

TABLE OF CONTENTS

ABSTRACT.....	ii
ACKNOWLEDGEMENTS.....	vi
TABLE OF CONTENTS.....	vii
LIST OF TABLES.....	ix
LIST OF FIGURES.....	x
1. Introduction.....	1
1.1 Motivation.....	1
1.2 Literature review.....	2
1.2.1 Severe wind climatology.....	2
1.2.2 Severe convective high winds.....	4
1.2.3 Nonconvective high winds.....	7
1.3 Research goals and thesis structure.....	11
2. Data and Methodology.....	19
2.1 Data Sources.....	19
2.2 Methodology.....	20
2.2.1 Climatology.....	20
2.2.2 Composite analysis.....	22
2.2.3 Case studies.....	23
3. Results.....	25
3.1 Climatology.....	25
3.1.1 High-wind days.....	25
3.1.2 Event climatology.....	26
3.2 Composite analysis.....	36
3.2.1 Pure gradient composites.....	36
3.2.2 Hybrid composites.....	40
3.2.3 Pure convective composites.....	45
3.2.4 Composite surface cyclone tracks.....	46
3.3 Case studies.....	63

3.3.1 17 February 2006.....	63
3.3.1.1 Overview.....	63
3.3.1.2 Synoptic overview.....	63
3.3.1.3 Identification of high winds.....	65
3.3.1.4 Diagnosis of high winds.....	66
3.3.1.5 Summary.....	68
3.3.2 15 April 2007.....	68
3.3.2.1 Overview.....	68
3.3.2.2 Synoptic overview.....	69
3.3.2.3 Identification of high winds.....	72
3.3.2.4 Diagnosis of high winds.....	73
3.3.2.5 Summary.....	75
4. Discussion.....	100
4.1 Climatology.....	100
4.2 Composite analysis.....	101
4.3 Case studies.....	104
4.4 Conclusions.....	106
4.5 Suggestions for future work.....	108
References.....	112