



CONTENTS



Preface	xi
1 The Atmosphere	1
2 Stability and Lapse Rates	9
3 Clouds	21
4 Atmospheric Pressure	31
5 Temperature, Moisture and Precipitation	43
6 Fog	53
7 Visibility... and the Weather that Restricts It	61
8 Air Masses	69
9 Fronts, Frontal Weather, and the Life of a Low	75
10 Boundary Layer Winds and Low-Level Wind Shear (LLWS)	87
11 General Global Circulation (Semi-Permanent Weather Features/Three-Cell Model)	103
12 Airframe Icing	113
13 Turbulence	133
14 Mountain Waves (Gravity Waves and Mountain Winds)	147
15 Thunderstorms	157
16 METARs (Weather Reports)	171
17 Terminal Aerodrome Forecasts (TAFs)	183
18 Graphical Forecasts for Aviation (GFA)	193
19 SIGMETs, AIRMETs and CWA	201
20 Upper Winds and Temperatures (FBs)	211
21 Altimetry	219
22 Weather Information and Sites	227
23 Surface Charts	237
24 The Tropopause, Thermal Wind and Jet Streams	243
25 Upper Air (Constant Pressure) Charts	255
26 Significant Weather (SIGWX) Charts	263
27 Weather Radar	271
28 Airborne Weather Radar	281
29 Satellite Weather and “Over the Top” Operations	289
30 Hurricanes—How They Form and the Curve Balls They Can Throw!	297
31 Space Weather and “Over-the-Top” Operations	305

32 Volcanic Ash	315
33 Weather Across Canada—Some Climatology	323
Appendix I: Cracking the Code (Airport Codes)	339
Appendix II: Time for Weather (Zulu Time)	341
Appendix III: Doug's Story (There I was...)	345
Glossary	347
Index	367
Acknowledgements	375
About the Authors	377