Supplement of

Drivers of global irrigation expansion: the role of discrete global grid choice

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(a) Longitude-Latitude

(b) ISEA3H resolution 7

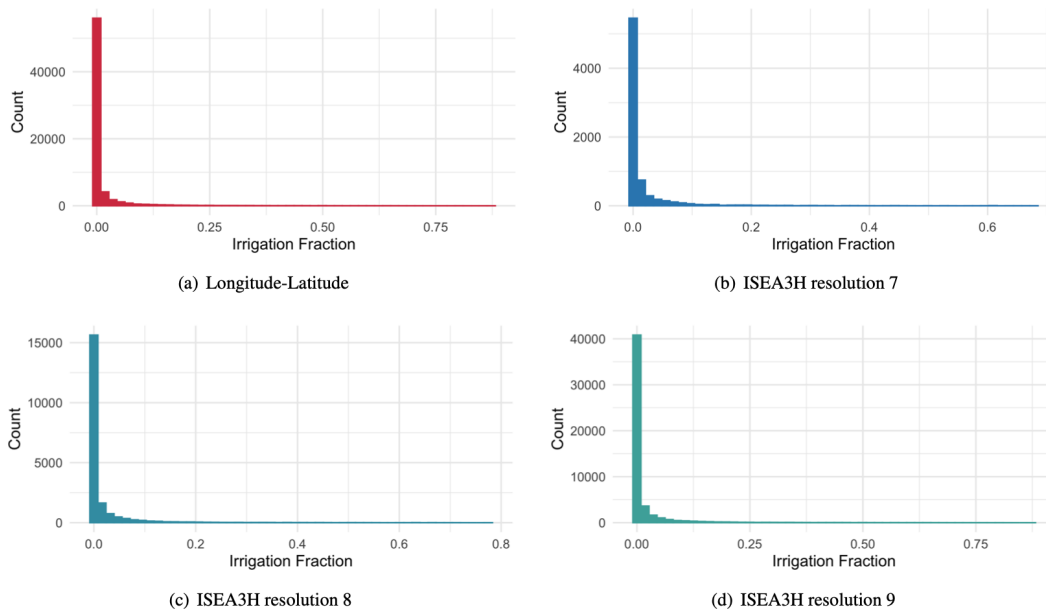(c) ISEA3H resolution 8

(d) ISEA3H resolution 9

Figure S1: Histograms, showing the irrigation fraction on the horizontal axes and the corresponding frequency of the observational data used in the analysis in (a) the longitude-latitude grid and (b)-(d) the ISEA3H grids (at resolutions 7, 8, and 9) on the vertical axes.
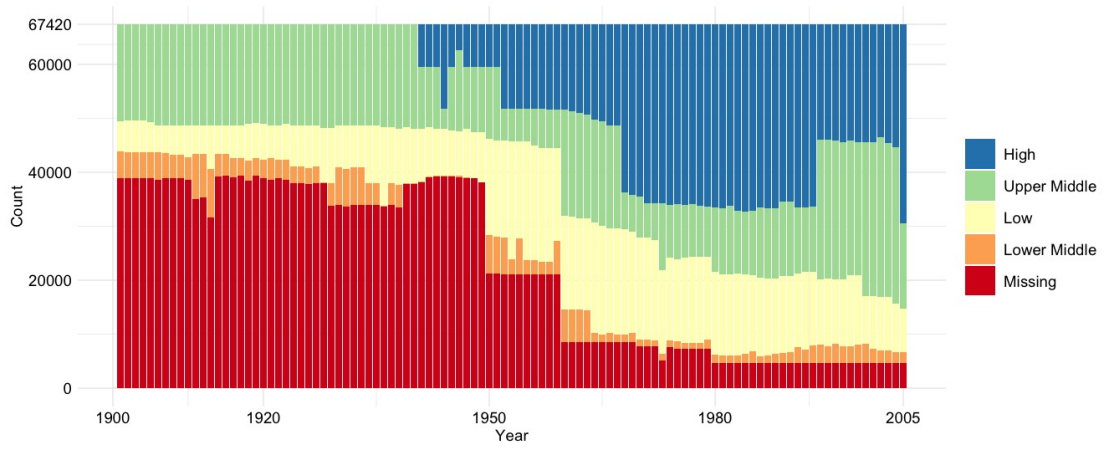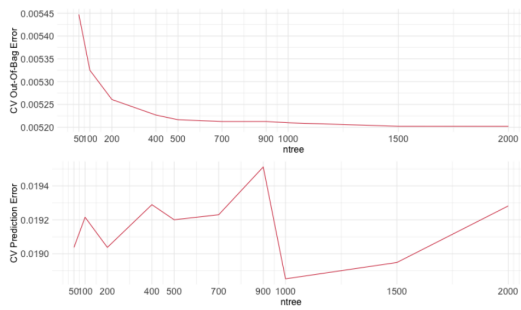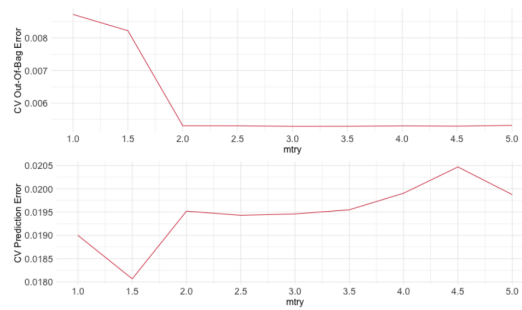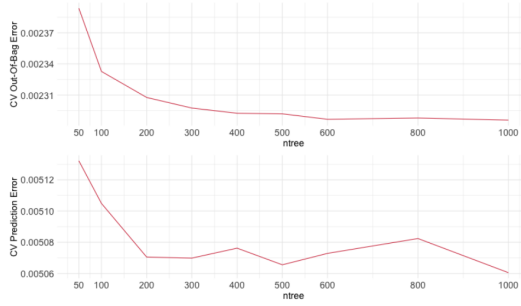
Figure S2: Frequency of GDP per capita categories over the study period 1902 to 2005.
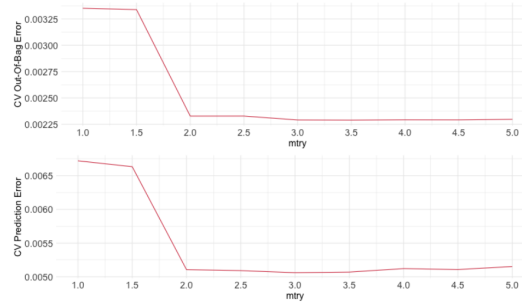
(a) Longitude-Latitude Classification: Ntree

(b) Longitude-Latitude Classification: Mtry

(c) Longitude-Latitude Regression: Ntree

(d) Longitude-Latitude Regression: Mtry

Figure S3: Cross-validation results of the longitude-latitude grid choice. The out-of-bags error and the prediction error are displayed as a function of changing hyperparameter values for a) ntree in the classification random forest, b) mtry in the classification random forest, c) ntree in the regression random forest and d) mtry in the regression random forest.

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(a) ISEA3H Classification: Ntree

(b) ISEA3H Classification: Mtry

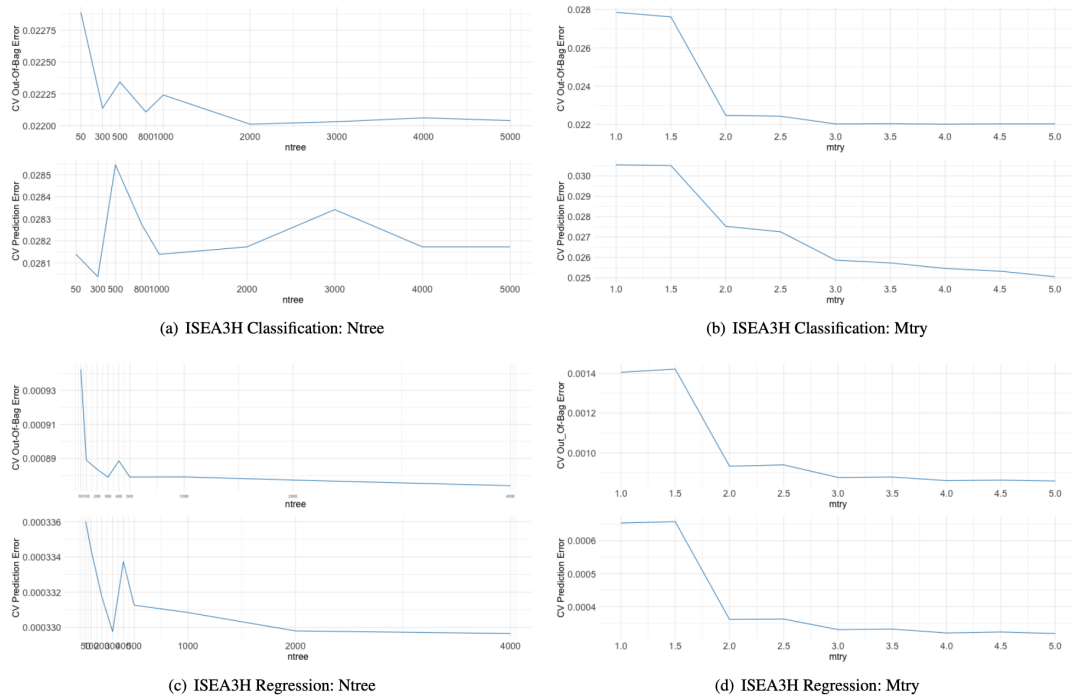(c) ISEA3H Regression: Ntree

(d) ISEA3H Regression: Mtry

Figure S4: Cross-validation results of the geodesic discrete global grid choice. The out-of-bags error and the prediction error are displayed as a function of changing hyperparameter values for a) ntree in the classification random forest, b) mtry in the classification random forest, c) ntree in the regression random forest and d) mtry in the regression random forest.

Table S1: GDP per capita category assignment

Class	GDP Per Capita
High	$\geq 12{,}276\$$
Upper Middle	$> 3{,}975\$ - 12{,}275\$$
Lower Middle	$> 1{,}005\$ - 3{,}975\$$
Low	$\leq 1{,}005\$$
Missing	–

Notes: GDP per capita classification by income level for the reference year 2011, based on the classification of the World Bank (2011).

References

World Bank, D. T.: Changes in Country Classifications, URL `https://blogs.worldbank.org/opendata/changes-country-classifications`, 2011.