CONTENTS

		Page
CHAPTER 1:	**INTRODUCTION.**	**1**
CHAPTER 2:	**THE MEXICAN CLIMATOLOGY**	**9**
2.1.	Introduction.	9
2.2	Geographical Characteristics.	10
2.2.1.	Latitude.	10
2.2.2.	Orography.	12
2.2.3.	Ocean and Continental Influences.	13
2.3.	Large-scale Atmospheric Controls.	13
2.4.	Instrumental Data.	17
2.5.	Documentary and Proxy Data.	18
2.6.	Key Studies on the Climate of Mexico.	19
2.7.	Conclusions to the Chapter.	23
CHAPTER 3:	**METHODS AND ANALYSES APPLIED.**	**25**
3.1.	Introduction.	25
3.2.	Data Extraction.	26
3.2.1.	Precipitation and Temperature Daily Data.	26
3.2.2.	Stations Selected.	27
3.2.3.	ENSO Indices.	38
3.3.	Mathematical and Statistical Methods Applied.	41
3.3.1.	Considering Data Homogeneity.	41
3.3.2.	Principal Component Analysis (PCA).	52
3.3.3.	Regional Averages.	58
3.3.4.	Extreme Weather Analyses.	60
3.3.5.	Correlation Analyses.	68
3.4.	Conclusions to the Chapter.	71
CHAPTER 4:	**REGIONAL MODES OF VARIABILITY.**	**74**
4.1.	Introduction.	74
4.2.	Principal Component Analysis (PCA) on Precipitation.	75
4.2.1.	Annual Rainfall.	75
4.2.2.	Seasonal Precipitation.	83
4.3.	Principal Component Analysis (PCA) on Temperature.	95
4.3.1.	Annual Mean Temperature.	98
4.3.2.	Wet Season (May-Oct) Mean Temperature.	100
4.3.3.	Seasonal (DJF, MAM, JJA, SON) Mean Temperature.	102
4.3.4.	K-means Cluster Analysis.	108
4.4.	Conclusions to the Chapter.	109
CHAPTER 5:	**EXTREME PRECIPITATION INDICES.**	**111**
5.1.	Introduction.	111
5.2.	Discussion.	112
5.2.1.	Extreme Precipitation Indices.	112
5.2.2.	Linear Trend Analysis.	122
5.3.	Conclusions to the Chapter.	130
CHAPTER 6:	**EXTREME TEMPERATURE INDICES.**	**132**
6.1.	Introduction.	132
6.2.	Discussion.	134
6.2.1.	Extreme Temperature Indices.	138
6.2.2.	Linear Trend Analysis.	155
6.3.	Conclusions to the Chapter.	168

CHAPTER 7:	**THE ENSO MODULATION OF THE CLIMATE OF MEXICO.**	**170**
7.1.	Introduction.	170
7.2.	The Southern Oscillation Index (SOI) Influence.	172
7.2.1.	Linear Correlation.	173
7.2.2.	Lag Correlation	196
7.3.	El Niño 3.4 Influence.	221
7.3.1.	Linear Correlation.	221
7.3.2.	Lag Correlation	245
7.4.	The Multivariate El Niño (MEI) Influence.	259
7.4.1.	Linear Correlation.	259
7.4.2.	Lag Correlation	278
7.5.	Conclusions to the Chapter.	291
CHAPTER 8:	**CONCLUSIONS**	**294**
8.1.	Main Findings.	294
8.2.	Future Research.	300
	REFERENCES	**305**