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# *Interactive comment on* "Understanding emissions of ammonia from buildings and application of fertilizers: an example from Poland" *by* M. Werner et al.

**Anonymous Referee #2**

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General comments: This paper provides an interesting case study and good discussion for the move from static inventory-based approaches to ammonia emissions from agriculture and dispersion modelling to a dynamic approach using real weather and management parameters. This progression of the approach should lead to more accurate representation of actual ammonia concentrations at sub-national spatial resolution, allowing for scenario modelling of impacts of potential practice changes. The study is generally well described, although some clarification is needed in places, with good and relevant discussion. Some attention to the English is required throughout – I have not identified all errors in the specific comments below so suggest a final revision by a native English speaker. Specific comments: P1 L15 Define CTM P1 L22 Define NWP

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P1 L30 change 'was compared' to 'were compared' P4 L1 What is the WRF model (and subsequently WRF-Chem and WRF-ARW)? P5 L5 'stables' is often used as a term for livestock housing by non-native English speakers in Europe; however, in English, stables is normally understood to refer specifically to housing for horses. Please change the term here and elsewhere in the manuscript to 'livestock housing' or similar. P5 L7 What are the units for the various parameters in Eq. 1 (and 2 on following page). I have to admit to not fully understanding the subsequent description of the derivation of the functions – is the function an emission value itself, or a multiplier to be applied to the emission input data. Perhaps this description could be expanded slightly to aid understanding. P6-7 It would be good to include some introduction as to why these 4 specific scenarios are being modelled. P7 L8 It is not clear here whether you mean 20% of all manure, which equates with all slurry, or 20% of slurry bein applied to grassland. Please clarify. P11 L9-10 Values are presented for the grid square (5x5 km) containing the Jarczew station? P11 L15-17 Does this sentence apply generally for Poland or specifically for this grid square containing the Jarczew station? If it is a general statement for Poland, can anything be said about the spatial variation in large pig farms and cattle farming? P13 L11 I don't see any Fig. 8 – is it missing? And what is the RIP tool? P14 L6-8 But data presented here show the opposite to what is being said in this sentence i.e. the data here show moving from the DEFAULT to POLREGUL gives a decrease in spring emissions.

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Interactive comment on Biogeosciences Discuss., 12, 2021, 2015.

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