

1. Record Nr.	UNINA9910554857503321
Titolo	Space physics and aeronomy collection : Ionosphere dynamics and applications // edited by Chao Huang [and three others]
Pubbl/distr/stampa	Hoboken, New Jersey ; ; Washington, District of Columbia : , : John Wiley & Sons, Incorporated : , : American Geophysical Union, , [2021] ©2021
ISBN	1-119-81554-1 1-119-81561-4 1-119-81553-3
Descrizione fisica	1 online resource (574 pages)
Collana	Geophysical Monograph Ser.
Disciplina	538.767
Soggetti	Ionosphere - Research Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover -- Title Page -- Copyright Page -- Contents -- List of Contributors -- Preface -- Part I The Polar Cap and Auroral Ionosphere -- Chapter 1 Magnetospheric Energy Input to the Ionosphere -- 1.1 INTRODUCTION -- 1.2 ENERGY ENTERING THE IONOSPHERE-THERMOSPHERE (IT) SYSTEM -- 1.3 GENERAL CIRCULATION MODELS (GCMS) OF MIT COUPLING -- 1.4 MODEL ASSESSMENT -- 1.5 JOULE HEATING -- 1.6 FUTURE DIRECTIONS -- 1.7 SUMMARY AND CONCLUSIONS -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 2 High Latitude Ionospheric Convection -- 2.1 INTRODUCTION -- 2.2 THE MAGNETOSPHERE-IONOSPHERE SYSTEM -- 2.3 STEADY-STATE MAGNETOSPHERIC/IONOSPHERIC CONVECTION -- 2.4 TIME-DEPENDENT CONVECTION -- 2.5 FURTHER READING -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 3 Multiscale Dynamics in the High-Latitude Ionosphere -- 3.1 INTRODUCTION -- 3.2 CUSP -- 3.3 POLAR CAP -- 3.4 NIGHTSIDE AURORAL OVAL -- 3.5 CROSS-REGIONAL AND GLOBAL INTERACTION PROCESSES -- 3.6 SUMMARY -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 4 Recent Advances in Polar Cap Density Structure Research -- 4.1 INTRODUCTION TO POLAR CAP DENSITY STRUCTURES -- 4.2 STATISTICAL OCCURRENCE RATE OF

POLAR CAP PATCHES -- 4.3 PLASMA CHARACTERISTICS WITHIN THE POLAR CAP PATCHES -- 4.4 DYNAMIC EVOLUTION OF POLAR CAP PATCHES -- 4.5 ION UPFLOW ASSOCIATED WITH POLAR CAP HIGH-DENSITY STRUCTURES -- 4.6 OPTICAL EMISSION MECHANISMS AND VARIABILITY OF POLAR CAP PATCHES -- 4.7 SUMMARY AND CONCLUSIONS -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 5 Polar Cap O⁺ Ion Outflow and Its Impact on Magnetospheric Dynamics -- 5.1 POLAR CAP ION OUTFLOW -- 5.2 IMPACTS OF ION OUTFLOW ON MAGNETOSPHERIC DYNAMICS -- 5.3 OUTSTANDING QUESTIONS -- REFERENCES -- Part II The Subauroral and Midlatitude Ionosphere -- Chapter 6 Ionospheric Storm-Enhanced Density Plumes -- 6.1 REVIEW OF IONOSPHERIC OBSERVATIONS OF STORM-ENHANCED DENSITY -- 6.2 SED CHARACTERISTICS. 6.3 SED FORMATION PROCESSES -- 6.4 SED PLASMA IN THE CUSP AND MAGNETOSPHERE -- 6.5 SUMMARY AND CURRENT STATUS -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 7 Ion Outflow and Lobe Density: Interhemispheric Asymmetries -- 7.1 INTRODUCTION -- 7.2 ESTIMATING PLASMA DENSITY FROM SPACECRAFT POTENTIAL -- 7.3 OBSERVATIONS AND DATA SET CHARACTERISTICS -- 7.4 NORTH-SOUTH ASYMMETRIES -- 7.5 SUMMARY AND DISCUSSION -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 8 Mesoscale and Small-Scale Structure of the Subauroral Geospace -- 8.1 INTRODUCTION -- 8.2 TURBULENT PLASMASPHERE BOUNDARY LAYER -- 8.3 IONOSPHERIC STRUCTURES -- 8.4 DISCUSSION -- 8.5 CONCLUSION -- ACKNOWLEDGMENTS -- REFERENCES -- Part III The Low-Latitude Ionosphere -- Chapter 9 Equatorial Ionospheric Electrodynamics -- 9.1 INTRODUCTION -- 9.2 BASIC PRINCIPLES -- 9.3 QUIET-TIME EQUATORIAL PLASMA DRIFTS -- 9.4 STORM-TIME EQUATORIAL ELECTRIC FIELDS -- 9.5 FUTURE DIRECTIONS -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 10 Theory and Modeling of Equatorial Spread F -- 10.1 INTRODUCTION -- 10.2 THEORY -- 10.3 MODELING -- 10.4 NEW FINDINGS -- 10.5 SUMMARY AND FUTURE DIRECTIONS -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 11 Observations of Equatorial Spread F: A Working Hypothesis -- 11.1 INTRODUCTION -- 11.2 SOURCES, SEEDING, DRIVERS, AND LOADING -- 11.3 CLIMATOLOGY OF ESF -- 11.4 DAY-TO-DAY VARIABILITY OF ESF -- 11.5 WHAT ABOUT LOW SOLAR ACTIVITY? -- 11.6 DISCUSSION -- 11.7 OUTSTANDING QUESTIONS -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 12 The Equatorial Electrojet -- 12.1 HISTORICAL OBSERVATIONS -- 12.2 MAGNETIC SIGNATURES AND CURRENT DENSITY PROFILES -- 12.3 ELECTRODYNAMICS DESCRIPTION AND MODELING OF THE EEJ -- 12.4 CLIMATOLOGICAL CHARACTERISTICS OF THE EEJ -- 12.5 TIDAL FEATURES OF THE EEJ -- 12.6 THE COUNTER-ELECTROJET -- 12.7 SUMMARY AND OPEN ISSUES -- ACKNOWLEDGMENTS -- REFERENCES. Chapter 13 Equatorial Ionization Anomaly Variations During Geomagnetic Storms -- 13.1 INTRODUCTION -- 13.2 MAJOR MECHANISMS RESPONSIBLE FOR THE EQUATORIAL IONOSPHERIC RESPONSE TO THE MAGNETIC STORMS -- 13.3 VARIATIONS OF THE IONOSPHERIC STORM EFFECTS IN THE EQUATORIAL AND LOW LATITUDE REGIONS -- 13.4 CHALLENGES AND UNSOLVED ISSUES -- ACKNOWLEDGMENTS -- REFERENCES -- Part IV Global Ionospheric Processes -- Chapter 14 Penetration of the Magnetospheric Electric Fields to the Low Latitude Ionosphere -- 14.1 TECHNIQUES TO OBSERVE THE PENETRATION ELECTRIC FIELD -- 14.2 CONVECTION AND SHIELDING ELECTRIC FIELDS -- 14.3 PENETRATION OF ELECTRIC FIELDS DURING SUBSTORMS -- 14.4 PENETRATION OF ELECTRIC FIELDS DURING GEOMAGNETIC STORMS -- 14.5 TRANSMISSION MECHANISM --

14.6 SUMMARY AND ISSUES -- ACKNOWLEDGMENTS -- REFERENCES --
Chapter 15 Ionosphere and Thermosphere Coupling at Mid- and
Subauroral Latitudes -- 15.1 INTRODUCTION -- 15.2 IONOSPHERIC
RESPONSES TO THERMOSPHERIC NEUTRAL WINDS -- 15.3
THERMOSPHERIC VARIATIONS DRIVEN BY IONOSPHERIC DYNAMICS --
15.4 INFLUENCES FROM BELOW -- 15.5 SUMMARY --
ACKNOWLEDGEMENTS -- REFERENCES -- Chapter 16 Sudden
Stratospheric Warming Impacts on the Ionosphere-Thermosphere
System: A Review of Recent Progress -- 16.1 INTRODUCTION -- 16.2
SUDDEN STRATOSPHERIC WARMING EVENTS -- 16.3 SSW EFFECTS ON
THE THERMOSPHERE -- 16.4 IONOSPHERIC RESPONSE -- 16.5
NUMERICAL SIMULATIONS -- 16.6 OUTSTANDING ISSUES AND
CONCLUDING REMARKS -- ACKNOWLEDGEMENTS -- REFERENCES --
Chapter 17 Ionospheric Dynamics and Their Strong Longitudinal
Dependences -- 17.1 INTRODUCTION -- 17.2 MID-LATITUDE
IONOSPHERE STRUCTURES -- 17.3 GLOBAL EQUATORIAL IONOSPHERE
DYNAMICS AND STRUCTURES -- 17.4 LONGITUDINAL DEPENDENCE OF
VERTICAL DRIFT -- 17.5 Summary and Future Directions --
ACKNOWLEDGMENTS -- REFERENCES.
Chapter 18 Medium-Scale Traveling Ionospheric Disturbances -- 18.1
INTRODUCTION -- 18.2 ELECTRIFIED MEDIUM-SCALE TRAVELING
IONOSPHERIC DISTURBANCES -- 18.3 MSTIDS INDUCED BY UPWARD-
PROPAGATING GRAVITY WAVES -- 18.4 DISCUSSION --
ACKNOWLEDGMENTS -- REFERENCES -- Part V Ionospheric Impacts on
Applications -- Chapter 19 IONOSPHERIC EFFECTS ON HF RADIO WAVE
PROPAGATION -- 19.1 INTRODUCTION -- 19.2 HF PROPAGATION IN
THE UNDISTURBED IONOSPHERE -- 19.3 EFFECTS OF IONOSPHERIC
DISTURBANCES ON HF INSTRUMENTS -- 19.4 SPORADIC-E -- 19.5
SUMMARY -- ACKNOWLEDGMENTS -- REFERENCES -- Chapter 20
Ionospheric Scintillation Effects on Satellite Navigation -- 20.1
INTRODUCTION -- 20.2 NAVIGATION SYSTEM PERFORMANCE CRITERIA
-- 20.3 STAND-ALONE GNSS STANDARD POSITIONING SERVICE -- 20.4
SATELLITE-BASED AUGMENTATION SYSTEMS (SBAS) -- 20.5 GROUND-
BASED AUGMENTATION SYSTEMS (GBAS) -- 20.6 FINAL COMMENTS --
ACKNOWLEDGMENTS -- REFERENCES -- Chapter 21 Ionospheric
Disturbances Related to Earthquakes -- 21.1 INTRODUCTION -- 21.2
GNSS-TEC OBSERVATIONS -- 21.3 COSEISMIC IONOSPHERIC
DISTURBANCES -- 21.4 PRESEISMIC IONOSPHERIC ANOMALIES -- 21.5
CONCLUDING REMARKS -- ACKNOWLEDGMENTS -- REFERENCES --
Chapter 22 Atmospheric and Ionospheric Disturbances Caused by
Tsunamis -- 22.1 INTRODUCTION -- 22.2 ACOUSTIC-GRAVITY WAVE
THEORY -- 22.3 ATMOSPHERIC WAVE GENERATION BY TSUNAMIS --
22.4 TID AND AIRGLOW DISTURBANCE THEORY -- 22.5 TID AND
AIRGLOW DISTURBANCE OBSERVATIONS -- 22.6 GRAVITY WAVE-TID
MODELING -- 22.7 OUTSTANDING ISSUES: CHALLENGES AND FUTURE
DIRECTIONS -- 22.8 SUMMARY -- ACKNOWLEDGMENTS -- REFERENCES
-- INDEX -- EULA.
