Downscaling crop production from Integrated Assessment Models

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Abstract. Integrated Assessment Models typically simulate the crop production.

1 Introduction

Agricultural intensification - irrigation, fertiliser application and mechanization will play an important role. Agricultural intensification has a substantial environmental impact.

Integrated Assessment Models have been developed "to better understand interactions between natural and human systems and anticipate their co-evolution in the future" (**?**). There is interest in coupling IAMs with environmental models. **?** developed a water demand module.

There are few global datasets which show the current crop distribution. The Monthly Irrigated and Rainfed Crop Area (MIRCA2000) is one such dataset. An alternaitve dataset is provided by the MapSPAM (). This dataset disaggregates national and sub-national agricultural inventory data based primarily on biophysical suitability from FAO Global Agro-Ecological Zones database.

2 Agriculture in Integrated Assessment Models

GCAM is comprehensively described elsewhere (e.g.). This section describes

2.1 Downscaling algorithm

Crop production can either be increased by expanding the land area used to grow the crop or a process of agricultural intensification.

2.2 Evaluation

Backcasting change in India?

2.3 Discussion

Points for discussion?

3 Conclusions

TEXT

Code availability. TEXT

A version of the software is available through the XYZ repository. The development version of the code, which may change over time, is available through the first authors Github account.

Appendix A

A1

Author contributions. TEXT

Competing interests. TEXT

Disclaimer. TEXT

Acknowledgements. TEXT

References

40 REFERENCE 1

REFERENCE 2