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Interactive comment on "Dynamic coupling of regional atmosphere to biosphere in the new generation regional climate system model REMO-iMOVE" *by* C. Wilhelm et al.

Anonymous Referee #4

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This is an interesting article addressing the importance of vegetation in regional climate modeling. However, I have some specific comments listed below that need to be addressed before the paper can be considered by GMDD. Specific comments: 1. In "Introduction", the authors mentioned "Regional climate change information are nowadays derived by downscaling simulations of General Circulation Models (GCMs) with Regional Climate Models (RCMs).". What are the added values of running RCMs over regional scales compared to high-resolution GCMs? You may want to include some discussion on this.

2. In "Introduction", the authors mentioned that "Long climate simulations with GCMs are limited in their horizontal resolution to values in the order of 200 km.", this is not

the case now. As more GCMs are being improved to run at much finer resolutions, i.e. 50km coupled runs from CESM (the Community Earth System Model). 3. The paper says "One of the most distinct advancement of REMO-iMOVE is the introduction of the concept of plant functional types (PFTs)". This is new, the PFT concept has been used in other land surface models, i.e. NCAR's community land model. Some discussion on the benefits of using PFTs is needed.

4. It is not clear to me that if the authors are using a dynamic vegetation model or just a vegetation phenology model. On line 22 Page 3094, it says "Grass PFTs die back". If it is a dynamic vegetation model, how did they treat with vegetation mortality when considering different stresses, i.e. heat, moisture, and carbon

5. Line 3 Page 3098: is "three years" enough to spin up the soil moisture in the regional climate model? Again, if it is a dynamic vegetation model, it needs longer time to spin up the model.

6. Minor comments: Line 3 on Page 3092: Change "were" to "where". English in some places needs to be improved.

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