Review of the paper :
Modeling the inhibition effect of straw checkerboard barriers on wind-blown sand
by Haojie Huang

The author presents a numerical study of the impact of straw checkerboard barriers (SCB) on the aeolian sand transport. Large eddy simulation are performed in presence of SCB with different laying lengths. Saltation is enhanced through the splash process. The inhibition effects of SCB on the sand transport is investigated. When the layer length increases, the wind speed and the sand transport rate decreases. The study help to understand the impact of SCB and may be useful for anti desertification projects.

This paper bring a few new insights on the effects of SCB. I then recommend to accept this article with major revisions.

The article should be proofread to correct English. Some sentences are not correct. For example in the sentence line 21-23, there is no verb. I do not understand the sentence 95-96.

Basic conventions such as: do not put a title at the end of a page should be respected. A figure legend should be on the same page as the corresponding figure. Put a space between the paragraph number and the title (line 183).

Section 2.1:
- line 137: the force Fi (equation 1) should be detailed. The formula and a reference should be given.
- line 152: on the ground, the author say that a rigid condition is used. Is the velocity put to zero or are the ARPS wall function used? How is the SBC taken into account? It is not possible to construct a boundary with sharp angles with the code ARPS.
-line 156: the variable D is not defined.
- line 161: just give the reference not a figure number of another paper to avoid confusion with the figures of the present paper.

Section 2.2:
- line 177: the particle Reynolds number is defined and do not appear in the equations.

Section 2.4:
- line 236: wind-blwon

Section 2.5:
- The figure 1 is not clear. The variables N, SCB side length, SBC side thickness and the laying length of SCB should appear on the figure. The side length is defined as 100x100cm in the text (line 240) and as 100cm in the table.

Section 2.6:
- Figure 2 is not clear. Which quantity is presented? There is no legend. The size of the mesh and the checkerboards could be plotted instead.
- The first sentence of the paragraph (line 261-263) does not seem to belong to this section, but to the section 3.
- The grid step should be added in the Table2.

Section 3:
- This section should be divided into two subsection: Particle field validation and Velocity field validation.
- Line 314: the work ‘direction’ seems not correct. Do you mean the location of the section?
- Line 317: suppressed the word ‘exist’.
- Line 335: Define H,M,L. Are M and L equal to the grid step? Is H equal to Lz?
- Why is the friction velocity equal to 0.3 m/s in the figure 4 and to 0.6 m/s in the figure 5?
- The author could complete the analysis by plotting the recirculation zones that should appear inside the SBS.
- The mesh is very stretched near the wall with a ratio 5/100 between dz and dx. This may create diffusion problem. The authors should present mean and rms velocity profiles of the boundary layer without the SBS to validate the velocity field.

Section 4.1:
- Section 4.1 discuss of the SBSs influence on the flow. It was already the subject of the precedent paragraph and of the figures 5 and 6. These results should be put into the same paragraph.
- Line 395: the velocity seems to be smaller and not higher.

Section 4.2:
- I don’t understand what is presented on the figure 9. The author speaks about ‘particle position’ but I don’t see any particles.
- Figure 10: Is the concentration obtained at the a given height or is it the total concentration at all the height of the SBS?

Section 4.4:
- The authors presents instationary results and provide no comments about the time evolution.
- The initial state is not a realistic. Particles are not induced by the incipient motion but randomly dispatched in the field. The time evolution is then not really meaningful and so the author should only present stationary results.