Correction to "Origin of Periodically Spaced Wrinkle Ridges on the Tharsis Plateau of Mars" by Thomas R. Watters

In the paper "Origin of Periodically Spaced Wrinkle Ridges on the Tharsis Plateau of Mars" by Thomas R. Watters (Journal of Geophysical Research, 96(E1), 15,599-15,616, 1991), equation (9) should read as follows:

$$4\eta l \frac{\partial^2 w}{\partial x^2 \partial t} + P \frac{\partial^2 w}{\partial x^2} + \left(\frac{k}{n}\right) \frac{\partial w}{\partial t} + \frac{\rho g w}{n} = 0$$

(9)

Also, the shading on Figures 6, 7, and 8 did not reproduce. New versions of these figures are shown here.

Fig. 6. The critical wavelength of buckling $\lambda_c$ as a function of thickness of the ridged plains material $h$ over a range in thickness of the substrate $h_0$ of 1000-5000 m, a ratio in Young's modulus between the surface layer(s) and substrate $E/E_0 = 10$ (dark), 100 (medium), and 1000 (light) for number of layers $n$ of (a) 1, (b) 2, and (c) 3. The curves bounding the shaded areas are the solutions for the given model parameters. The shaded areas define a family of curves for solutions for $h_0$ between 1000 and 5000 m for the given parameters.

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Fig. 6. (continued)
Fig. 7. The critical stress $\sigma_c$ to achieve buckling as a function of thickness $h$ for a range in thickness of the substrate $h_0$ of 1000–5000 m, a ratio in Young's modulus between the surface layers and substrate $E/E_0 = 10$, 100, and 1000 and $n = 2$ layers. The difference between the maximum horizontal and vertical stress is plotted as a function of depth. The dashed line represents the maximum compressive strength of a basalt-like material ($\rho = 2900$ kg m$^{-3}$) on the surface assuming no pore fluid pressure (dry rock). Critical stresses that fall above this line, in the shaded zone, exceed the maximum compressive strength of the material, and gross fracturing is expected over buckling.

Fig. 8. The critical wavelength of buckling $\lambda_c$ as a function of thickness of the ridged plains material $h$ over a range in thickness of the substrate $h_0$ of 1000–5000 m, a ratio in viscosity between the surface layers and substrate $\eta/\eta_0 = 10$ (darkest), 100 (dark), 1000 (medium), and 5000 (light) for number of layers $n$ of (a) 1, (b) 4, and (c) 8.
Fig. 8. (continued)

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