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Permanent Link to Innovation: Ionospheric Modeling Using GPS
2021/06/18
Greater Fidelity Using a 3D Approach By Wei Zhang, Attila Komjathy, Simon Banville, and Richard B. Langley INNOVATION INSIGHTS by Richard Langley MAY YOU LIVE IN INTERESTING TIMES. So goes the purported Chinese proverb and curse. When it comes to the ionosphere, an interesting time might indeed be a curse for most users of GPS. The ionosphere – that region of the upper atmosphere where free electrons exist in sufficient numbers to affect the propagation of radio waves – owes its existence primarily to the extreme ultraviolet (EUV) and x-ray photons emitted by the sun. They ionize atoms and molecules in the upper atmosphere, freeing the outer electrons. Mostly the ionosphere is well behaved but it can get quite interesting when it is disturbed by space weather events such as solar flares or coronal mass ejections. The signals from the GPS satellites are perturbed as they transit the ionosphere. Pseudorange measurements are increased in value (an additional delay) and carrier-phase measurements are decreased (a phase advance). If not fully modeled or otherwise accounted for, the perturbations can decrease the accuracy of GPS positioning, navigation, and timing (PNT). For highest PNT accuracies, observations are made at the two frequencies transmitted by all GPS satellites and because the ionosphere's effect on radio signals is dispersive, a linear combination of the measurements removes almost all of the ionospheric perturbations. On the other hand, the ionosphere's effect on single frequency observations must be corrected using a model. Most commonly, the model assumes that all of the electrons in the ionosphere can be compressed into a thin shell at a certain height above the receiver. This permits the computation of an estimate of the vertical ionospheric delay. Then, a mapping function is used to predict the slant delay, the delay contributing to a GPS measurement. The approach works reasonably well, particularly if near-real-time values of vertical delay can be provided to users as is done by the Wide Area Augmentation System and other satellite-based augmentation systems. However, this two-dimensional approach ignores the fact that the electron content of the

ionosphere is actually spread out in the vertical direction and so has certain inaccuracies, which can increase when the ionosphere is disturbed. In an effort to improve ionosphere modeling with potential application to single-frequency GNSS users, a couple of my current graduate students together with a former student, have investigated a three-dimensional approach to ionospheric modeling using empirical orthogonal functions or EOFs to describe the vertical structure of the ionosphere. EOFs reduce the dimensionality of a data set or an empirical model consisting of a large number of interrelated variables, while retaining as much of the variance present in the data set as possible. This is achieved by transforming to a new set of variables, the orthogonal functions, which are uncorrelated (orthogonal), and which are ordered so that the first few retain most of the variation present in all of the original variables. Only three functions are required to account for more than 99 percent of the variability in the International Reference Ionosphere – 2007, for example. In this month’s column we look at the performance of this 3D approach to modeling the ionosphere including times when the ionosphere is particularly interesting. “Innovation” is a regular feature that discusses advances in GPS technology and its applications as well as the fundamentals of GPS positioning. The column is coordinated by Richard Langley of the Department of Geodesy and Geomatics Engineering, University of New Brunswick. He welcomes comments and topic ideas. Ionospheric modeling plays an important role in improving the accuracies of positioning and navigation, especially for current civil aircraft navigation and mass-market single-frequency users. Measurement-driven models are considered to be among the best candidates for real-time single-frequency positioning owing to their real-time applicability and relatively higher accuracy compared to empirical models, such as the GPS broadcast (also known as Klobuchar) and NeQuick models. A good example of a real-time positioning application is satellite-based augmentation systems (SBAS), including the Wide Area Augmentation System (WAAS), the European Geostationary Navigation Overlay Service (EGNOS), the Japanese MSTAT Satellite-based Augmentation System (MSAS), and the Indian GPS Aided Geo Augmented Navigation system (GAGAN). Because the ionosphere can be the largest error source in single-frequency positioning, the accuracy of ionospheric modeling is critical for single-frequency applications. Several organizations have been routinely providing ionospheric products to correct errors caused by the ionosphere in the form of ionospheric maps — that is, vertical total electron content (vTEC) at grid points (including regional and global products), such as those from WAAS and the International GNSS Service (IGS), with various processing time delays ranging from near real time to a couple of weeks. Among the earliest works of ionosphere modeling, the University of New Brunswick-Ionospheric Modeling Technique (UNB-IMT) was developed in the mid-1990s. This technique was demonstrated to effectively derive both regional and global total electron content (TEC) maps. However, most of the models, including the current version of UNB-IMT, approximate the ionosphere using a single thin-shell approach with an altitude set at, for example 350 km, which may introduce additional modeling errors up to several TEC units (1 TECU = 1016 electrons/m2), corresponding to meter-level errors of measurement delay or advance at the GPS L1 frequency. To overcome any downside of such models, three-dimensional (3D) ionospheric tomographic modeling methods have been proposed and implemented by several groups since the late 1990s. Different from the two-dimensional (2D) single thin-shell ionospheric models, where the parameters to be estimated are associated with TEC, the modeled variables in the tomographic model are related to electron density functions. Therefore, we may expect more complex structures of electron densities (such as those observed during ionospheric storms or in the highly variable equatorial anomaly) to be revealed by the models. A commonly accepted modeling approach is to describe the ionospheric horizontal (longitudinal and latitudinal) variability by a spherical harmonic (SH) expansion up to a specific degree and its vertical dimension modeled by empirical orthogonal functions (EOFs). However, SH models are not ideal for capturing local variability in the ionosphere because each basis function of spherical harmonics exists over the entire geographic region of interest, such as the entire globe in the case of global modeling. In other words, localized measurements will have influence on the estimated state across the whole globe. As alternative approaches, wavelet, finite element (meshes/pixels), and local-basis-function models have been proposed and implemented to capture the localized information content in the measurements and pass this information on to the end user. On the other hand, the inversion process can occasionally become singular as many of the parameters to be estimated tend to be ineffective and less meaningful. This is especially the case when our goal is to obtain better accuracies with higher order wavelet bases or smaller meshes/pixels. Due to the potential computing and transmitting burden, the two modeling techniques may have more difficulties associated with real-time applications, such as real-time single-frequency positioning, although they have advantages for capturing localized structures in the ionosphere. Aiming for potential real-time applications of 3D tomographic models, we have extended the UNB-IMT from 2D to 3D by modeling the vertical dimension of the ionosphere using EOFs. In this article, we discuss our approach and report on some initial tests including comparing its performance with the 3D SH approach. The 2D UNB-IMT was demonstrated to work with various network sizes: regional, baseline-by-baseline, and even single standalone stations. Therefore, it is expected that this technique will help in capturing localized ionospheric structures above small regional networks or above a single standalone station. Additional benefits may be expected for disturbed ionospheric conditions. For assessing the two modeling techniques, a small regional network was chosen to perform station-by-station and batch processes. The performance of both methods with the two processing scenarios has been compared by analyzing the post-fit residuals and vTECs of the state estimation process, as well as the repeatability of estimates of differential code biases (DCBs) for both quiet and disturbed ionospheric conditions. 3D UNB-IMT Because of the limited number of ionospheric parameters to be estimated, the 2D UNB-IMT was considered suitable for real-time applications, such as real-time single-frequency precise point positioning (PPP) and SBASs. In fact, it can be proven that the modeling method of the current 2D UNB-IMT is identical to the original planar fit of WAAS in nature if the locations of reference stations tend to collocate with WAAS ionospheric grid points (IGPs). Although additional parameters are involved, we believe the 3D UNB-IMT approach with its potential for improved modeling accuracy is still suitable for real-time applications. In this section, we will introduce the 3D UNB-IMT modeling strategy and demonstrate its applicability with a regional network and single standalone stations. Model Description. In order to clearly present the technique demonstrated in our recent work, we first briefly review the 2D UNB-IMT. Linear polynomial functions were initially proposed for describing the spatial variability of the ionosphere. We model the observed slant TEC (sTEC) between a satellite and a receiver from carrier-phase and pseudorange (code) observations at some epoch as the product of a bilinear polynomial representing the vTEC at the thin-shell ionospheric pierce point (IPP) of the signal raypath and a mapping function that projects the vTEC to sTEC plus receiver and satellite instrumental biases (DCBs). The input variables are the geographic longitude of the IPP referenced to the solar-geomagnetic coordinate system (in other words, the difference between the longitude of the IPP and the longitude of the mean sun) and the difference between the geomagnetic latitude of the IPP and the geomagnetic latitude of the station. We consequently have three polynomial coefficients to estimate for each station: a constant term, one to describe the longitude variations, and one for the latitude variations. The mapping function used in the model is the standard geometric mapping function, which computes the secant of the zenith angle of the signal geometric ray path at the IPP at a specified shell height. Because of the dependence of the ionosphere on solar radiation and the geomagnetic field, the solar-geomagnetic reference frame is used to compute the TEC over each station in this technique. Since the ionosphere changes more slowly in the sun-fixed reference frame than in the Earth-fixed one, such a reference frame is ideal for producing more accurate TEC estimates. The initial version of UNB-IMT ignored the non-linear spatial variation of the ionosphere. Non-linear terms are expected to be able to absorb more complex variability of the ionosphere and thus more properly describe the ionosphere in disturbed conditions. Regarding this issue, the drawbacks of some modeling methods based on linear models have been reported: for example, the highly variable ionosphere might be absorbed by the estimated DCBs, making the repeatability of the estimated DCBs (day-to-day variability) correlated with the variability of the ionosphere. To enhance the performance of UNB-IMT, especially under disturbed ionospheric conditions, UNB researchers extended the linear version of UNB-IMT to a quadratic one and assessed it by using a wide-area regional network in North America. This modified approach reduced the post-fit residuals significantly by better modeling the ionospheric variations with the help of the additional second order (non-linear) terms. To better use a priori information in the development of 3D UNB-IMT, we separate the TEC into a background reference or “known” part and a perturbation or to-be-modeled part. The background reference part of TEC could be calculated from an a priori source of electron density, such as any kind of ionospheric model, including empirical and theoretical ionospheric models. The density, as a function of latitude, longitude, height, and time, is integrated along the raypath between the receiver and a satellite. Then, the perturbation part of the electron density is modeled by the inner product of EOFs and polynomial functions with associated estimated coefficients to depict the variability of the ionosphere in the vertical and horizontal directions respectively. And this part is similarly integrated along the raypath and added to the reference part along with the DCBs. Empirical Orthogonal Functions. The EOF method is a method of choice for analyzing the variability of a single field (with only one scalar variable). Variability of the ionosphere with respect to height is needed for the 3D models. The method finds the spatial patterns of variability based on historical data sets (as reflected in empirical or theoretical models). In other words, the modes of variability decomposed by the method are primarily “data modes,” and not necessarily physical or actual real-time models. Due to its noted ability in describing the background ionosphere, the data sets output from the empirical Ionospheric Reference Ionosphere 2007, were utilized to form the EOFs in our technique. Thus, the data sets of electron densities are realized by uniform sampling at the following variant time scale intervals and specific geographic locations: Solar cycle: [1998:1:2008] (year) Season of year: [Dec., Mar., Jun., Sep.] (month) Time of day: [1:1:24] (hour) Day of month: [1:9:28] (day of month) Geographic latitude: [30:5:60] (degree) Geographic longitude: [280:5:300] (degree), where the numbers separated by colons correspond to minimum:increment:maximum. The data sets cover the whole spatial area of interest. The data sets of a whole solar cycle in typical equinox and solstice months are used to ensure that the EOFs span the range of profile variations that include the variation in solar EUV and x-ray output. Each electron density profile with respect to height at these locations and time points is sampled in the vertical dimension at [100:2:2000] (km). Figure 1 shows the first three third-order normalized EOFs based on the data sets. The first three eigenvalues account for 92.22, 6.69, and 0.78 percent of the total respectively. Provided the solution is nonsingular, the choice of the highest order of EOFs is a trade off between processing time and modeling accuracy as to the specific network and capability of computer(s). In our current work, the highest order of three was chosen. In this case, the neglected vertical variation of the ionosphere corresponding to higher order EOFs is 0.31 percent. FIGURE 1. The normalized first three dominant EOFs extracted from the IRI-2007 empirical model. Once the modeling approach has been constructed, the following task is to estimate the coefficients. Considering the potential real-time applications, a Kalman filter is employed to solve the TEC observation equation. To be specific, the following settings are used. The correlation time is set to five minutes, which correspond to the WAAS update interval for ionospheric grid points. The uncertainty of the dynamic model, 0.008 TECU2/second, is chosen to characterize the potential rapid change of the ionosphere. Finally, the estimated coefficients provided by the Kalman filter are then used to reconstruct the electron density field. Testing the Approach In this section, we report on tests of the 3D UNB-IMT and compare its performance with that of the 3D SH approach. Because of the advantages of sensitivity of 2D UNB-IMT, especially with the single-station processing strategy, it is expected that this technique will help in better capturing localized ionospheric structures above small regional networks or above a single standalone station compared to the 3D SH approach. Additional benefits may be expected for disturbed ionospheric conditions. For assessing the two modeling techniques, a small regional network of four IGS reference stations located from geographic latitude 39.0° N to 48.1° N and longitude 66.7° W to 77.6° W was chosen to perform single-station and multi-station (network) processing. The stations are GODZ in Greenbelt, Maryland; UNBJ and FRDN in Fredericton, New Brunswick; and VALD in Val d’Or, Quebec. Figure 2 shows the locations of the reference stations chosen for the modeling. The dual-frequency GPS data used for the tests was obtained from October 13–25 (day of year (doy) 286–298) in 2011 with the sampling time interval of 30 seconds. The corresponding values of the interplanetary magnetic field Bz component; the planetary geomagnetic index, Kp; the auroral electrojet index, AE; and the disturbance storm-time index, Dst on these days are shown in FIGURE 3. It is seen that a severe ionospheric storm triggered by a coronal mass ejection from the sun occurred late on October 24 (doy 297), 2011, and continued through the entire day of October 25 (doy 298), 2011. The other days seem relatively quiet. Thus, we chose October 16, 2011, as a typical day with quiet ionospheric conditions and October 25, 2011, as a typical day with disturbed ionospheric conditions in the following tests. The performance of both methods (3D UNB-IMT and SH model) with the two processing scenarios will be compared by analyzing the post-fit residuals and TEC of the state estimation process for both quiet and disturbed ionospheric conditions. FIGURE 2. The network of the four stations used in the evaluation procedures. All four reference stations in the small network have the ability to provide both C/A- and P-code pseudorange measurements. In our tests, the P-code observable is used to extract TEC through leveling the corresponding carrier-phase measurements. We used a 15°-elevation-angle cut-off in our study. Single Station Experiment. The estimated parameters of 2D and 3D UNB-IMT have different physical meanings due to the different modeling strategies. In theory, the 3D UNB-IMT can reproduce the electron densities for any location (horizontal and vertical) at any epoch. Figure 4 shows an example of the electron density profile produced by the linear 3D UNB-IMT in the zenith direction of station FRDN at 12:00 UT on October 16 (doy 289), 2011. Therefore, we will have to integrate electron densities into TEC for the 3D UNB-IMT modeling results if we want to compare how the two approaches have modeled the ionosphere side by side. For the purpose of sensitivity comparison, the results from 2D and 3D UNB-IMT are compared in terms of post-fit residuals as well as time series of estimated vTEC in the single-station processing scenario. As discussed above, we use the GPS data from station FRDN only for October 16 and 25, 2011, in this subsection. The post-fit residuals are calculated as the difference between the measured and estimated biased sTEC. FIGURE 4. The electron density profile produced by linear 3D UNB-IMT overhead FRDN at 12:00 (UT) on October 16 (doy 289) in 2011. From the top to bottom panels, Figure 5 shows the estimated vTEC in the zenith direction over the station, post-fit residuals, estimated satellite and receiver DCBs, and unbiased sTEC with respect to local mean solar time series obtained with linear 2D (left-hand panels) and 3D (right-hand panels) UNB-IMT approaches respectively. We use a different color for each satellite to see individual improvement of satellites in terms of post-fit residuals, estimated DCB, and unbiased sTEC. As for the potential improvement of 3D UNB-IMT, we supposed, if the 2D model with single-shell assumption does not depict the variability of the ionosphere quite well (especially the vertical variability of the ionosphere), we should expect to see an improvement from the 3D model in terms of post-fit residuals. As seen in this figure, the 3D UNB-IMT improves the results in terms of post-fit residuals. The means and standard deviations of the residuals with the 2D and 3D UNB-IMT are shown in Table 1. FIGURE 5. Sensitivity test (the panels from the top to the bottom correspond to: estimated vertical TEC, post-fit residuals, satellite and receiver DCB, slant TEC with respect to local time) between linear 2D (the left-hand panels) and 3D (the right-hand panels) models at FRDN on October 16 (doy 289) in 2011. TABLE 1. The means and standard deviations of the residuals under the quiet (Q, October 16, 2011) and disturbed or storm (S, October 25, 2011) ionospheric conditions with linear (L) and quadratic (Q) modeling approaches. Units = TECU. The 3D UNB-IMT with three times as many parameters is allowed to “accommodate” more (vertical) variations of the ionosphere. The benefits are also manifest in the improvement of the estimated vTEC and estimated satellite and receiver DCBs. In terms of estimated vTEC, the smooth variation of TEC may be expected at mid-latitudes during quiet ionospheric conditions without any ionospheric anomaly. The unmodeled variation of TEC in 2D UNB-IMT seen in the post-fit residuals is also manifest as “artificial small jumps” in the vTEC panel. In other words, the 3D UNB-IMT is able to better represent the measurements from low-elevation-angle satellites owing to the EOFs replacing the mapping function. It is the typical case when a satellite comes into or goes out of view of the receiver. The estimated DCBs are relatively constant over the entire day. But it is also found from the estimated DCBs that the results from 2D UNB-IMT have slightly more variability. Both effects seem to be related to the unmodeled errors. The post-fit residuals in the 3D UNB-IMT are closer to the zero mean Gaussian distribution. Then, we further evaluated the performance of 2D and 3D UNB-IMT under significantly disturbed conditions. Figure 6 shows the results with the same modeling strategies as demonstrated in Figure 5 but on October 25, 2011. Similar conclusions can be drawn from Figure 6, where better results in terms of post-fit residuals are obtained with 3D UNB-IMT (Table 1). In terms of estimated vTEC, the results from both strategies under the disturbed conditions look more irregular than those under the quiet conditions and deviate a little from the sine-wave-like daily variation. Some actual variation of the ionosphere during disturbed conditions may be captured and correctly illustrated as the bumps for both approaches. Furthermore, the unmodeled errors may also be explained as artificial small jumps/bumps in vTEC curves (revealed by the magnitude of post-fit residuals). It is seen that 3D linear UNB-IMT explains more variation of the ionosphere than 2D linear UNB-IMT. However, some residual unmodeled errors may still exist with the 3D model. FIGURE 6. Sensitivity test (the panels from the top to the bottom correspond to: estimated vertical TEC, residuals, satellite and receiver DCB, slant TEC with respect to local time) between linear 2D (the left-hand panels) and 3D (the right-hand panels) models at FRDN on October 25 (doy 298) in 2011. As concluded by other investigators, a higher order model could explain more spatial (non-linear) variations of the ionosphere, especially for geomagnetic storm conditions. The results with 2D and 3D quadratic UNB-IMT approaches are shown in Figure 7. In the post-fit residual panels, it can be seen that the residuals with 3D quadratic UNB-IMT are mostly within ±2 TECU except for several small spikes that happened between 0:00 and 4:00 local mean solar time and reflect that not all the electron density variations had been correctly represented by the model used. But it is clear that the 3D quadratic UNB-IMT can significantly improve the modeling precision compared to the 2D quadratic/linear UNB-IMT and 3D linear UNB-IMT. The magnitude of the post-fit residuals shown in this panel is even comparable with the results for the quiet condition shown in Figure 5. In terms of vTEC, a few spurious spikes are occasionally found when processing the data from the four stations with the 3D quadratic model and single-station processing strategy. Other data sources, such as data from incoherent backscatter measurements, may be needed to confirm if the spikes are caused by the instability of the model or actual ionospheric structures. Still, the vTEC curves with 3D quadratic UNB-IMT look smoother than 2D UNB-IMT. In terms of estimated DCBs, it is found that the results with 3D quadratic UNB-IMT approach exhibit relatively fewer perturbations than the other three approaches tested. FIGURE 7. Sensitivity test (the panels from the top to the bottom correspond to: estimated vertical TEC, residuals, satellite and receiver DCB, slant TEC with respect to local time) between quadratic 2D (the left-hand panels) and 3D (the right-hand panels) models at FRDN on October 25 (doy 298) in 2011. As we found for the 2D modeling approaches, the single thin-shell assumption with a fixed ionospheric shell height may introduce additional modeling errors. That is mainly because the layer with highest electron density (F2 layer) is not always located at a fixed height. Especially in disturbed ionospheric conditions, such as the case shown in Figures 6 and 7, the layer height would change significantly. Some methods have been proposed and tested with the help of more reliable “true” heights from other resources, such as ionosondes. However, due to the limited number of the instruments deployed and limited information provided (only information from overhead), the applications with these methods would have to be limited to the specific area covered by stations or networks equipped with the instruments. In addition, as to real-time application, the data processing time delay of ionosondes might be another technical issue these methods have to face. Compared with these methods, one benefit of the 3D UNB-IMT is its potential for real-time application for any size of network. Another benefit is its vertical modeling capability to depict vertical variation of electron density so the improved results would also be expected for disturbed ionospheric conditions. It is clearly seen from Figures 6 and 7 that the lowest vTECs around 4:00 LT reach down to 0 TECU with the 2D linear/quatratic UNB-IMT, which are considered as unphysical results. It is confirmed that small biases still exist in the results with the 2D model likely due to the improper shell height chosen (fixed at 350 km for the results shown in this article). Multi-Station Experiment. When using the modeling scheme for a network solution, we will generally have two possible processing scenarios. One is processing the data of all the stations as a batch, and the other is processing station by station (or baseline by baseline). The advantages and disadvantages of the batch process can be summarized as follows. It has more redundancies in the Kalman filter to estimate a more stable and reliable set of satellite and receiver DCBs. Due to more measurements as an input (state) of the Kalman filter, the convergence time would be shorter in terms of the estimated DCBs. It would be of benefit for real-time applications if we have limited a priori information about the estimated ionospheric parameters and/or DCBs. However, the batch solution seems to be less sensitive to localized information content than the station-by-station solution. The overall effect of the batch solution is smoothing over the network, reducing the size of some small perturbations. Theoretically, localized measurements should not have significant influence on the estimated state across an extended area or even the entire globe. In other words, the batch solution may be beneficial for relatively small local-area networks, but may not be ideally suited for networks as large as wide-area ones. Another straightforward disadvantage of the batch process is its relatively longer processing time, which might be a downside if it is used for real-time applications. In the multi-station experiment, we tested the 3D UNB- IMT with a small regional network of four IGS reference stations (Figure 2) to investigate its performance with localized ionospheric variations. We performed tests with two scenarios: batch and station-by-station. Due to space restrictions, we cannot thoroughly report the results we obtained here. Please see the conference paper listed in Further Reading for the full details. Overall, the results we obtained in terms of post-processing residuals were similar to those in the single station experiment. We also found that the 3D UNB-IMT with EOFs seems to be able to better model the measurements with low elevation angles than the 2D UNB-IMT with a mapping function. Comparing 3D UNB-IMT with SH Model. We have compared the results using the batch processing strategy with those from the SH model. The reason for this approach is that we intended to compare the results of the two processing strategies (UNB-IMT and SH) with identical conditions. That is, both methods processed the data using a batch scheme and estimated both ionospheric parameters and DCBs simultaneously, instead of using some other source or processed results. Therefore, in this case, we can compare the results side by side and evaluate the effectiveness of the estimated ionospheric parameters. Based on the data from the network of the four stations, the sensitivity of the SH models is lower than that of 3D UNB-IMT, although the number of ionospheric parameters of the SH models is comparable or even larger than that of 3D UNB-IMT. In other words, the ionospheric parameters in 3D UNB-IMT to describe the variability of the ionosphere are more effective and meaningful to such a network scale than those in the 3D SH model. Given the nature of its basis functions, the SH model is an excellent tool for global modeling, but it has some shortcomings for localized variability modeling. As to larger regional networks with longer baselines, such as those used for WAAS, which covers North America, the difference of the sensitivities between the batch and the station-by-station solutions should be larger than the results we have obtained. However, we cannot conclude that the sensitivity of 3D UNB-IMT is better than that of the 3D SH model with the batch processing strategy for such large regional networks before more tests are conducted. Still, it is clearly seen in our tests that the 3D SH model is not always ideal for regional networks in terms of sensitivity. We reached similar conclusions for October 25, 2011, where the residuals spread more widely compared with quiet-condition residuals. In the storm conditions, the residuals of the quadratic 3D UNB-IMT spread relatively less than those of other modeling strategies. This is especially the case for the several hours at the beginning of the day, which corresponds to the peak of the Dst and Kp indices shown in Figure 3. The quadratic 3D UNB-IMT seems to have the capacity to handle the ionospheric spatial and temporal variation even during severe storm conditions. FIGURE 3. Interplanetary magnetic field Bz component, Kp index, AE index, and Dst index during October 13–25 (doy 286–298) in 2011; nT = nanoteslas (Data from World Data Center for Geomagnetism, Kyoto and Goddard Space Flight Center Space Physics Data Facility). Repeatability of Estimated DCBs. The DCBs not only have influence on the quality (accuracy) of the vTEC estimation, but their repeatability can also provide information to evaluate ionospheric models. This implies that the ionospheric models that have the capability to estimate/eliminate more accurate DCBs, independent of ionospheric variability, are preferable. We carried out a number of tests to evaluate the repeatability of estimated DCB values using the 2D and 3D UNB-IMT approaches as well as the 3D SH technique under both quiet and disturbed ionospheric conditions. For quiet ionospheric conditions, the performance of all the tested models looks comparable, although the quadratic 3D UNB-IMT performs slightly better than the others. As to the disturbed conditions, the quadratic 2D/3D UNB-IMT seems be able to provide more stable DCBs than the other models. However, the improvement of the extension from 2D to 3D is slight for the quadratic models, although it is significant for the linear models. The performance of the 3D SH model looks fairly poor compared to 3D UNB-IMT for regional modeling. Consult the conference paper for further details. Conclusions and Future Research In the work described in this article, we extended the UNB-IMT from 2D to 3D and compared the performance between them in station-by-station and batch processing scenarios for both quiet and storm ionospheric conditions. We used the data from a small regional network of dual-frequency GPS receivers. The DCBs and ionospheric delays were estimated at the same time by a Kalman filter. The newly developed approach was evaluated by analyzing the post-fit residuals, TEC of the state estimation process, and the repeatability of estimates of DCBs. In the single-station processing, the improvement of 3D UNB-IMT has been demonstrated in both quiet and disturbed ionospheric conditions in terms of post-fit residuals. The 3D UNB-IMT with more parameters allows the depiction of more complex (vertical) variability of the ionosphere. The 3D UNB-IMT is able to better deal with the measurements from low-elevation-angle satellites owing to EOFs replacing the mapping function. The artificial jumps with 2D UNB-IMT when satellites come into or go out of view of the receiver have been properly handled by the 3D UNB-IMT. In addition, the time series of estimated DCBs with 3D UNB-IMT exhibit less perturbation than the results with 2D UNB-IMT. As to the multi-station (network) processing, it is confirmed that the station-by-station solution is more sensitive to localized information than the batch solution. Based on the results from our research, station-by-station processing with 3D UNB-IMT is suggested to increase chances to catch localized ionospheric structures. The repeatability of estimated DCBs was investigated as another indicator to evaluate the viability ofionospheric models. Before the 3D UNB-IMT is tested in the positioning domain for single-frequency positioning, it is worth validating the model with other data sources. In addition, the potential benefits of 3D UNB-IMT during extremely disturbed ionospheric conditions is worth investigating further. Acknowledgments We would like to thank the IGS and the Crustal Dynamics Data Information System for providing the GPS data, and we acknowledge the financial contribution of the Natural Sciences and Engineering Research Council of Canada for supporting the first and last authors. This article is based on the paper “Eliminating Potential Errors Caused by the Thin Shell Assumption: An Extended 3D UNB Ionospheric Modelling Technique” presented at the 26th International Technical Meeting of the Satellite Division of The Institute of Navigation, Nashville, Tennessee, September 16–20, 2013. 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FURTHER READING • Authors’ Conference Paper “Eliminating Potential Errors Caused by the Thin Shell Approximation: An Extended 3D UNB Ionospheric

Modelling Technique” by W. Zhang, R.B. Langley, A. Komjathy, and S. Banville in Proceedings of ION GNSS+ 2013, the 26th International Technical Meeting of the Satellite Division of The Institute of Navigation, Nashville, Tennessee, September 16–20, 2013, pp. 2447–2462. • 2D Ionosphere Modeling “SBAS Ionospheric Modeling with the Quadratic Approach: Reducing the Risks” by H. Rho, R. Langley, and A. Komjathy in Proceedings of ION GNSS 2005, the 18th International Technical Meeting of the Satellite Division of The Institute of Navigation, Long Beach, California, September 13–16, 2005, pp. 723–734. Global Ionospheric Total Electron Content Mapping Using the Global Positioning System by A. Komjathy, Ph.D. dissertation, Technical Report No. 188, Department of Geodesy and Geomatics Engineering, University of New Brunswick, Fredericton, New Brunswick, Canada, 1997. “Improvement of a Global Ionospheric Model to Provide Ionospheric Range Error Corrections for Single-frequency GPS Users” by A. Komjathy and R. Langley in Proceedings of the 52nd Annual Meeting of The Institute of Navigation, Cambridge, Massachusetts, January 22–24, 1996, pp. 557–566. • 3D (4D) Ionosphere Modeling “Comparison of 4D Tomographic Mapping Versus Thin-shell Approximation for Ionospheric Delay Corrections for Single-frequency GPS Receivers over North America” by D.J. Allain and C.N. Mitchell in GPS Solutions, Vol. 14, No. 3, 2009, pp. 279–291, doi: 10.1007/s10291-009-0153-0. “Regional 4-D modeling of the Ionospheric Electron Density” by M. Schmidt, D. Bilitza, C. Shum, and C. Zeilhofer in Advances in Space Research, Vol. 42, No. 4, 2008, pp. 782–790, doi: 10.1016/j.asr.2007.02.050. “History, Current State, and Future Directions of Ionospheric Imaging” by G.S. Bust and C.N. Mitchell in Reviews of Geophysics, Vol. 46, No. 1, RG1003, March 2008, doi: 10.1029/2006RG000212. “Development of the Global Assimilative Ionospheric Model” by C. Wang, G. Hajj, X. Pi, I.G. Rosen, and B. Wilson in Radio Science, Vol. 39, No. 1, RS1S06, February 2004, doi: 10.1029/2002RS002854. Contributions to the 3D Ionospheric Sounding with GPS Data by M. García-Fernández, Ph.D. dissertation, Research Group of Astronomy and Geomatics, Universitat Politècnica de Catalunya, Barcelona, Spain, 2004. Available online in three parts:
http://www.tesisenred.net/bitstream/handle/10803/7015/01Mgf01de03.pdf?sequence=1
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http://www.tesisenred.net/bitstream/handle/10803/7015/01Mgf01de03.pdf?sequence=3. • Ionospheric Reference Models “The NeQuick Model Genesis, Uses and Evolution” by S.M. Radicella in Annals of Geophysics, Vol. 52, No. 3/4, June/August 2009, pp. 417–422, doi: 10.4401/ag-4597. “International Reference Ionosphere 2007: Improvements and New Parameters” by D. Bilitza and B. Reinisch in Advances in Space Research, Vol. 42, No. 4, 2008, pp. 599–609, doi: 10.1016/j.asr.2007.07.048. • Space Weather and the Ionosphere “GNSS and the Ionosphere: What’s in Store for the Next Solar Maximum” by A.B.O. Jensen and C. Mitchell in GPS World, Vol. 22, No. 2, February 2011, pp. 40–48. “Space Weather: Monitoring the Ionosphere with GPS” by A. Coster, J. Foster, and P. Erickson in GPS World, Vol. 14, No. 5, May 2003, pp. 42–49. “GPS, the Ionosphere, and the Solar Maximum” by R.B. Langley in GPS World, Vol. 11, No. 7, July 2000, pp. 44–49. • Empirical Orthogonal Functions “Empirical Orthogonal Functions and Related Techniques in Atmospheric Science: A Review” by A. Hannachi, I.T. Jolliffe, and D.B. Stephenson in International Journal of

Climatology, Vol. 27, No. 9, July 2007, pp. 1119–1152, doi: 10.1002/joc.1499. “Empirical Orthogonal Functions: The Medium is the Message” by A.H. Monahan, J.C. Fyfe, M.H.P. Ambaum, D.B. Stephenson, and G.R. North in Journal of Climate, Vol. 22, No. 24, December 2009, pp. 6501–6514, doi: 10.1175/2009JCLI3062.1. A Manual for EOF and SVD Analyses of Climatic Data by H. Bjornsson and S. Venegas, Report No. 97-1, Department of Atmospheric and Oceanic Sciences and Centre for Climate and Global Change Research, McGill University, Montreal, February 1997.

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4g phone jammer network	2797	1015
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