

Interactive comment on “Ammonia measurements from space with the Cross-track Infrared Sounder (CrIS): characteristics and applications” by M. Shephard et al.

Anonymous Referee #4

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This manuscript by Shephard et al. titled “Ammonia measurements from space with the Cross-track Infrared Sounder (CrIS): characteristics and applications” is well written and very easy to follow. They describe well about the CrIS NH₃ product and demonstrate the capabilities of this product for multiple applications, such as model evaluation and emissions estimates. The manuscript does a thorough job of describing the CrIS NH₃ CFPR algorithm and its various components. The demonstration of the applications of this dataset is also comprehensive and convincing. Overall, I think it is appropriate for publication after minor revision. I have a few specific comments below.

Page 3, Line 24-25: “higher concentration . . . near the surface. This is demonstrated

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later in Section 3.2 with model emissions and corresponding simulated surface concentrations.” I think this sentence is not appropriate. The higher concentrations in the model cannot demonstrate the findings from the CrIS since the emissions always emit at the surface level in the model and thus will of course get higher simulated surface concentrations.

Page 24: The paragraph of introducing the “31-day moving window” is not very clear to me. What is the purpose of developing these daily sets? Why do they choose 31 days? Also, I’m not sure how it helped “better capture the warm season timing of emissions”. It may be better for readers to understand if the authors could answer all the questions above in the manuscript.

Typo: Page 3, Line 31: Since he -> Since the. Page 5, Line 6: Figure A 1 -> Figure A.1.

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