

Correction

# Correction: Teixeira, M.A.C. Diagnosing Lee Wave Rotor Onset Using a Linear Model Including a Boundary Layer. *Atmosphere* 2017, 8, 5

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The author would like to correct a published article by Teixeira [1], in which there is a factor of 2 missing from his Equation (24). The correct equation should read:

$$\frac{u_{1L}(z=0)H}{Uh_0} = 4\pi \frac{a}{H} k'_L \hat{h}'(k'_L) \sin(k'_L x') \frac{\{Fr^{-2} - n'_2(k'_L)\} \cosh(k'_L) - k'_L \sinh(k'_L)}{k'_L \{1 + n'_2(k'_L)^{-1}\} \sinh k'_L + \{1 + n'_2(k'_L) - Fr^{-2}\} \cosh k'_L}. \quad (1)$$

This implies that Equation (25) in [1] should be corrected to:

$$\left(\frac{h_0}{H}\right)_{\text{crit}} = \frac{1}{4\pi} \left(\frac{H}{a}\right) \frac{k'^2_L \{1 + n'_2(k'_L)^{-1}\} + \{1 + n'_2(k'_L) - Fr^{-2}\} \{Fr^{-2} - n'_2(k'_L)\}}{k'_L |\hat{h}'(k'_L)| \left[ \{Fr^{-2} - n'_2(k'_L)\}^2 - k'^2_L \right]}. \quad (2)$$

As a consequence, Equation (27) of [1] should also be modified to:

$$D_L = \pi \rho_0 k_L |\hat{h}(k_L)| U |\min \{u_{1L}(z=0)\}|, \quad (3)$$

where, apart from removal of the factor of 2 on the right-hand side, a spurious factor of  $H$  has also been removed. The drag  $D_L$  (per unit length) is now dimensionally correct. All other equations remain unchanged.

The results presented in Teixeira [1] remain qualitatively unchanged, but there are slight quantitative modifications to his Figures 1a,b, 4a,b, 7a,b, 8a,b and 9a,b, which display results from the inviscid model, expressed by his Equation (25), and the improved model expressed by his Equation (26), which also uses his Equation (25). These modifications amount to a value of the critical mountain height for flow stagnation that is twice smaller than in the original version, corresponding to contour values in the above-mentioned figures that are twice larger. Figures 1c, 2, 3, 4c, 5, 6, 7c,d, 8c,d and 9c,d of [1] are unchanged, because they result from the full model, which is correct and remains valid as originally formulated. The following figures, however, should replace those that were incorrect.

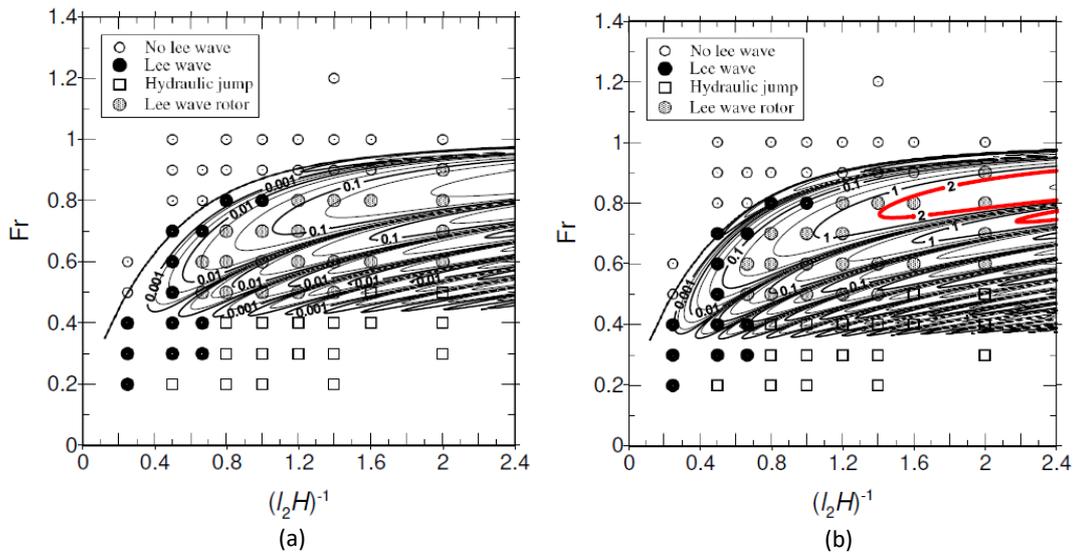


Figure 1. (a) and (b) should replace Figure 1a,b in [1].

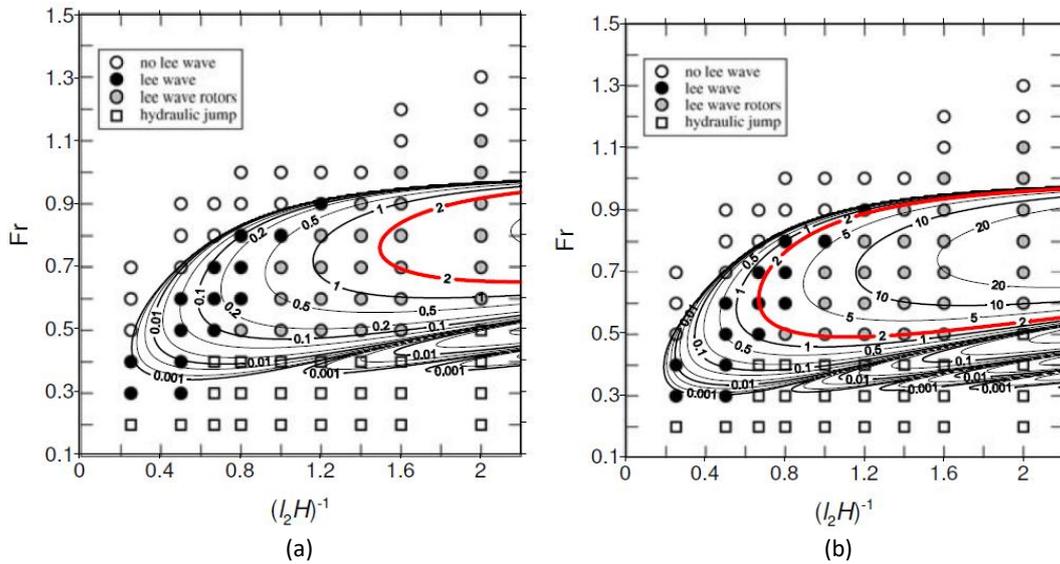


Figure 2. (a) and (b) should replace Figure 4a,b in [1].

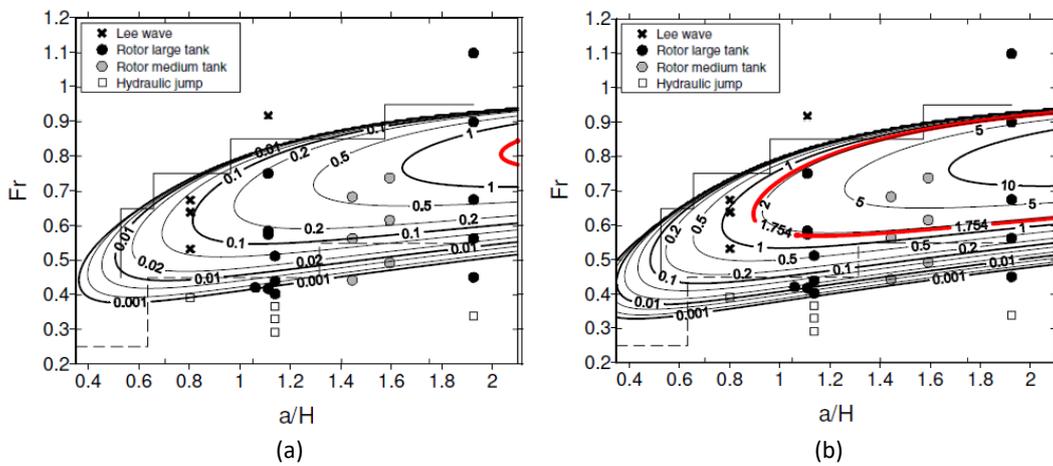


Figure 3. (a) and (b) should replace Figure 7a,b in [1].

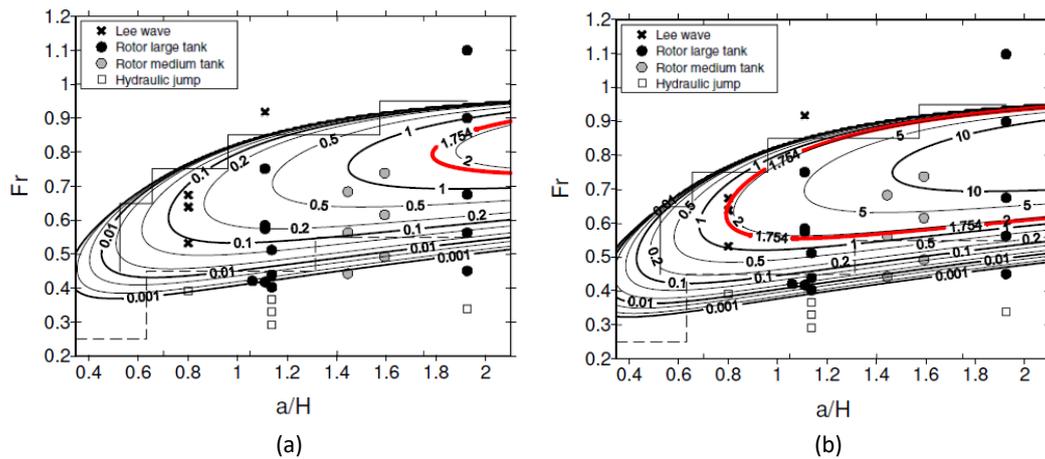


Figure 4. (a) and (b) should replace Figure 8a,b in [1].

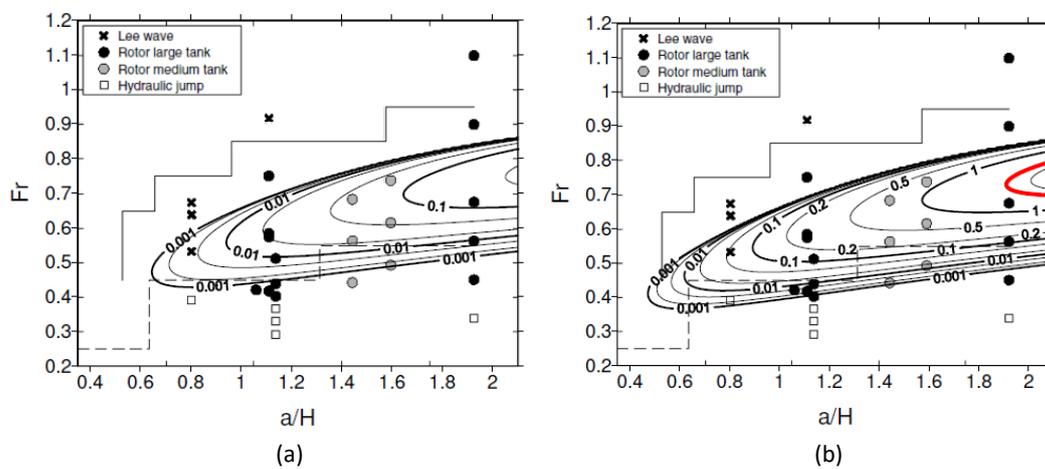


Figure 5. (a) and (b) should replace Figure 9a,b in [1].

The conclusions presented in [1] remain unchanged. As in their original versions, the theoretical results presented in Figures 1a,b and 2a still underestimate flow stagnation regions in parameter space considerably, whereas Figure 2b gives a fairly good description of flow stagnation, albeit showing some mismatches with the overlaid regime diagram. Figures 3a,b, 4a,b and 5a,b still give results that are qualitatively similar to their original versions, with the prediction of flow stagnation in Figure 4b and its absence in Figures 3a,b, 4a and 5a,b for the relevant values of  $Fr$  and  $a/H$  quoted in the captions of Figures 7–9 of [1].

The author apologizes for any inconvenience this may have caused to the readers. The manuscript will be updated and the original will remain online on the article webpage, with a reference to this Correction.

**Reference**

1. Teixeira, M.A.C. Diagnosing lee wave rotor onset using a linear model including a boundary layer. *Atmosphere* 2017, 8, 5. [CrossRef]



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