LIST OF SYMBOLS AND ABBREVIATIONS

Abbreviations

SSW	Sudden stratospheric warming
UV	Ultra violet
DW1	Diurnal westward tide with wave number 1
MLT	Mesosphere and lower thermosphere
LTE	Laplace tidal equations
Sq	Solar quiet current
EEJ	Equatorial electrojet
L	Lunar quiet current
CEJ	Counter electrojet
EIA	Equatorial ionization anomaly
GPS	Global positioning system
GIM	Global ionospheric maps
NCEP	National centre for environmental prediction
NCAR	National centre for atmospheric research
Es	Sporadic E layer
CADI	Canadian advanced digital ionosonde
TEC	Total electron content
PR	Partial reflection
MF	Medium frequency
SNR	Signal – to – noise ratio

TECU	Total electron content unit
FCA	Full correlation analysis
IIG	Indian institute of geomagnetism
EGRL	Equatorial geophysical research laboratory
WDC	World data centre
IAGA	International Association of Geomagnetism and Aeronomy
PPM	Proton precision magnetometers
QBO	Quasi biennial oscillation
ENSO	El – Nino southern oscillation
IGS	International GPS service for geodynamics
M2	Lunar semi – diurnal tides
GSWM	Global Scale Wave Model
SABER	Sounding of the atmosphere using broadband emission radiometry
CHAMP	CHAllenging Minisatellite Payload
GRACE	Gravity Recovery and Climate Experiment
DE3	Diurnal eastward wave number 3
MCEJ	Morning counter electrojet
NCEJ	Noon time counter electrojet
ACEJ	Afternoon counter electrojet
NOAA	National oceanic and atmospheric administration

Symbols

P	pressure
n	number density of air
M	mass
g	acceleration due to gravity
T	temperature
k	Boltzmann constant.
z	altitude
H	scale height
z_0	height of maximum ionization rate for vertical solar incidence.
q_ν	photo ionization rate at unit volume
χ_ν	solar zenith angle
$q_{\nu 0}$	maximum ionization rate at vertical incidence
Ω	gyro frequency
ν	collision frequency
n_i	ion density
n_e	electron density
h_0	optical depth
$\sigma_i(\lambda)$	absorption cross section of individual atoms
λ	molecules at any wavelength
ϕ	latitude
s	zonal wave number

a	Earth's radius,
θ	magnetic latitude
L	radius of the equatorial crossing point of the field line in units of earth radii.
r', θ', ϕ'	geographic coordinates
θ'	colatitudes measured from the northern geographic pole
ϕ'	east longitude
$P_n^m \cos\theta'$	Schmidt form of the associated Legendre polynomial of degree n and order m.
B	magnetic field vector
F	geomagnetic field intensity
X	north component of geomagnetic field intensity
Y	east component of geomagnetic field intensity
Z	vertical component of geomagnetic field intensity
H	horizontal component of geomagnetic field intensity
I	dip angle or inclination
$m_{i/e}$	mass of ions/electrons
$\nu_{i/e}$	collision frequency of ions/electrons
$\omega_{i/e}$	gyro frequency of ions/electrons
J_w	dynamo current density
J_x	current density in north direction
J_z	current density in the vertical direction
σ_P	Pedersen conductivity
σ_H	Hall conductivity

σ_C	Cowling conductivity
E_x	northward electric field
E_z	vertical electric field
e	humidity (as partial pressure of water vapor) in mb,
P	atmospheric pressure in mb,
T	absolute temperature in K,
N_e	number density of electrons
N_c	critical plasma density
ΔH	Change in H at any time from the mid night value
ΔZ	change in Z at any time from the mid night value
Δt	time interval between transmission and reception of the reflected signal
c	velocity of radio wave
n	Electron density
U	Zonal component of wind
V	Meridional component of wind
V_0	mean wind,
t	solar time
τ	lunar time
ΔTEC	Change in total electron content value
g	acceleration due to gravity on Earth and h: the equivalent depth