



SDI Review Form 1.6

Journal Name:	Physical Science International Journal
Manuscript Number:	2014_PSIJ_9748
Title of the Manuscript:	Quiet time foF2 variation at Ouagadougou station and comparison with TIEGCM and IRI-2012 predictions for years 1985 and 1990
Type of the Article	

General guideline for Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound.

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PART 1: Review Comments

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
Compulsory REVISION comments	<p>The work is poorly written. The abstract is not written correctly and should be re-written. The paper in its present form is not acceptable. The introduction should be rewritten. The English is awful. The discussion should be redone, results were merely presented. The conclusion as presented is a mere summary</p>	<p>In the abstract we suppressed the bold word and put together the different part of the abstract. The new abstract is as followed:</p> <p>The purpose of this study is to appreciate the estimation of TIEGCM (Thermosphere Ionosphere Electrodynamics General Circulation Model) and the 2012 version of IRI (International Reference Ionosphere) in African Equatorial Ionization Anomaly (EIA) region through the diurnal variation of F2 layer critical frequency (foF2). The comparison is made between data and theoretical values carried out from TIEGCM and IRI-2012 during solar cycle minimum and maximum phases and under quiet time condition over seasons. Data concern solar cycle 22 foF2 data of Ouagadougou station (Lat: 12.4° N; Long: 358.5°E, dip: 1.43° for 2013) provided by Télécom Bretagne. Our study is made on the one hand under geomagnetic quiet time conditions determined by daily aa inferior or equal to 20 nT and on the other hand during solar cycle maximum and minimum phases given by sunspot number Rz superior to 100 and Rz inferior to 20, respectively. We take into account seasons by considering December as winter month, March as spring month, June as summer month and September as autumn month. The seasonal Hourly quiet time foF2 is given by the arithmetic mean values of the five</p>



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		<p>quietest day hourly values. Data profiles show noon bite out profile with more and less pronounced morning or afternoon peak in equinox and that during solar maximum and that also in solar minimum except during solstice where the profile fairly is dome or plateau. During solar minimum, both models present more or less pronounced afternoon peak with more or less deep trough between 1000 LT and 1400 LT. During solar maximum, in general, TIEGCM shows afternoon peak and IRI-2012 present plateau profile. The Mean Relative Error (MRE) shows better prediction for IRI-2012 except in September for both solar cycle phases involved. The worst prediction during solar minimum and maximum is seen in September for IRI-2012 and that of TIEGCM is observed in solstice and June, respectively. Models predictions are better during solar maximum than during solar minimum and strongly dependent on pre-sunrise and post sunset periods. As foF2 type of profile is link to E-region electric current and ionosphere electrodynamics mechanisms, models' predictions highlight that they do not well express all the dynamic process in this African sector. Therefore, for this sector they must be revisited for improvement.</p> <p>We took into account reviewer 3 remarks by (1) making clear the works of the authors cited in the introduction, (2) restructuring the discussion section and (3) adding some perspectives in conclusion section.</p> <p>The whole corrections are highlighted in the revised manuscript.</p>
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<u>Minor</u> REVISION comments	The author is advised check with the English department for errors.	This has been done
<u>Optional/General</u> comments	I am unable to find the reason for this work. It is a mere academic exercise without any real addition to knowledge	I am not agree with the reviewer because this work is the first one which treats the comparison between data and TIEGCM in this sector of latitude on the one hand and on the other hand one of the first ones that deals with data comparison with IRI 2012 in this sector. Our work has been good understood by the first reviewer and we are surprise by this remark. May be the reviewer does not know the all global model challenge (see the conclusion of the 2012 meeting held at Santa fé (I was there)).