

Comments on "Aerodynamic roughness length estimation from very high-resolution imaging LIDAR observations over the Heihe basin in China" by J. Colin, R. Faivre, and M. Menenti, Hydrol. Earth Syst. Sci. Discuss., 7, 3397–3421, 2010

General comments

Estimation of aerodynamic roughness length is an important aspect in the parameterization of land-atmosphere turbulent flux exchanges. The manuscript reports an attempt in this active research area and is of considerable interest to the HESS readership. In general, the manuscript could be understood, however, every now and then, much guess work is needed. The authors show some results of the data processing but more detailed analysis and discussions are needed.

Specific comments:

1. Paragraphs 4.1 and 4.2: Much more technical details need to be added here to enable a proper appreciation of the data processing. In particular, all the quantities in eqs. 1-9 must be explained and some table be added.
2. Table 1 is given but further there is no reference to the values listed there. What is the role of the PBL heights in the CFD method?
3. Tables 2 and 3 could be merged into one table by adding the wind direction of Tab. 2 to Tab. 3.
4. There are too many typos and proper and coherent use of sentences. Some obvious ones are recorded below:
 - P3400: 'It as long been' -> 'It has long been'
 - P3401: 'Recommended values of 0.193, 0.003, 0.3 and 7.5 a, respectively used, as for ..' should refer specifically to the variables explicitly mentioned.
 - P3402: 'Therefore the Lettau's formulation of z_0 is known to fail for plan area index higher than 0.2–0.25, because of mutual effects of high frontal area index and limited intervening spaces.' Is this a finding of the authors' work or cited from others. In the former, the reasons should be given, while the references are needed for the latter.
 - P3402L17: 'is expresses as:' -> '**is expressed** as:'
 - P3408L6: 'signification variations' -> (maybe) 'significant variations'
 - P3408L9: 'and a related to the larger values' -> '**and related to** the larger values'
 - P3409: 'to some extend on some corn fields' -> 'to some **extent** on some corn fields'
 - P3409L24: 'that in cases were roughness elements can reach such a height,' -> 'that in cases **where** roughness elements can reach such a height,'
 - P3410: 'either on vegetate or' -> 'either on **vegetated** or'
 - P3411L7: 'and do no account' -> 'and do **not** account'
 - P3411L17: 'both approaches is' -> 'both approaches **are**'

- P3411L27: 'for is precious help' -> 'for **his** precious help'
- P3417: 'the Popular Republic China;' -> 'the **People's** Republic **of** China;'

5. The manuscript needs a through English editing before it can be accepted after the technical revision.