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- Recent Final Revised Papers
- Volumes and Issues**
- Special Issues
- Library Search
- Title and Author Search

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Review

Production

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- Contents of Issue 2
- Special Issue

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## Rainfall intermittency and vegetation feedbacks in drylands

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**Abstract.** We discuss a simplified, conceptual model for the dynamics of the soil-vegetation system in drylands. The model considers the different dynamical processes taking place in vegetated and non-vegetated soil and it distinguishes between the upper soil layer, where rapid evaporation dominates, and the deeper root layer where only plant transpiration takes place. We explore the role of rainfall intermittency and of different plant colonization strategies, and discuss in detail the effect of two different vegetation feedbacks: reduced evaporation due to plant shading and increased infiltration in vegetated areas. The results of the analysis indicate that both temporal rainfall intermittency and the shading/infiltration feedbacks have a beneficial effect on vegetation. However, it turns out that in this model rainfall intermittency and vegetation feedbacks have almost a mutually exclusive role: whenever one of these two components is present, the addition of the other does not further affect vegetation dynamics in a significant way.

- [Final Revised Paper](#) (PDF, 428 KB)
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