

Interactive comment on “Global Climatology of Equatorial Plasma Bubbles based on GPS Radio Occultation from FormoSat-3/COSMIC” by Ankur Kepkar et al.

Anonymous Referee #2

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The present work describes characteristics of occurrence of equatorial plasma bubbles as a function of longitude, local time, altitude and solar cycle, using COSMIC radio occultation data. The year to year variations of the longitudinal distribution of S4 index (Figure 3), Longitudinal difference of the seasonal variation of occurrence of S4 (Figure 6), and solar cycle dependency of maximum altitude of S4 (Figure 7) are new results and important contribution for scientific community.

Therefore I would recommend that the present work could be published in *Angeo*.

Minor comments are to be considered by authors:

Page 3 line 27, “L2 signal is close to the critical frequency of the ionosphere,,”: The
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authors will need to explain why they mention it. The frequency of L1 and L2 are 1.575 GHz and 1.227 GHz, respectively, are very close to each other, and these are far from the critical frequency of the ionosphere as far as I understand. If they have a special reason to not using L2, please explain it more detail.

Page 4, line 4, “S4max9sec denotes ,, 9 seconds interval”: Please explain why they used 9 seconds to calculate S4, instead of the original S4 value of one second. Page 4, line 5-6, “A low pass filter is applied to the time series of these values,,”: What time series ?, of 9 seconds interval ?

Page 6 line 9, “S4 index is derived ,, understanding the occurrence of plasma bubbles”: The authors interpreted the observed S4 larger than 0.3 are all caused by plasma bubbles. The presence of scintillation (or spread F), however, does not mean that it is due to Plasma Bubbles. There are possibilities of other sources such as ionospheric waves (TID, MSTID). The authors could comment on it.

Page 9, line 3 “In order to have in detail ,, analysis was performed” which is shown in Figure 6 ?

Page 11, line 5 “in the African sector during June solstice”: Isn't it March Equinox ? (see Figure 6).

END of Report

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