

## REFERENCES

Abdu, M.A., C.G.M. Brum, I.S. Batisha, J.H.A. Sobral, E.R. De Paula & J.R. Souza. 2008. "Solar Flux Effects on the Equatorial Ionization Anomaly and Total Electron Content over Brazil: Observational Results versus IRI Representations". *Advances in Space Research*. Vol. 42. p. 617-625.

Abdullah, M., A.H.M. Zain, A. Zaharim, S.N.A. Abdul Habib & S.A. Bahari. 2007. "Forecasting of Ionospheric Delay over Parit Raja Station, Johor, Using Statistical Method". In: *Asia Pacific Conference on Applied Electromagnetics Proceedings*. Melaka, Malaysia.

Abdullah, M., A.H.M. Zain, Y.H. Ho & S. Abdullah. 2009. "TEC and Scintillation Study of Equatorial Ionosphere: A Month Campaign over Sipitang and Parit Raja Stations, Malaysia". *American Journal of Engineering and Applied Science*. Vol. 2. (1): p. 44-49.

Acharya, R., B. Roy, M.R. Sivaraman & A. Dasgupta. 2009. "Kalman Filter Approach for Prediction of Ionospheric Total Electron Content". In: *International Conference on Computers and Devices for Communication*.

Acharya, R., B. Roy, M.R. Sivaraman & A. Dasgupta. 2010. "Prediction of Ionospheric Total Electron Content Using Adaptive Neural Network with In-Situ Learning Algorithm". *Advances in Space Research*. Vol. 47. p. 115-123.

Adele, A.O., E.O. Oyeyemi & J. Olwendo. 2012. "Solar Activity Dependence of Total Electron Content Derived from GPS Observations over Mbarara". *Advances in Space Research*. Vol. 50. p. 415-426.

Aggarwal, M. 2011. "TEC Variability near Northern EIA Crest and Comparison with IRI Model". *Advances in Space Research*. Vol. 48. p.1221-1231.

Aggarwal, M., H.P. Joshi, K.N. Iyer, Y.S. Kwak, J.J. Lee, H. Chandra & K. Cho. 2012. "Day-to-Day Variability of Equatorial Anomaly in GPS-TEC during Low Solar Activity Period". *Advances in Space Research*. Vol. 49. p.1709-1720.

Akhoondzadeh, M., M. Parrot & M.R. Saradjian. 2010. "Electron and Ion Density Variations before Strong Earthquakes ( $M > 6.0$ ) Using Demeter and GPS Data". *Natural Hazards and Earth System Sciences*. Vol. 10. p. 7-18.

Aladag, C.H., E. Egrioglu & C. Kadilar. 2009. "Forecasting Nonlinear Timeseries with a Hybrid Methodology". *Applied Mathematics Letters*. Vol. 22. p.1467-1470.

Alex, S. 1987. "Day-to-Day Variability of Total Electron Content at Low Latitudes". *Current Science*. Vol. 56. p.481-482.

Alizadeh, M.M., D.D. Wijaya, T. Hobiger, R. Weber & H. Schuh. 2013. *Ionospheric Effects on Microwave Signals*. Berlin Heidelberg: Springer Verlag.

Alsmadi, M.K., K. Omar & S.A. Noah. 2009. "Back Propagation Algorithm: The Best Algorithm among the Multi-Layer Perceptron Algorithm". *International Journal of Computer Science and Network Security*. Vol. 9. p. 378-383.

Araujo-Pradere, E.A., T.J. Fuller-Rowell & M.V. Codrescu. 2002a. "Storm: An Empirical Storm-Time Ionospheric Correction Model, 1. Model Description". *Radio Science*. Vol. 37. (5): p. 3-1.

Araujo-Pradere, E.A. & T.J. Fuller-Rowell. 2002b. "Storm: An Empirical Storm-Time Ionospheric Correction Model, 2. Model Description". *Radio Science*. Vol. 37. (5): p. 4-1

Bagiya, M.S., H.P. Joshi, K.N. Iyer, M. Aggarwal, S. Ravindran & B.M. Pathan. 2009. "TEC Variations during Low Solar Activity Period (2005 -2007) near the Equatorial Ionospheric Anomaly Crest Region in India". *Annales Geophysicae*. Vol. 27. p.1047-1057.

Balan, N., G.J. Bailey & Y.Z. Su. 1996. "Variations of the Ionosphere and Related Solar Fluxes during Solar Cycles 21 and 22". *Advances in Space Research*. Vol. 18. (3): p. 311-314.

Baumjohann, W. & R.A. Treumann. 1997. *Basic Space Plasma Physics*. London: Imperial College Press.

Bhuyan, K., S.B. Singh & P.K. Bhuyan. 2004. "Application of Generalized Singular Value Decomposition Ionospheric Tomography". *Annales Geophysicae*. Vol. 22. p. 3437-3444.

Bhuyan, P.K. & R.R. Borah. 2007. "TEC Derived from GPS Network in India and Comparison with the IRI". *Advances in Space Research*. Vol. 39. p. 830-840.

Bilitza, D., K. Rawer, L. Bosny & T. Gulyaeva. 1993. "International Ionosphere -Past, Present, and Future: I. Electron Density". *Advances in Space Research*. Vol. 13. (3): p. 3-13.

Bilitza, D. 2001. "International Reference Ionosphere 2000". *Radio Science*. Vol. 36. (2): p. 261-275.

Bilitza, D. & B.W. Reinisch. 2008. "International Reference Ionosphere 2007: Improvements and New Parameters". *Advances in Space Research*. Vol. 42. p. 599-609.

Bishop, C.M. 1995. *Neural Networks for Pattern Recognition*. New York: Oxford University Press Inc.

Bowman, B.R., W.K. Tobiska, F.A. Marcos, C.Y. Huang, C.S. Lin & W.J. Burke.

2008. "A New Empirical Thermospheric Density Model Jb2008 Using New Solar and Geomagnetic Indices". In: AIAA-2002-4887, AIAA/AAS Astrodynamics Specialist Conference.

Box, G.E.P. & G.M. Jenkins. 1976. *Time Series Analysis: Forecasting and Control*. San Francisco, USA: Holden-Day.

Cander, L.R., M.M. Milosavljevic, S.S. Stankovic & S. Tomasevic. 1998. "Ionospheric Forecasting Technique by Artificial Neural Network". *Electronics Letter*. Vol. 34. p. 1573-1574.

Cander, L.R. 1998a. "Artificial Neural Network Applications In Ionospheric Studies". *Annali Di Geofisica*. Vol. 41. (5-6): p. 757-765.

Carrano, C.S. & K. Groves. 2006. "The GPS Segment of the AFRL-SCINDA Global Network and the Challenges of Real-Time TEC Estimation in the Equatorial Ionosphere". In: *Proceedings of the 2006 National Technical Meeting of The Institute of Navigation*. pp. 1036-1047.

Chatfield, C. 2000. *Time-Series Forecasting*. Chapman & Hall/CRC Press.

Conway, A.J., K.P. Macpherson, G. Blacklaw & J.C. Brown. 1998. "A Neural Network Prediction of Solar Cycle 23". *Journal of Geophysical Research*. Vol. 103. p. 29733-29742.

Davies, K. 1990. *Ionospheric Radio*. London, United Kingdom: Peter Peregrinus Ltd.

Demuth, H. & M. Beale. 2002. *Neural Network Toolbox User's Guide Version 4*. The Math Works.

D'ujanga, F.M., J. Mubiru, B. F. Twinamasiko, C. Basalirwa & T. J. Senyonga. 2012. "Total Electron Content Variations in Equatorial Anomaly Region". *Advances in Space Research*. Vol. 50. p. 44-449.

Durdu, O.F. 2010. "A Hybrid Neural Network and Arima Model for Water Quality Time Series Prediction". *Engineering Applications of Artificial intelligence*. Vol. 23. p. 586 -594.

El-Rabbany, A. 2002. *Introduction to GPS: The Global Positioning System*. Artech House Mobile Communications Series.

Elmunim, N.A., M. Abdullah, A.M. Hasbi & S.A. Bahari. 2013. "Short-Term Forecasting Ionospheric Delay over Ukm, Malaysia, Using the Holt-Winter Method". In: *Proceeding of the 2013 IEEE International Conference on Space Science and Communication (IconSpace)*.

Elmunim, N.A., M. Abdullah, A.M. Hasbi & S.A. Bahari. 2015. "Comparison of Statistical Holt-Winters Models for Forecasting the Ionospheric Delay Using GPS Observations". *Indian Journal of Radio & Space Physics*. Vol. 44. p. 28-34.

Fausett, L., 1994. *Fundamentals of Neural Networks; Architectures, Algorithms and Applications*. New Jersey: Prentice-Hall, Inc.

Fayose, F.S., R. Babatude, O. Oladosu & K. Groves, K. 2012. "Variation of Total Electron Content (TEC) and Their Effect on GNSS over Akure , Nigeria". *Advances in Space Research*. Vol. 4. p.105-109.

Gao, Y. & Z.Z. Liu. 2002. "Precise Ionosphere Modelling Using Regional GPS Network Data". *Journal of Global Positioning System*. Vol. 1. (1): p. 18-24.

Garcia-Rigo, A., E. Monte, M. Hernandez-Pajares, J.M. Juan, J. Sanz, A. Aragon-Angel & D. Salazar. 2011. "Global Prediction of the Vertical Total Electron Content of the Ionosphere Based on GPS Data". *Radio Science*. Vol. 46. p. RS0D25.

Ghaffari, A., H. Abdollahi, M.R. Khoshayand, S. Bozchalooi, A. Dadgar & M. Rafiee-Tehrani. 2006. "Performance Comparison of Neural Network Training Algorithms in Modeling of Bimodal Drug Delivery". *International Journal of Pharmaceutics*. Vol. 327. p. 126-138.

GSV GPS Silicon Valley. 2004. GSV4004B GPS Ionospheric Scintillation & TEC Monitor (GISTM) User's Manual.

Gwal, A.K. & A. Jain. 2011. "GPS Scintillation Studies in the Arctic Region during the First Winter-Phase 2008 Indian Arctic Expedition". *Polar Science*. Vol. 4. p. 574-587.

Habarulema, J.B. 2007. A Feasibility Study into Total Electron Content Prediction Using Neural Networks. (Master Thesis). Rhodes University, Grahamstown.

Habarulema, J.B., L.A. McKinnell & P.J. Cilliers. 2007a. "Prediction of Global Positioning System Total Electron Content Using Neural Networks over South Africa". *Journal of Atmospheric and Solar-Terrestrial Physics*. Vol. 69. p.1842-1850.

Habarulema, J.B., L.A. McKinnell, P.J. Cilliers & B.D.L. Opperman. 2009a. "Application of Neural Networks to South African GPS TEC Modelling". *Advances in Space Research*. Vol. 43. p. 1711-1720.

Habarulema, J.B., L.A. McKinnell & B.D.L. Opperman. 2009b. "A Recurrent Neural Network Approach to Quantitatively Studying Solar Wind Effects on TEC Derived from GPS; Preliminary Results". *Annales Geophysicae*. Vol. 27. p. 2111-2125.

Habarulema, J.B., L.A. McKinnell & B.D.L. Opperman. 2009c. "Towards a GPS-Based TEC Prediction Model for Southern Africa with Feed Forward Networks". *Advances in Space Research*. Vol. 44. p. 82-92.

Habarulema, J.B. 2010. A Contribution to TEC Modelling over Southern Africa Using GPS Data. (Ph.D. Thesis). Rhodes University, Grahamstown.

Habarulema, J.B., L.A. McKinnell & B.D.L. Opperman. 2010a. "TEC Measurements

and Modelling over Southern Africa during Magnetic Storms; A Comparative Analysis". *Journal of Atmospheric and Solar- Terrestrial Physics*. Vol. 72. p. 509-520.

Habarulema, J.B. & L.A. McKinnell. 2012. "Investigating the Performance of Neural Network Backpropagation Algorithms for TEC Estimations Using South African GPS Data". *Annales Geophysicae*. Vol. 30. p. 857-866.

Hagan, M.T., H.B. Demuth & M.B. Beale. 1996. *Neural Network Design*. Boston: PWS Pub

Hasbi, A.M., M.A. Mohd Ali & N. Misran. 2007. "Ionospheric TEC and Scintillation during 15 - 16 May 2005 Major Storm Over Equatorial Anomaly Region at Arau". In: *Proceedings of the Asia - Pacific Conference on Applied Electromagnetics*.

Hasbi, A.M., M.A. Momani, M.A. Mohd Ali, N. Misran, K. Shiokawa, Y. Otsuka & K. Yumoto. 2009. "Ionospheric and Geomagnetic Disturbances during the 2005 Sumatran Earthquakes". *Journal of Atmospheric and Solar-Terrestrial Physics*. Vol. 71. p. 1992-2005.

Hasbi, A.M., M.A. Mohd Ali & N. Misran. 2011. "Ionospheric Variations before Some Large Earthquakes over Sumatra". *Natural Hazards and Earth System Sciences*. Vol. 11. p.597-611.

Hassan, W.S.W., A.F.M. Zain, A.G. Ramli, Y.H. Ho & M. Abdullah. 2002. "Studies on Equatorial Total Electron Content Near Solar Maximum Activity from 1998-2000". In: *XXVIIth General Assembly of the International Union of Radio Science*. Maastricht, Netherlands. 17-24 August.

Haykin, S. 1999. *Neural Networks a Comprehensive Foundation*. (ed.). Pearson Education, Inc.

Hernandez-Pajares, M., J.M. Juan & J. Sanz. 1997. "Neural Network Modeling of the Ionospheric Electron Content at Global Scale Using GPS Data". *Radio Science*. Vol. 32. (3): p. 1081-1089.

Hofmann-Wellenhof, B., H. Lichtenegger & J. Collins. 2001. *Global Positioning System Theory and Practice*. (ed.). New York: Springer-Verlag Wien.

Huttunen, K.E.J., H.E.J. Koskinen & R.Schwenn. 2002. "Response of Magnetic Indices to Different Solar Wind Disturbances". In: *SOLSPA: The Second Solar Cycle and Space Weather Euroconference*.

Idrus, M., M. Abdullah, A.M. Hasbi & A. Husin. 2013. "Observation of Large-Scale Traveling Ionospheric Disturbance over Peninsular Malaysia Using GPS Receivers". *International Journal of Electrical, Electronic Science and Engineering*. Vol. 7. (12): p. 623-628.

Jakowski, N., S.M. Stankov, D. Klaehn, S. Schlueter, Y. Beniguel & J. Rueffer. 2004. "Operational Service for Monitoring and Evaluating the Space Weather Impact on

Precise Positioning". In: European Navigation Conference GNSS 2004. Rotterdam, The Netherlands 16-19 May.

Jakowski, N., S.M. Stankov & D. Klaehn. 2005. "Operational Space Weather Service for GNSS Precise Positioning". *Annales Geophysicae*. Vol. 23. p. 3071-3079.

Jakowski, N., Y. Beniguel, G. De Franceschi, M.H. Pajares, K.S. Jacobsen, I. Stanislawska, L. Tomasik, R. Warnant & G. Wautelet. 2012. "Monitoring, Tracking and Forecasting Ionospheric Perturbation Using GNSS Techniques". *J. Space Weather Space Climate*. Vol. 2. p. A22.

Jean, U., L.A. McKinnell & P.J. Cilliers. 2009. "Forecasting Solar Cycle 24 Using Neural Networks". *Journal of Atmospheric and Solar-Terrestrial Physics*. Vol. 71. p. 569-574.

Jusoh, M.H., N.H.A. Aziz, N. Othman, M.A. Haron & H. Saad. 2009. "Determination of Optimized Ionospheric Layer for TEC Measurement at Equatorial Region". In: *International Conference on Space Science and Communication*. Port Dickson, Negeri Sembilan, Malaysia. 26-27 October. pp. 17-174.

Kao, S., Y. Tu, W. Chen, D.J. Weng & S.Y. Ji. 2013. "Factors Affecting the Estimation of GPS Receiver Instrumental Biases". *Survey Review*. Vol. 45. (328): p. 59-67.

Karia, S.P. & K.N. Pathak. 2011. "GPS Based TEC Measurements for a Period August 2008-December 2009 near the Northern Crest of Indian Equatorial Ionospheric Anomaly Region". *Journal Earth system Science*. Vol. 120. (5): p. 851-858.

Karthik, P., V. Ratnam, N. Vanga, P.S. Brahmanadam, B. Sada Siva Rao & K. Sarat Kumar. 2012. "Auto Regressive Ionospheric Prediction Model for GPS Applications". *International Journal of Computer Application*. Vol. 48. (4).

Kelly, M.C. 2009. *The Earth's Ionosphere Plasma Physics & Electrodynamics*. Elsevier Inc.

Kenpankho, P., K. Wattanasangmechai, P. Supnithi, T. Tsugawa & T. Maruyama. 2011. "Comparison of GPS TEC Measurements with IRI TEC Prediction at the Equatorial Latitude Station, Chumphon, Thailand". *Earth Planets Space*. Vol. 63. p. 365-370.

Kersley, L., D. Malan, S. Eleri Pryse, L.R. Cander, R.A. Bamford, A. Belehaki, R. Leitinger, S.M. Radicella, C.N. Mitchell & P.S.J. Spencer. 2004. "Total Electron Content - A Key Parameter in Propagation: Measurement and Use in Ionospheric Imaging". *Annals of Geophysics*. Vol. 47. (2/3): p. 1067-1091.

Khashei, M. & M. Bijari. 2010. "An Artificial Neural Network (p,d,q) Model for Time Series Forecasting". *Expert Systems with Applications*. Vol. 37. p. 479-489.

Khashei, M. & M. Bijari. 2011. "A Novel Hybridization of Artificial Neural Network and ARIMA Models for Time Series Forecasting". *Applied Soft Computing*. Vol. 11. p. 2664-2675.

Klobuchar, J.A. 1975. "Polarization of VHF Waves Emitted from Geostationary Satellites". *Journal of Geophysical Research*. Vol. 80. (31): p. 4387-4389.

Klobuchar, J.A. December 1989. "Modern Total Electron Content Measurement Techniques". *World Ionosphere Thermosphere Study*. <ftp://ftp.ngdc.noaa.gov/STP/SOLAR\_DATA/Publications/Miscellaneous\_STP/World\_Ionosphere\_Thermosphere\_Study/Chapter05.Pdf>. accessed: 30 September 2014.

Klobuchar, J.A. 1991. "Ionospheric Effects on GPS". Reprinted from GPS World.

Koker, R., N. Altinkok & A. Demir. 2007. "Neural Network Based Prediction of Mechanical Properties of Particulate Reinforced Metal Matrix Composites Using Various Training Algorithms". *Material & Design*. Vol. 28. p. 616-627.

Komjathy, A. 1997. *Global Ionospheric Total Electron Content Mapping Using the Global Positioning System*. (Ph.D. Thesis). University of New Brunswick.

Konstantinidis, A., H. Haralambous, A. Agapitos & H. Papadopoulos. 2011. "A GPMOEA/D Approach for Modelling Total Electron Content over Cyprus". *Engineering Intelligent Systems*. Vol. 18.(3-4): p. 193-203.

Krankowskia, A., W. Kosekb, L.W. Barana & W. Popluskic. 2005. "Wavelet Analysis and Forecasting of VTEC Obtained with GPS Observations over European Latitudes". *Journal of Atmospheric and Solar-Terrestrial Physics*. Vol. 67. p. 1147-1156.

Krose, B. & P. Van der Smagt. 1996. *An Introduction to Neural Networks*. (ed.). University of Amsterdam.

Kumar, S. 2004. *Neural Networks: A Classroom Approach*. New Dehli: Tata Mcgraw Hill Education Private Limited.

Kumar, S. & A.K. Singh. 2009. "Variation of Ionosphere Total Electron Content (TEC) in Indian Low Latitude Region of the Equator Anomaly during May 2007 - April 2008". *Advances in Space Research*. Vol. 43. p. 1555-1562.

Lakhina, G.S., S. Alex, S. Mukherjee & G. Vichare. 2006. "On Magnetic Storms and Substorms". In: ILWS Workshop. Goa.

Langley, R.B. 2000. "GPS, the Ionosphere, and the Solar Maximum". *GPS world*. Vol. 11. (7): p. 44-49

Leandro, R.F. & M.C. Santos. 2004. "Regional Computation of TEC Using A Neural Network Model". In: Joint Assembly of CGU, AGU, SEG and EEGS. Montreal.

Leandro, R.F. & M.C. Santos. 2007. "A Neural Network Approach for Regional Vertical Total Electron Content Modelling". *Studia Geophysica et Geodaetica*. Vol. 51. (2): p. 279-292.

Leong, S. K., T.A. Musa, K.A. Abdullah, R. Othman, S. Lim & C. Rizos. 2009. "GPS-Derived Local TEC Mapping over Peninsula Malaysia during Solar Minimum of Sunspot Cycle 24". In: *Proceeding of the South East Asian Survey Congress (SEASC)*. 14 -17 August.

Liu, G., W. Huang, J. Gong & H. Shen. 2013. "Seasonal Variability of GPS-VTEC and Model during Low Solar Activity Period (2006-2007) near the Equatorial Ionization Anomaly Crest Location in Chinese Zone". *Advances in Space Research*. Vol. 51. p. 366-376.

Liu, J.Y., Y.I. Chen, S.A. Pulnits, Y.B. Tsai & Y.J. Chuo. 2000. "Seismo Ionospheric Signatures Prior to  $M \Rightarrow 6.0$  Taiwan Earthquakes". *Geophysical Research Letters*. Vol. 27. (19): p. 3113-3116.

Liu, J.Y., Y.J. Chuo, S.J. Shan, Y.B. Tsai, Y.I. Chen, S.A. Pulnits & S.B. Yu. 2004. "Pre-Earthquake Ionospheric Anomalies Registered by Continuous GPS TEC Measurements". *Annales Geophysicae*. Vol. 22. p. 1585-1593.

Liu, L. B., Wan, W. X., Chen, Y. D., 2011. Solar activity effects of the ionosphere: A brief review. *Chinese Science Bulletin* 56, 1202 –1211.

Liu, X.M., S.Q. Jiao & J. He. 1991. "An Empirical Model of TEC over the Continent of China". In: *Antennas and Propagation Society International Symposium*.

Loewe, C.A. & G.W. Pross. 1997. "Classification and Mean Behavior of Magnetic Storms". *Journal of Geophysical Research*. Vol. 102. (A7): p.14209-14213.

Ma, G. & T. Maruyama. 2003. "Derivation of TEC and Estimation of Instrumental Biases from Geonet in Japan". *Annales Geophysicae*. Vol. 21. p. 2083-2093.

Mane, H., G. Sivavaraprasad & D. Venkata Ratnam. 2014. "ARMA Ionospheric Prediction Model for GAGAN Applications". *International Journal of Electronics and Communication Technology*. Vol. 5. p. 31-34.

Mannucci, A.J., B.D. Wilson, D.N. Yuan, C.H. Ho, U.J. Lindqwister & T.F. Runge. 1998. "A Global Mapping Technique for GPS-Derived Ionospheric Total Electron Content Measurements". *Radio Science*. Vol. 33. (3): p. 565-582.

Manucci, A.J., B.A. Iijima, U.J. Lindqwister, X. Pi, L. Sparks & B.D. Wilson. 1999. "GPS and Ionosphere: URSI Reviews of Radio Science". In: *Jet Propulsion Laboratory, Pasadena*.

Maruyama, T. 2007. "Regional Reference Total Electron Content Model over Japan Based on Neural Network Mapping Techniques". *Annales Geophysicae*. Vol. 25. p. 2609-2614.

Maruyama, T. 2010. "Solar Proxies Pertaining To Empirical Ionospheric Total Electron Content Models". *Journal of Geophysical Research*. Vol. 115. p. A04306.

Mckinnell, L.A. 2008. "Using Neural Networks to Determine the Optimum Solar Input for the Prediction of Ionospheric Parameters". *Advances in Space Research*. Vol. 42. p. 634-638.

Miro Amarante, G., M. Cueto Santamaria, K. Alazo & S.M. Radicella. 2007. "Validation of the Storm Model Used in IRI with Ionosonde Data". *Advances in Space Research*. Vol. 39. p. 681-686.

Mosert, M., M. Gende, C. Brunini, R. Ezquer & D. Altadill. 2007. "Comparisons of IRI TEC Predictions with GPS and Digisonde Measurements at Ebro". *Advances in Space Research*. Vol. 39. p. 841-847.

Mubarak, W.A., M. Abdullah & N. Misran. 2009. "Ionospheric TEC Response over Simeulue Earthquake Of 28 March 2005". In: *Proceeding of the 2009 International Conference on Space Science and Communication*.

Mukherjee, S., S. Sarkar, P.K. Purohit & A.K. Gwal. 2010. "Seasonal Variation Oof Total Electron Content at Crest of Equatorial Anaomaly Station During Low Solar Activity Conditions". *Advances in Space Research*. Vol.46. p.291 - 295.

Mushini, S.C., P.T. Jayachandran, R.B. Langley & J.W. MacDougall. 2009. "Use of Varying Shell Heights Derived from Ionosonde Data in Calculating Vertical Total Electron Content (TEC) Using GPS-New Method". *Advances in Space Research*. Vol. 44. p. 1309-1313.

Myung, I.J. 2003. "Tutorial on maximum likelihood estimation". *Journal of Mathematical Psychology*. Vol. 47. p.90-100.

Navstar GPS 1996. *User Equipment Introduction*. Department of Defense Document.

Nayir, H., F. Arikan, O. Arikan & C.B. Erol. 2007. "GPS/TEC Estimation with Ionolab Method". In: *3rd International Conference on In Recent Advances in Space Technologies (RAST'07)*, IEEE. pp. 29-34.

Niu, R., C. Guo, Y. Zhang, L. He & Y. Mao. 2014. "Study of Ionospheric TEC Shortterm Forecast Model Based on Combination Method". In: *12th International Conference on Signal Processing (ICSP)*. October.

Obrou, O.K., M.N. Mene, A.T. Koba & K.Z. Zaka, 2009. "Equatorial Total Electron Content (TEC) At Low and High Solar Activity". *Advances in Space Research*. Vol. 43. p.1757 -1761.

Olwendo, O.J., P. Baki, P.J. Cilliers, C. Mito & P. Doherty. 2012. "Comparison of GPS TEC Measuremets with IRI-2007 TEC Prediction over the Kenyan Region during the Descending Phase Of Solar Cycle 23". *Advances in Space Research*. Vol. 49. p. 914-921.

Olwendo, O.J., P. Baki, P.J. Cilliers, C. Mito & P. Doherty. 2012a. "Characterization of Ionospheric GPS Total Electron Content (GPS-TEC) in Low Latitude Zone over the Kenyan Region during a Very Low Solar Activity Phase". *Journal of Atmospheric and Solar-Terrestrial Physics*. Vol. 84-85. p. 52-61.

Otsuka, Y., T. Ogawa, A. Saito, T. Tsugawa, S. Fukao & S. Miyazaki. 2002. "A New Technique for Mapping of Total Electron Content Using GPS Network in Japan". *Earth Planet Space*. Vol. 54. p. 63-70.

Oyeyemia, E.O., L.A. McKinnell & A.W.V. Poolea. 2006. "Near-Real Time foF2 Predictions Using Neural Networks". *Journal of Atmospheric and Solar- Terrestrial Physics*. Vol. 68. p.1807-1818.

Pandey, S.K. & S.C. Dubey. 2009. "Characteristic Features of Large Geomagnetic Storms Observed during Solar Cycle 23". *Indian Journal of Radio and Space Physics*. Vol. 38. p. 305-312.

Perrone, L. & G.De Franceschi. 1998. "Solar, Ionospheric and Geomagnetic Indices". *Annali Di Geofisica*. Vol. 41. p. 843-855.

Plumb, A. P., R.C. Rowe, P. York & M. Brown. 2005. "Optimisation of the Predictive Ability of Artificial Neural Network (ANN) Models: A Comparison of Three ANN Programs and Four Classes of Training Algorithm". *European Journal of Pharmaceutical Sciences*. Vol. 25. p. 395-405

Poole, A.W. & L.A. McKinnell. 2000. "On the Predictability of foF2 Using Neural Networks". *Radio Science*. Vol. 1. p. 225-234.

Purohit, P.K., B. Purushottam, A.M. Azad, P.A. Khan & A.K. Gwal. 2011. "GPS Derived Total Electron Content (TEC) Variations over Indian Antarctica Station, Maitri". *World Academy of Science, Engineering and Technology*. Vol. 59. p. 597-599.

Radicella, S.M. & E. Tulunay. 2004. "Space Plasma Effects on Earth-Space and Satellite-to-Satellite Communications: Working Group 4 Overview". *Annals of Geophysics*. Vol. 47, (2/3): p. 1279-1283.

Rama Rao, P.V.S., K. Niranjana, D.S.V.V.D. Prasad, S. Gopi Krishna & G. Uma. 2006. "On the Validity of the Ionospheric Pierce Point (Ipp) Altitude of 350km in the Indian Equatorial And Low-Latitude Sector". *Annales Geophysicae*. Vol. 24. p. 2159-2168

Rama Rao, P.V.S., S. Gopi Krishna, J. Vara Prasad, S.N.V.S. Prasad, D.S.V.V.D Prasad & K. Niranjana. 2009. "Geomagnetic Storm Effects on GPS Based Navigation. *Annales Geophysicae*". Vol. 27. p. 2101-2110.

Ratnam, D.V. G. Sivavaraprasad & H. Mane. 2014. "Forecasting of Ionospheric TEC Values Using Holt-Winters Method over Low Latitude Station". *International Journal of Electronics & Communication Technology*. Vol. 5. p. 27-30.

Reinisch, B.W. & X. Huang. 2001. "Deducing Topside Profiles and Total Electron Content from Bottomside Ionograms". *Advances in Space Research* Vol. 27. p. 23-30.

Rhazali, Z.A. & A.F.M. Zain. 2011. "True Height Description of Equatorial F-Layer over Parit Raja, Batu Pahat, Malaysia". In: *Proceeding of the 2011 IEEE International Conference on Space Science and Communication (IconSpace)*.

Richa, T., S. Jain, A. Jain & A.K. Gwal. 2013. "Solar and Magnetic Control on Night Enhancement in TEC near the Crest of the Equatorial Ionization Anomaly". *Advances in Space Research*. Vol. 51. p. 61-68.

Rishbeth, H. & C.S.G.K. Setty. 1961. "The F-Layer at Sunrise". *Journal of Atmospheric and Solar-Terrestrial Physics*. Vol. 20.(4): p. 263-276.

Rishbeth, H. & O.K. Garriott. 1969. *Introduction to Ionospheric Physics Book*. New York: Academic Press, Inc.

Sakamoto, H., K. Matsumoto, A. Kuwahara & Y. Hayami. 2005. "Acceleration and Stabilization Techniques for the Levenberg-Marquardt Method". *IEICE Transactions on Fundamentals of Electronic, Communications, and Computer Sciences*. Vol. 88. (7): p. 1971-1978.

Sardon, E. & N. Zarraoa. 1994. "Estimation of Total Electron Content Using GPS Data: How Stable are the Differential Satellite and Receiver Instrumental Biases?". *Radio Science*. Vol. 29. p. 577-586.

Sarma, A.D. & T. Madhu. 2005. "Modelling of foF2 Using Neural Networks at an Equatorial Anomaly Station". *Current Science*. Vol. 89. p. 1245-1247.

Schaer, S. 1999. *Mapping and Predicting the Earth's Ionosphere Using the Global Positioning System*. (Ph.D. Thesis). Bern University, Switzerland.

Sethia, G., H. Chandra & R. Rastogi. 1979. "Daily Variation of Total Electron Content near Magnetic Equator". *Current Science*. Vol. 48. (9): p. 377-379.

Shankar, J. 2007. *Analysis of the Day Side Equatorial Anomaly*. (Master Thesis). Utah State University.

Shuxiang, X. & C. Ling. 2008. "A Novel Approach for Determining the Optimal Number of Hidden Layer Neurons for FNN's and Its Application in Data Mining". In: *5th International Conference on Information Technology and Application (ICITA)*.

Stankov, S.M., I.S. Kutiev, N. Jakowski & A. Wehrenpfennig. 2001. "A New Method for Total Electron Content Forecasting Using Global Positioning System Measurements". In: *Proceeding ESTEC Workshop on Space Weather*. pp. 17-19.

Sugiura, M. 1964. "Hourly Values of Equatorial Dst for the IGY". *Annals of International Geophysical Year*. Vol. 35. p. 9-45.

Sunehra, D. 2013. "Estimation of GPS Receiver Inter-Frequency Bias for Operational

Ionosphere Monitoring in GBAS". *Indian Journal of Radio & Space Physics*. Vol. 42. p. 175-181.

Sutcliffe, P. 2000. "The Development of a Regional Geomagnetic Daily Variation Model Using Neural Networks". *Annales Geophysicae*. Vol. 18. p. 120-128.

Tapping, K.F. & B. DeTracey. 1990. "The Origin of the 10.7 cm Flux". *Solar Physics*. Vol. 127. p. 321-332.

Theresa, H.D.N. 2013. "The Box-Jenkins Methodology for Time Seriesmodel". In: *SAS Global forum on statistics and data analysis*.

Tobiska, W.K., S.D. Bouwer & B.R. Bowman. 2008. "The Development of New Solar Indices for Use in Thermospheric Density Modeling". *Journal of Atmospheric and Solar- Terrestrial Physics*. Vol. 70. p. 803-819.

Todorova, S., T. Hobiger & H. Schuh. 2008. "Using the Global Navigation Satellite System and Satellite Altimetry for Combined Global Ionosphere Maps". *Advances in Space Research*. Vol. 42. p. 727-736.

Torreçilla, J.S., L. Otero & P.D. Sanz. 2007. "Optimization of an Artificial Neural Network for Thermal/Pressure Food Processing: Evaluation of Training Algorithms". *Computer and Electronics in Agriculture*. Vol. 56. p. 101-110.

Tsurutani, B.T., W.D. Gonzalez, F. Tang, S.I. Akasofu & E. Smith. 1988. "Origin of Interplanetary Southward Magnetic Fields Responsible for Magnetic Storms Near Solar Maximum ( 1978 - 1979)". *Journal of Geophysical Research*. Vol. 93. p. 8519-8531.

Tulunay, E., E.T. Senalp, L.R. Cander, Y.K. Tulunay, A.H. Bilge, E. Mizrahi, S.S. Kouris & N. Jakowski. 2004a. "Development of Algorithms and Software for Forecasting, Nowcasting and Variability of TEC". *Annals of Geophysics*. Vol. 47. (2/3): p. 1201-1214.

Tulunay, Y., E. Tulunay & E.T. Senalp. 2004b. "The Neural Network Technique 1: A General Exposition". *Advances in Space Research*. Vol. 33. (6): p. 983-987.

Tulunay, E., E.T. Senalp, S.M. Radicella & Y. Tulunay. 2006. "Forecasting Total Electron Content Maps by Neural Network Technique". *Radio Science*. Vol. 41. (4).

Unglaub, C., C. Jacobi, G. Schmidtke, B. Nikutowski & R. Brunner. 2012. "EUV-TEC Proxy to Describe Ionospheric Variability Using Satellite-Borne Solar EUV Measurements". *Advances in Radio Science*. Vol. 10. p. 259-263.

Vijaya Lekshmi, D., N. Balan, S. Tulasi Ram & J.Y. Liu. 2011. "Statistics of Geomagnetic Storms and Ionospheric Storms at Low and Mid Latitudes in Two Solar Cycle". *Journal of Geophysical Research*. Vol. 116. (A11).

Watthanasangmechai, K. 2011. *Neural Network Application for Ionospheric Study*.

(Master Thesis). King Mongkuts Institute of Technology Ladkrabang.

Watthanasangmechai, K., P. Supnithi, S. Lerkvaranyu, T. Tsugawa, T. Nagatsuma & T. Maruyama. 2012. "TEC Prediction with Neural Network for Equatorial Latitude Station in Thailand". *Earth Planets Space*. Vol. 64. p. 473-483.

Wu, C.C., C.D. Fry, J.Y. Liu, K. Liou & C.L. Tseng. 2004. "Annual TEC Variation in the Equatorial Anomaly Region during the Solar Minimum: September 1996 - August 1997". *Journal of Atmospheric and Solar-Terrestrial Physics*. Vol. 66. p. 199-207.

Xu, Z., W. Wang, N. Zhou, X. Song & H. Zhu. 2012. "Variability Study of Ionosphere Total Electron Content at Crest of Equatorial Anomaly in China 1997 to 2007". *Advances in Space Research*. Vol. 50. p. 70-76.

Xuan, K., W. Wei-Xing & N. Bai-Qi. 2006. "Chaotic Properties Analysis and Nonlinear Prediction of Ionospheric Total Electron Content over 120E Magnetism Equator". *Chinese Journal of Geophysics*. Vol. 49.(5): p.1130-1138.

Ya'acob, N., M.H. Jusoh, M. Abdullah & M. Ismail. 2007. "Monitoring the TEC Variation Using GPS Dual Frequency System during Quiet and Disturbed Day". In: *IEEE, Student Conference on Research and Development*. Malaysia. 11-12 December.

Ya'acob, N., M. Abdullah & M. Ismail. 2009a. "GPS Vertical Total Electron Content (TEC) Dual Frequency Techniques and TEC Map at Ionosphere Layer Using Malaysian Data". In: *IEEE, International Conference on Future Computer and Communication*. pp. 589-593.

Ya'acob, N., M. Abdullah & M. Ismail. 2009b. "Determination of GPS Total Electron Content (TEC) at Ionosphere Layer Using Malaysian Data". *Journal of Basic and Applied Science*. Vol. 1, (3):p. 431-435.

Ya'acob, N. & A. Idris. 2012. "Measurement of Total Electron Content (TEC) Using Virtual Reference Station (VRS) Data at Ionosphere Layer". *Journal of Applied Sciences Research*. Vol. 8.(8): p. 4084-4095.

Ya'acob, N., A.L. Yusof, N. Sidik, A. Idris & D.M. Ali. 2013. "Total Electron Content (TEC) over Equatorial Ionosphere Using Malaysia Virtual Reference Station (VRS) Data". In: *International Conference on Computing, Management and Telecommunications (ComManTel)*.

Yan, G. & D. Yamin. 2011. "Application of Improved Analysis of Variance to Ionospheric TEC Short-Term Forecast". *Positioning*. Vol. 2. p. 55-60.

Yinn, N.H. 1995. "Solar Cycle Variation of Total Electron Content around Equatorial Anomaly Crest Region in East Asia". *Journal of Atmospheric and Solar-Terrestrial Physics*. Vol. 57. (12): p. 1503-1511.

Yolcu, U., E. Egrioglu & C.H. Aladag. 2013. "A New Linear & Nonlinear Artificial

Neural Network Model for Time Series Forecasting". Decision support system. Vol. 54. p. 1340-1347.

Zain, A.F.M. & M. Abdullah. 1999. "Initial Results of Total Electron Content Measurements over Arau, Malaysia". In: Proc. 4th IEEE Malaysia International Conference on Communications. Vol. 1. November. pp. 440-443.

Zain, A.F.M. & M. Abdullah. 2000. "Measurements of Total Electron Content Variability at Miri, Sarawak: Short Term Analysis". In: Proc. 2<sup>nd</sup> ICAST. Putrajaya, Malaysia. Vol. 2. 15-17 August. pp. 1967-1975.

Zain, A.F.M, Y. H. Ho & H. Harun. 2005a. "Mapping of the Malaysian Regional Total Electron Content (TEC) Latitude and Longitude Profile". The Institution of Engineers, Malaysia. Vol. 66. p. 8-13.

Zain, A.F.M., Y. H. Ho, M. Abdullah, Z.A. Rhazali, S. Abdullah & M.F. Marsimin. 2005b. "First Ionospheric Experimental Campaign and Observation at Fraser's Hill, Malaysia: Total Electron Content (TEC) and Scintillations Measurements". In: Proceedings of the Asia - Pacific Conference on Applied Electromagnetics.

Zhang, G.P., B.E. Patuwo & M.Y. Hu. 1998. "Forecasting with Artificial Neural Networks: The State of The Art". International Journal of Forecasting. Vol. 14. p. 35-62.

Zhang, G.P. 2003. "Time Series Forecasting Using a Hybrid ARIMA and Neural Network Model". Neurocomputing. Vol. 50. p. 159-175.

Zhang, G.P. & M. Qi. 2005. "Neural Network Forecasting for Seasonal and Trend Time Series". European Journal of Operational Research. Vol. 160. p. 501-514.

Zhang, Y., L.J. Paxton, D. Bilitza & R. Doe. 2010. "Near Real-Time Assimilation in IRI of Auroral Peak E-Region Density and Equatorward Boundary". Advances in Space Research. Vol. 46. p. 1055-1063.