result of trend analysis performed on the monthly SLP series over the selected regions; here P= p value obtained from MK test, SS= Sen's slope estimator	

value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.3-40

Table 3. 27 Result of homogeneity tests applied on annual WS series3-40

Table 3. 29 Result of trend analysis performed on the WS series over the selected regions; here P= p value obtained from MK test, SS= Sen’s slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively. ...3-42

Table 3. 28 Result of homogeneity tests applied on seasonal WS series (The prefixes of the sites in the 1st column of the table, Win, Prmon, Mon and Pomon denote the four seasons winter, premonsoon, monsoon and postmonsoon respectively)3-44

Table 3. 30 Result of trend analysis performed on the seasonal WS series over the selected regions; here Win= winter, Premon= pre-monsoon, Mon= monsoon and Postmon= post-monsoon; P= p value obtained from MK test, SS= Sen’s slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.3-45

Table 3. 31 Result of trend analysis performed on the monthly WS series over the selected regions; here P= p value obtained from MK test, SS= Sen’s slope estimator value; +, *, ** and *** denotes significance level at 80%, 90%, 95% and 99% respectively.3-45

Chapter 5

Table 5. 1 The ADF test results performed on the monthly time series of meteorological variables in different locations of NER. Here, Variable_site denotes the meteorological variable per studied location in NER.5-15

Table 5. 2 The best fit ARIMA model for different meteorological variables in the selected locations of NER. Here, the best fit model is shown in the arrangement ARIMA (p, d, q)[model number]5-26

List of Figures

Chapter 2

Figure 2.1 Aggregation plots of a) Rainfall, b) maximum temperature, c) minimum temperature, d) relative humidity, e) sea level pressure and f) wind speed of the selected study areas of NER2-7

Figure 2. 2 A representative Q-Q plot for Rainfall time series (original vs. imputed)2-9

Chapter 4

Figure 4. 1 Periodogram showing the power spectra of rainfall at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-5

Figure 4. 2 Periodogram showing the power spectra of MaxT at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-6

Figure 4. 3 Periodogram showing the power spectra of MinT at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-7

Figure 4. 4 Periodogram showing the power spectra of RH at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-8

Figure 4. 5 Periodogram showing the power spectra of SLP at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-9

Figure 4. 6 Periodogram showing the power spectra of WS at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-10

Figure 4. 7 Correlogram showing the coherence of rainfall with MaxT at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-11

Figure 4. 8 Correlogram showing the coherence of rainfall with MinT at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-12

Figure 4. 9 Correlogram showing the coherence of rainfall with RH at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-13

Figure 4. 10 Correlogram showing the coherence of rainfall with SLP at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-14

Figure 4. 11 Correlogram showing the coherence of rainfall with WS at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL4-15

Figure 4. 12 Phase and coherence spectra of rainfall with MaxT at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL; here the solid black line represents the phase spectra

whereas the red dotted line represents the coherence spectra of rainfall with MaxT
4-16

Figure 4. 13 Phase and coherence spectra of rainfall with MinT at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL; here the solid black line represents the phase spectra whereas the red dotted line represents the coherence spectra of rainfall with MinT
4-17

Figure 4. 14 Phase and coherence spectra of rainfall with RH at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL; here the solid black line represents the phase spectra whereas the red dotted line represents the coherence spectra of rainfall with RH
4-18

Figure 4. 15 Phase and coherence spectra of rainfall with SLP at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL; here the solid black line represents the phase spectra whereas the red dotted line represents the coherence spectra of rainfall with SLP
4-19

Figure 4. 16 Phase and coherence spectra of rainfall with WS at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL; here the solid black line represents the phase spectra whereas the red dotted line represents the coherence spectra of rainfall with WS
4-20

Chapter 5

Figure 5. 1 Flow chart of the steps involved in ARIMA model implemented in the study
5-12

Figure 5. 2 ACF and PACF plots of the original rainfall time series at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL. Here x- axis denotes monthly lags. The confidence bands are depicted in dashed lines.5-17

Figure 5. 3 ACF and PACF plots of the original MaxT time series at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL and of MinT time series at f) CHR, g) DBR, h) GHY, i) KSH and j) TUL. Here x- axis denotes monthly lags. The confidence bands are depicted in dashed lines.5-20

Figure 5. 4 ACF and PACF plots of the original relative humidity time series at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL. Here x- axis denotes monthly lags. The confidence bands are depicted in dashed lines.5-21

Figure 5. 5 ACF and PACF plots of the original sea level pressure time series at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL. Here x- axis denotes monthly lags. The confidence bands are depicted in dashed lines.5-23

Figure 5. 6 ACF and PACF plots of the original wind speed time series at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL. Here x- axis denotes monthly lags. The confidence bands are depicted in dashed lines.5-24

Figure 5. 7 Details of original vs. forecasted time series of rainfall at a representative location of NER (DBR), (i) denotes scatter plot of original vs. forecasted series, (ii) denotes time series plot of original and forecasted series at each site (a-e).5-27

Figure 5. 8 Details of original vs. forecasted time series of MaxT at a) DBR and b) GHY. (i) denotes scatter plot of original vs. forecasted series, (ii) denotes time series plot of original and forecasted series at each site (a-e).5-28

Figure 5. 9 Details of original vs. forecasted time series of MinT at TUL. (i) denotes scatter plot of original vs. forecasted series, (ii) denotes time series plot of original and forecasted series at each site (a-e).5-29

Figure 5. 10 Details of original vs. forecasted time series of RH at GHY (i) denotes scatter plot of original vs. forecasted series, (ii) denotes time series plot of original and forecasted series at each site (a-e).5-30

Figure 5. 11 Details of original vs. forecasted time series of SLP at TUL. (i) denotes scatter plot of original vs. forecasted series, (ii) denotes time series plot of original and forecasted series at each site (a-e).5-31

Figure 5. 12 Details of original vs. forecasted time series of WS at a) DBR and b) KSH. (i) denotes scatter plot of original vs. forecasted series, (ii) denotes time series plot of original and forecasted series at each site (a-e).5-32

Chapter 6

Figure 6. 1 Diagrammatic representation of the SSA analysis performed on the time series6-8

Figure 6. 2 a) Diagrammatic representation of the wavelet analysis performed on rainfall and the other selected meteorological variables; b) the 9 level wavelet decomposition resulting into ten series (w1-w10) of different resolutions (here $l=588$, so considering $2n < l$, decomposition levels are $n=9$).6-16

Figure 6. 3 CHR: a) Eigen vectors for the 1st six components of the deconstructed monthly rainfall series, b) Paired plots for the 1st six eigen vectors of the decomposed series of rainfall, c) Screeplots of the eigenvalues in the decomposed rainfall series, d) W Correlation matrix for the original and reconstructed rainfall series and e) Reconstructed rainfall series (Original, Trend, Component 1, 2, 3 and Residuals); here the x axis denoted months6-19

Figure 6. 4 DBR: a) Eigen vectors for the 1st six components of the deconstructed monthly rainfall series, b) Paired plots for the 1st six eigen vectors of the decomposed

series of rainfall, c) Screeplots of the eigenvalues in the decomposed rainfall series, d) W Correlation matrix for the original and reconstructed rainfall series and e) Reconstructed rainfall series (Original, Trend, Component 1, 2, 3 and Residuals); here the x axis denoted months6-21

Figure 6. 5 GHY: a) Eigen vectors for the 1st six components of the deconstructed monthly rainfall series, b) Paired plots for the 1st six eigen vectors of the decomposed series of rainfall, c) Screeplots of the eigenvalues in the decomposed rainfall series, d) W Correlation matrix for the original and reconstructed rainfall series and e) Reconstructed rainfall series (Original, Trend, Component 1, 2, 3 and Residuals); here the x axis denoted months6-23

Figure 6. 6 KSH: a) Eigen vectors for the 1st six components of the deconstructed monthly rainfall series, b) Paired plots for the 1st six eigen vectors of the decomposed series of rainfall, c) Screeplots of the eigenvalues in the decomposed rainfall series, d) W Correlation matrix for the original and reconstructed rainfall series and e) Reconstructed rainfall series (Original, Trend, Component 1, 2, 3 and Residuals); here the x axis denoted months6-25

Figure 6. 7 TUL: a) Eigen vectors for the 1st six components of the deconstructed monthly rainfall series, b) Paired plots for the 1st six eigen vectors of the decomposed series of rainfall, c) Screeplots of the eigenvalues in the decomposed rainfall series, d) W Correlation matrix for the original and reconstructed rainfall series and e) Reconstructed rainfall series (Original, Trend, Component 1, 2, 3 and Residuals); here the x axis denoted months6-27

Figure 6. 8 Wavelet power spectrum of rainfall at a) CHR, b) DBR, c) GHY, d) KSH, e) TUL of NER. The cone of influence is designed as a lighted shadow; here the Y axis indicates Fourier period in months.6-29

Figure 6. 9 The Cross wavelet power spectra (XWT) and wavelet coherence spectra (WCT) of rainfall with MaxT at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL of NER. The cone of influence, where the edge effects might distort the picture, is designed as a lighted shadow; here, the relative phase relationship is indicated by the arrow- pointing right (left) depicting in phase (anti-phase) association.6-31

Figure 6. 10 The Cross wavelet power spectra (XWT) and wavelet coherence spectra (WCT) of rainfall and MinT at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL of NER. The cone of influence, where the edge effects might distort the picture, is designed as a lighted shadow; here, the relative phase relationship is indicated by the arrow- pointing right (left) depicting in phase (anti-phase) association.6-33

Figure 6. 11 The Cross wavelet power spectra (XWT) and wavelet coherence spectra (WCT) of rainfall with RH at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL of NER. The cone of influence, where the edge effects might distort the picture, is designed as a

lighted shadow; here, the relative phase relationship is indicated by the arrow- pointing right (left) depicting in phase (anti-phase) association.6-35

Figure 6. 12 The Cross wavelet power spectra (XWT) and wavelet coherence spectra (WCT) of rainfall with SLP at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL of NER. The cone of influence, where the edge effects might distort the picture, is designed as a lighted shadow; here, the relative phase relationship is indicated by the arrow- pointing right (left) depicting in phase (anti-phase) association.6-37

Figure 6. 13 The Cross wavelet power spectra (XWT) and wavelet coherence spectra (WCT) of rainfall with WS at a) CHR, b) DBR, c) GHY, d) KSH and e) TUL of NER. The cone of influence, where the edge effects might distort the picture, is designed as a lighted shadow; here, the relative phase relationship is indicated by the arrow- pointing right (left) depicting in phase (anti-phase) association.6-38

Chapter 7

Figure 7. 1 Thematic representation of VAR-IRF model applied on the monthly total series of rainfall over NER 7-7

Figure 7. 2 Response of rainfall towards MaxT (w1-w10) at CHR7-15

Figure 7. 3 Response of rainfall towards MinT (w1-w10) at CHR7-17

Figure 7. 4 Response of rainfall towards RH(w1-w10) at CHR7-18

Figure 7. 5 Response of rainfall towards SLP (w1-w10) at CHR7-20

Figure 7. 6 Response of rainfall towards WS (w1-w10) at CHR7-21

Figure 7. 7 Response of rainfall towards MaxT (w1-w10) at DBR7-23

Figure 7. 8 Response of rainfall towards MinT (w1-w10) at DBR7-24

Figure 7. 9 Response of rainfall towards RH (w1-w10) at DBR7-26

Figure 7. 10 Response of rainfall towards SLP (w1-w10) at DBR7-27

Figure 7. 11 Response of rainfall towards WS (w1-w10) at DBR7-29

Figure 7. 12 Response of rainfall towards MaxT (w1-w10) at GHY7-30

Figure 7. 13 Response of rainfall towards MinT (w1-w10) at GHY7-32

Figure 7. 14 Response of rainfall towards RH (w1-w10) at GHY7-33

Figure 7. 15 Response of rainfall towards SLP (w1-w10) at GHY7-35

Figure 7. 16 Response of rainfall towards WS (w1-w10) at GHY7-36

Figure 7. 17 Response of rainfall towards MaxT (w1-w10) at KSH7-38

Figure 7. 18 Response of rainfall towards MinT (w1-w10) at KSH	7-39
Figure 7. 19 Response of rainfall towards RH (w1-w10) at KSH	7-41
Figure 7. 20 Response of rainfall towards SLP (w1-w10) at KSH	7-42
Figure 7. 21 Response of rainfall towards WS (w1-w10) at KSH	7-44
Figure 7. 22 Response of rainfall towards MaxT (w1-w10) at TUL	7-45
Figure 7. 23 Response of rainfall towards MinT (w1-w10) at TUL	7-47
Figure 7. 24 Response of rainfall towards RH (w1-w10) at TUL	7-48
Figure 7. 25 Response of rainfall towards SLP (w1-w10) at TUL	7-50
Figure 7. 26 Response of rainfall towards WS (w1-w10) at TUL	7-51

Plates

Plate 1. 1 Maps of CMIP5 multi-model generated results showing scenarios of RCP2.6 and RCP8.5 in (a) annual average change in global surface temperature and (b) average percentage of change in precipitation (1986-2005 to 2081-2100); the shaded areas with parallel lines indicate regions where the multi-model average is small compared to natural internal variability ($<1\sigma$ of natural internal variability in 20-year averages) and the dotted areas are the regions where the multi-model average is large compared to natural internal variability ($>2\sigma$ of natural internal variability in 20-year averages) and where at least 90% of the applied models agree on the sign of change. Source: [7]

Plate 2. 1 The locations of the selected study areas (top) and contour map displaying the distribution of average annual rainfall across the study areas (bottom)