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CORRECTION

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Excitability in ramped systems: the compost-bomb instability

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A folded saddle singularity for equation (4.9) (figure 5*d*) is a sufficient condition for the existence of a critical ramping rate in system (4.2), not a necessary and sufficient condition as we say in the abstract, the second paragraph of §1*a*, the title of §4*a* and the second paragraph of §6.

Another sufficient condition for the existence of a critical ramping rate in system (4.2) is a transition between the phase portrait in figure 5*b* and any of the phase portraits in figure 5*c*,*g*–*k* as the ramping rate v is varied. Such a transition defines a critical ramping rate that, unlike the one defined by a folded saddle singularity in equation (4.12), is independent of the initial condition within S_a. An example is given in Ashwin *et al.* (2011, §3.3.1). Note that system (4.2) may not have a unique critical ramping rate. For example, as v is varied, there can be multiple transitions between the phase portraits in figure 5*b*–*k*, giving rise to more than one v-interval where the system 'tips' (produces an excitable response).

Finally, there is an error in equation (4.8). This equation should read

$$\mathrm{d}t = -\mathrm{d}\hat{t}\, g_z^S(z, p_r, p) \Rightarrow t = -\int_0^{\hat{t}} g_z^S(z(s), p_r(s), p)\mathrm{d}s,$$

and the scaling below equation (5.3) should read

$$\mathrm{d}t = -\mathrm{d}\hat{t}\,[\alpha(T - T_{\mathrm{a}}) - 1].$$

Reference

Ashwin, P., Wieczorek, S., Vitolo, R. & Cox, P. 2011 Tipping points in open systems: bifurcation, noise-induced and rate-dependent examples in the climate system (http://arxiv.org/abs/1103.0169)

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