

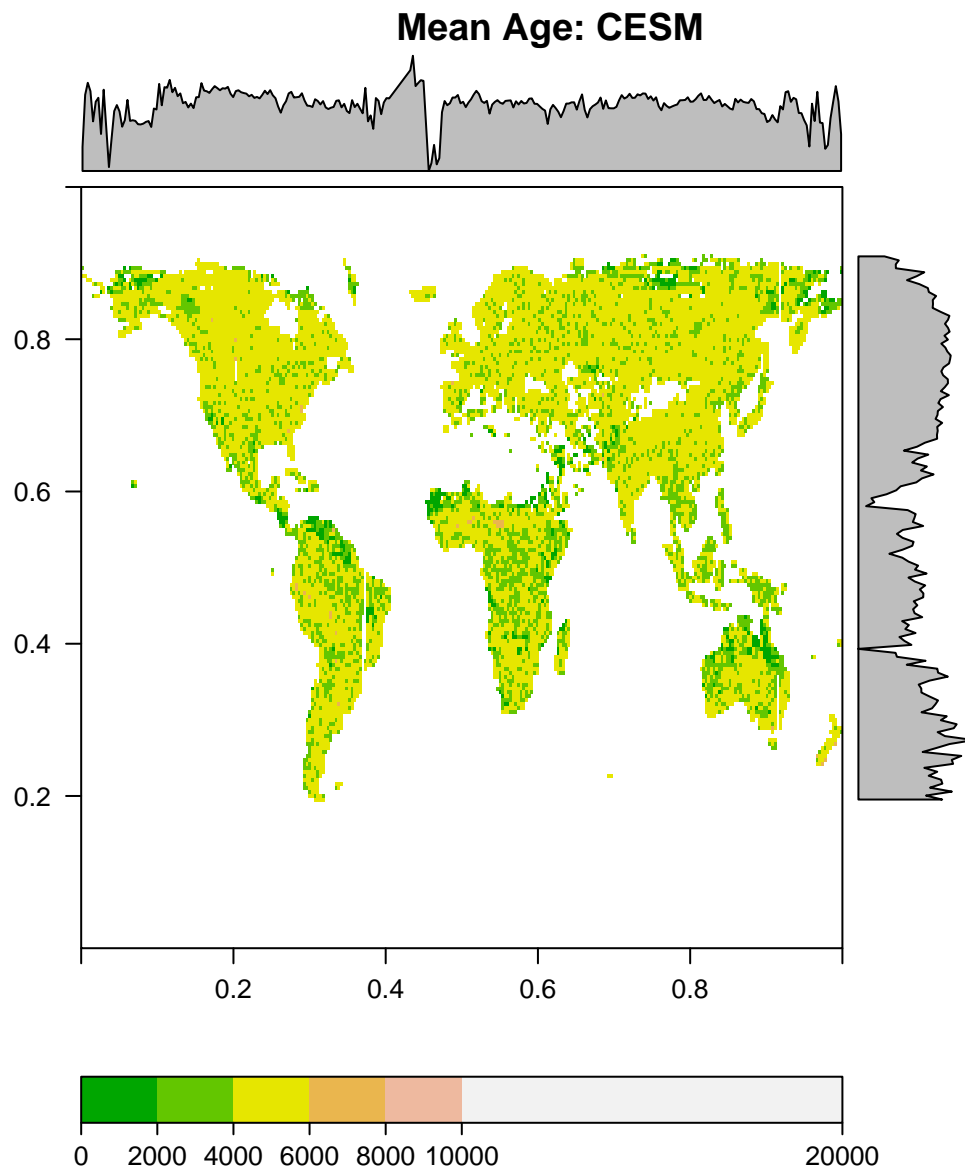
**Supplementary material for  
Soil organic matter persistence as a stochastic process:  
age and transit time distributions of carbon in soils**

**Carlos A. Sierra<sup>1</sup>, Alison Hoyt<sup>1</sup>, Yujie He<sup>2</sup>, Susan E. Trumbore<sup>1</sup>**

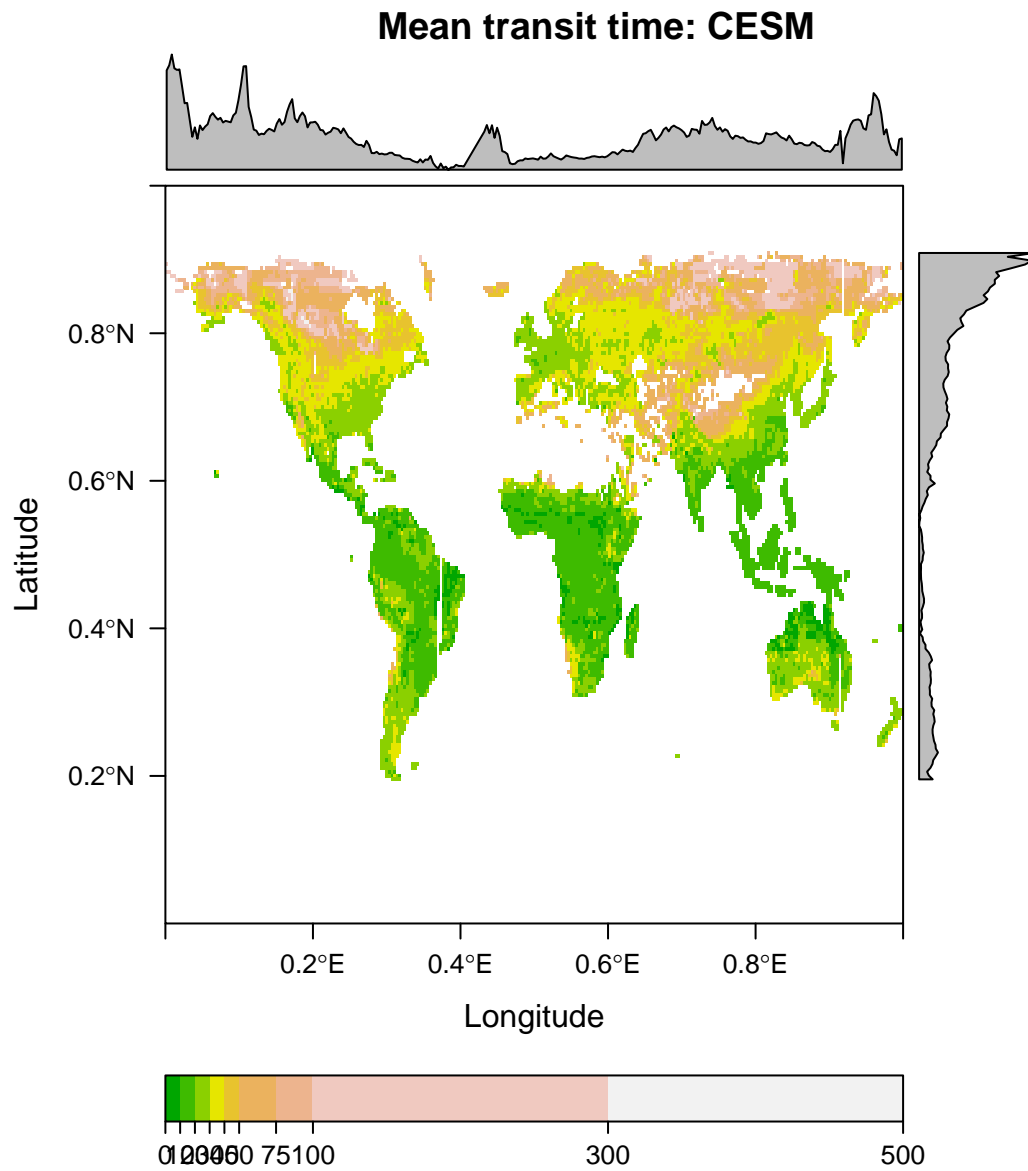
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<sup>2</sup>Department of Earth System Science, University of California, Irvine, USA

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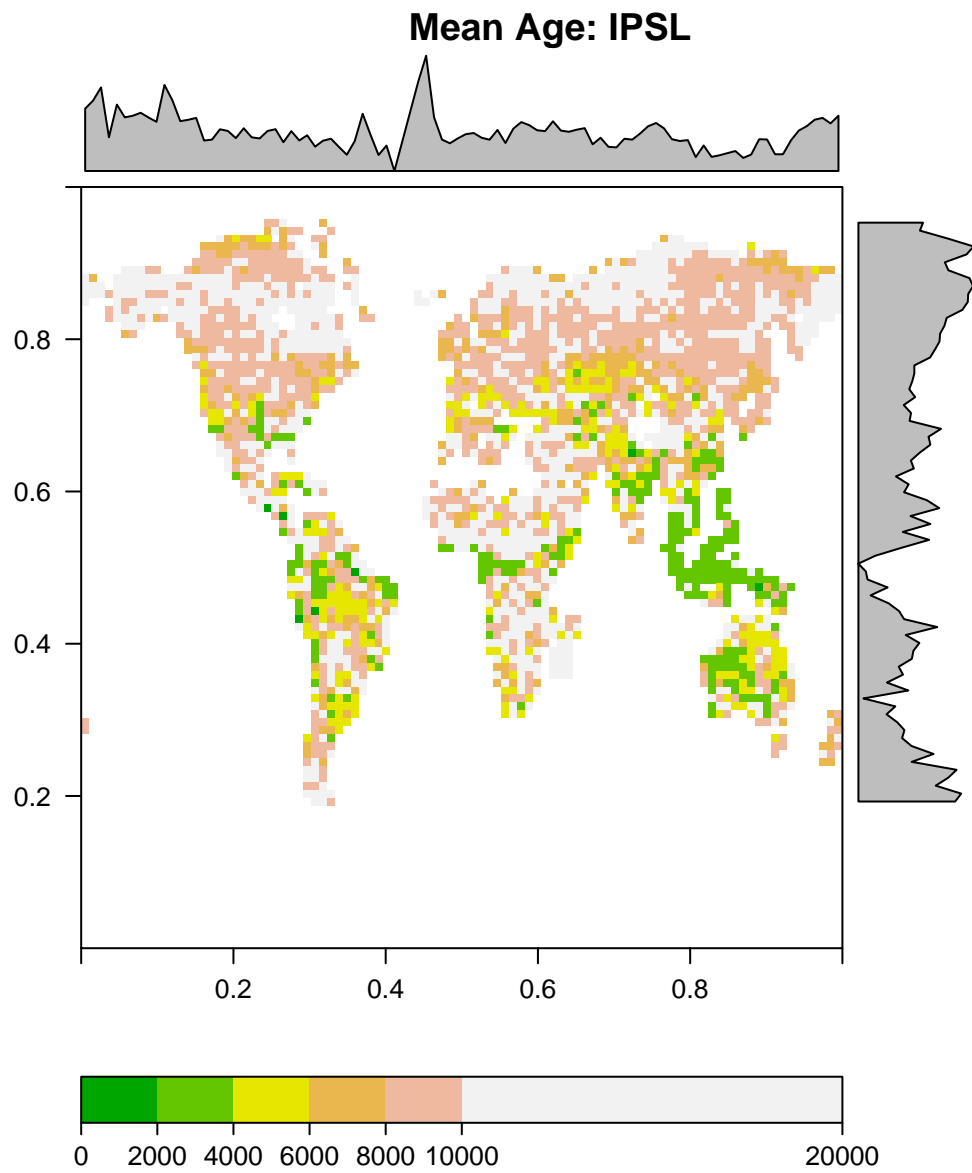
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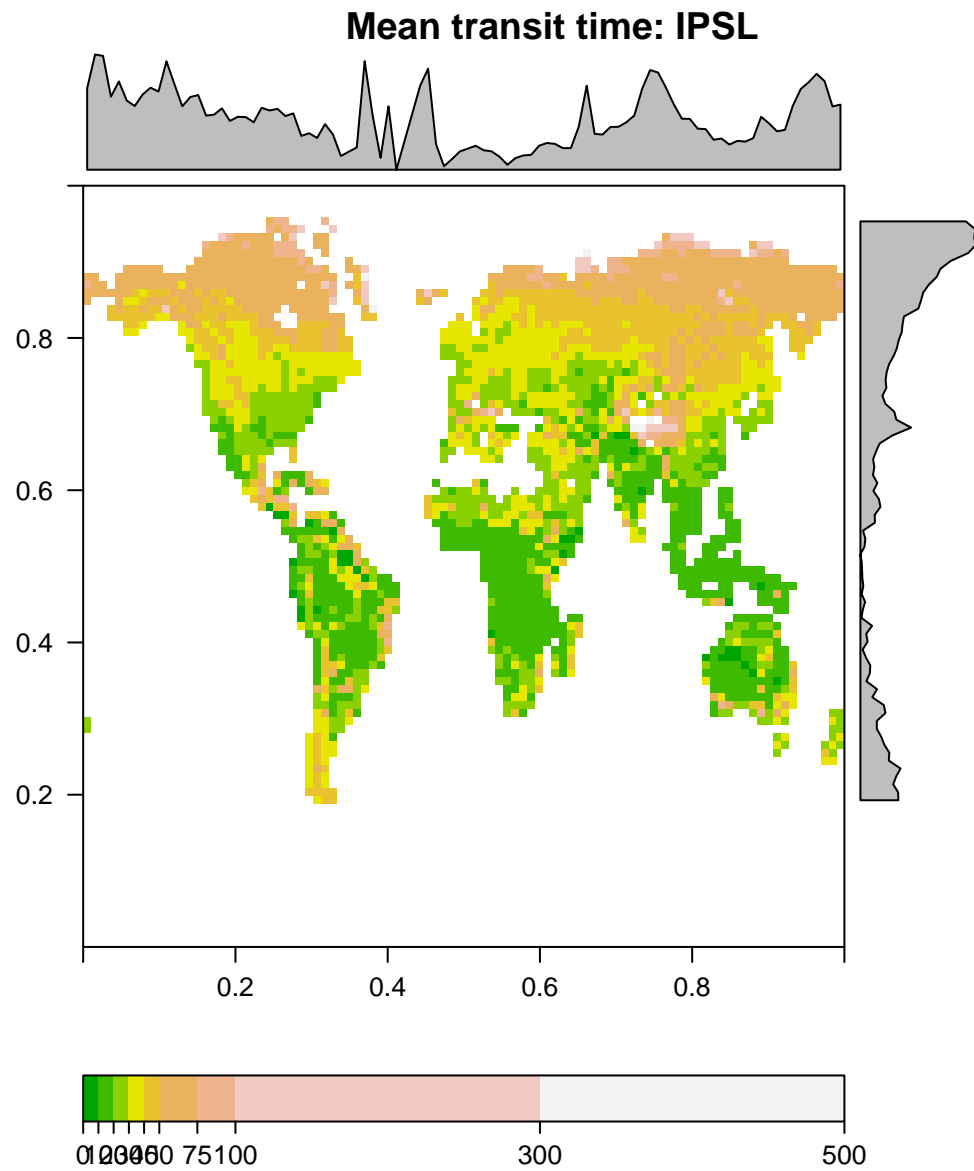
**Figure 1.** Mean age of the reduced complexity model CESM calculated for each grid cell.



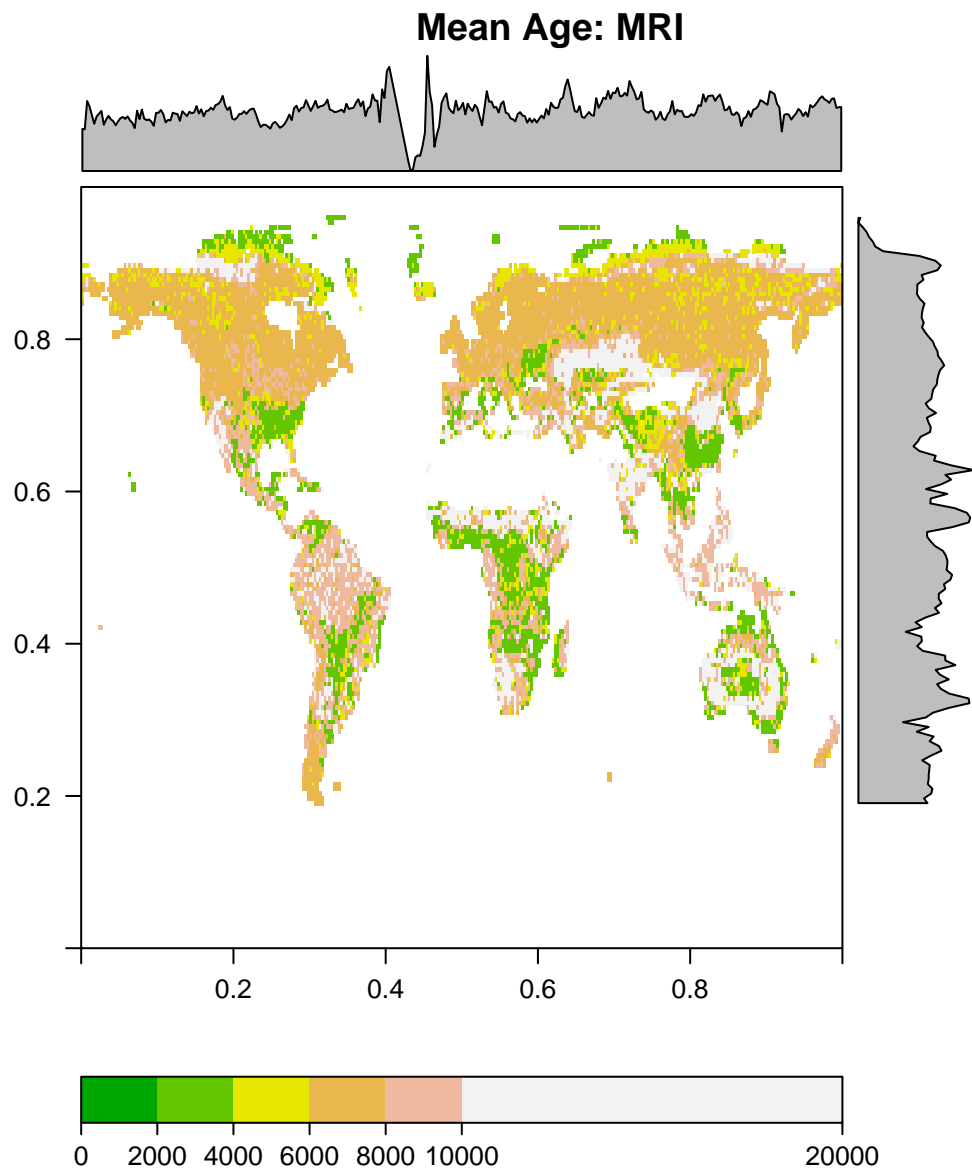
**Figure 2.** Mean transit time of the reduced complexity model CESM calculated for each grid cell.



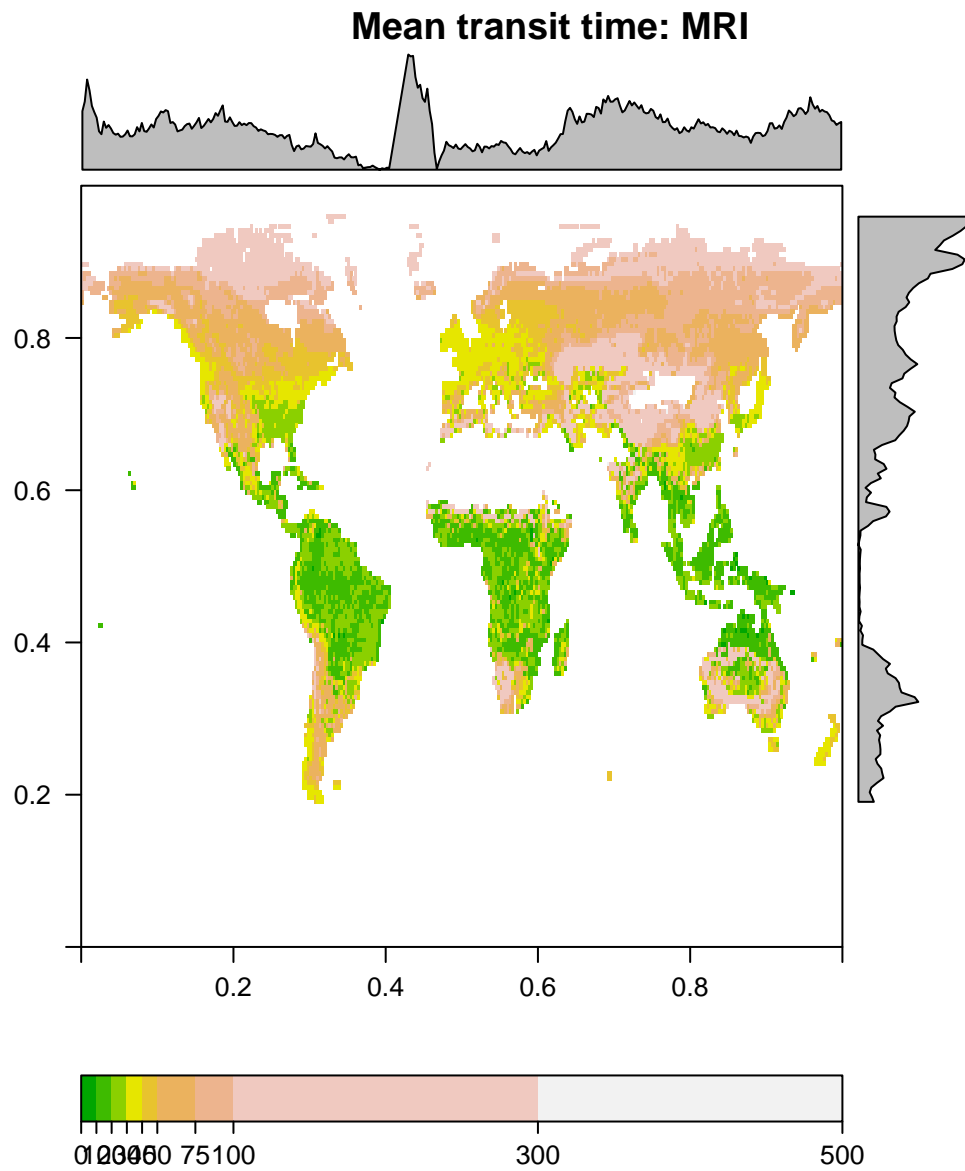
**Figure 3.** Mean age of the reduced complexity model IPSL calculated for each grid cell.



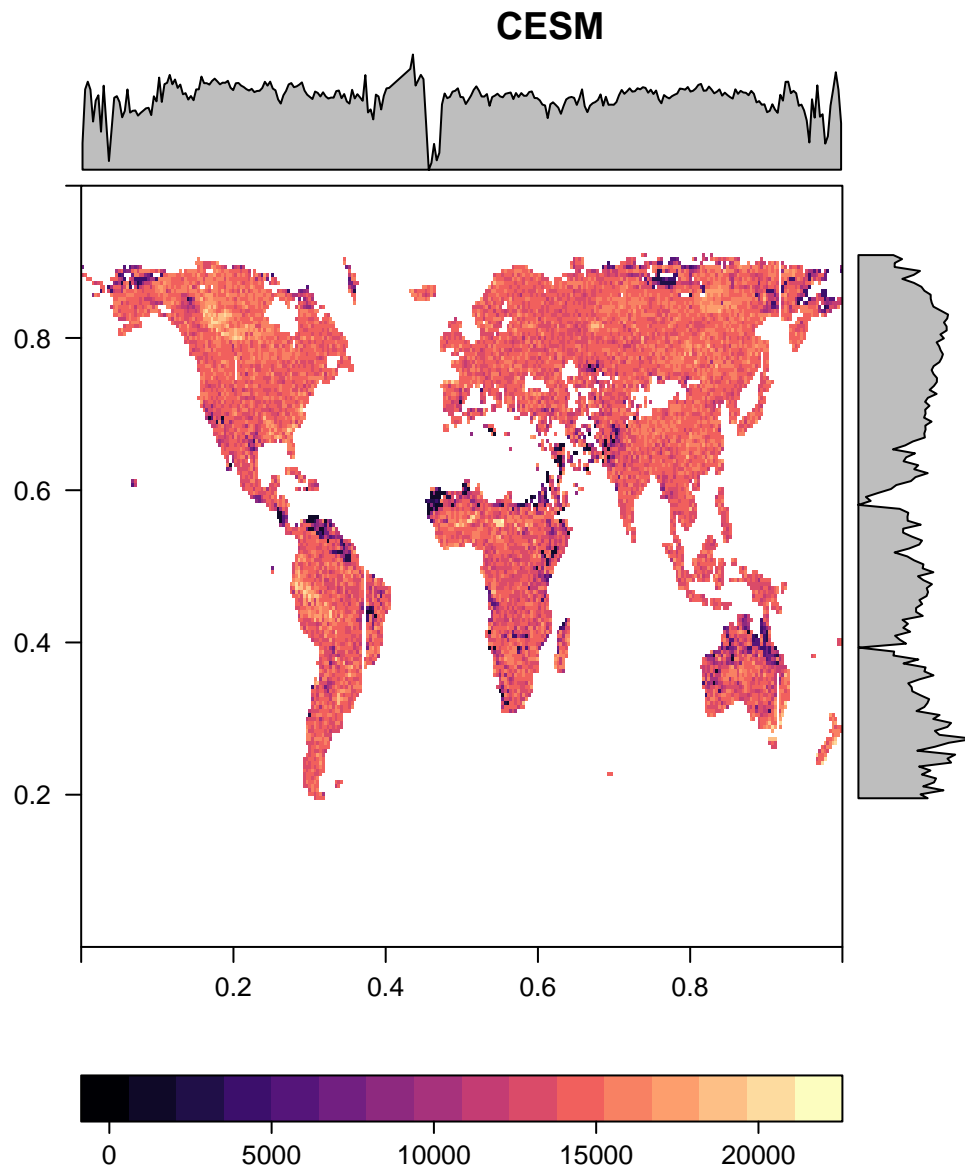
**Figure 4.** Mean transit time of the reduced complexity model IPSL calculated for each grid cell.



**Figure 5.** Mean age of the reduced complexity model MRI calculated for each grid cell.

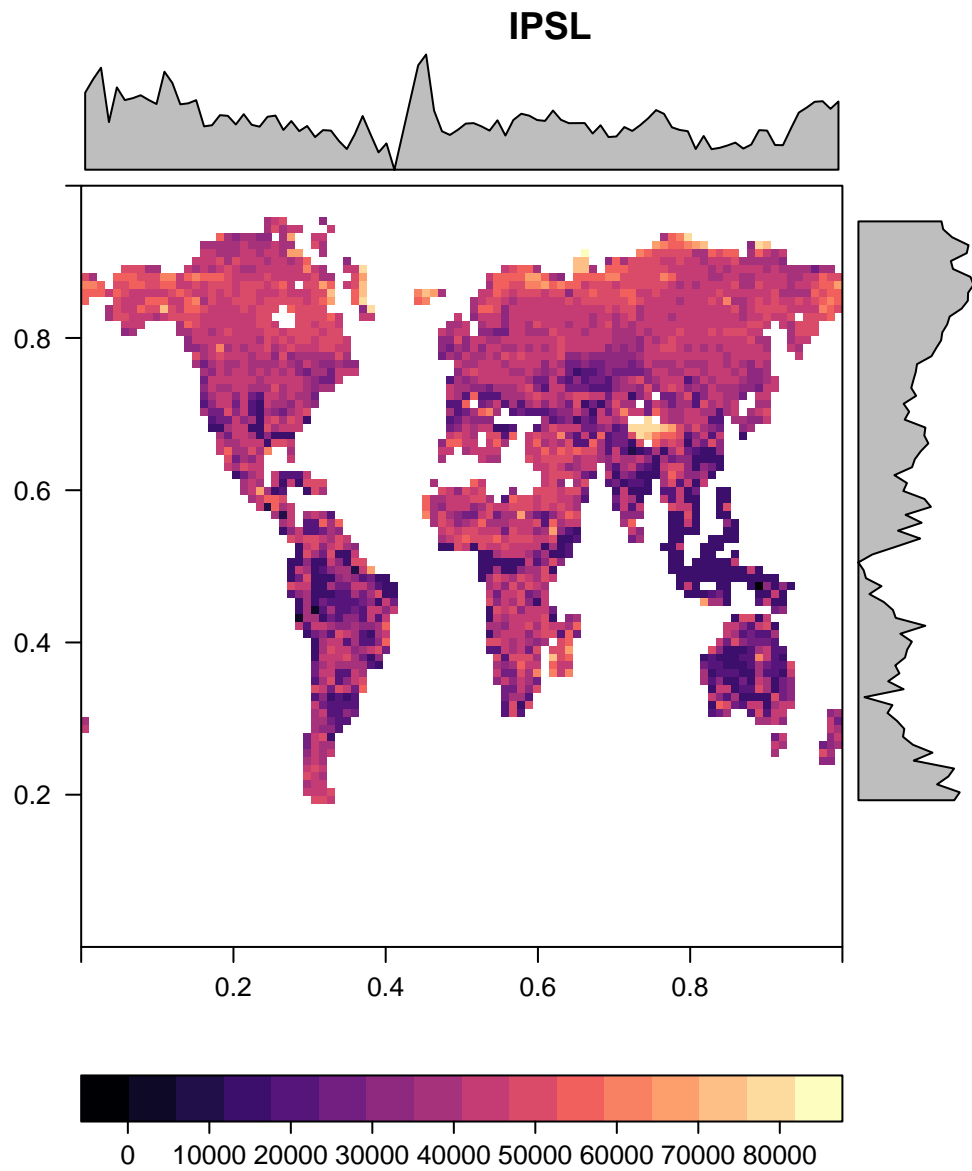


**Figure 6.** Mean transit time of the reduced complexity model MRI calculated for each grid cell.

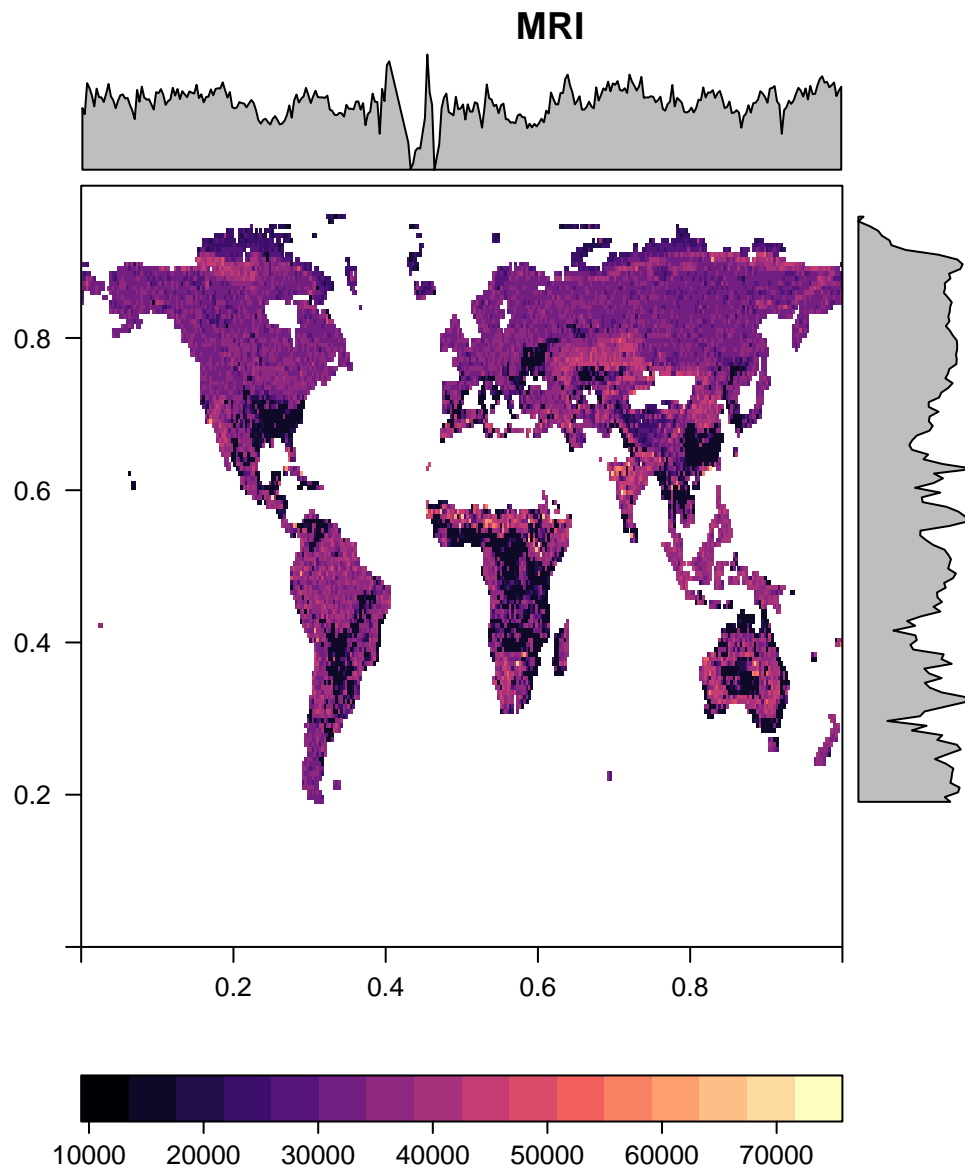


**Figure 7.** 95% quantile of the age distribution calculated for the reduced complexity version of the CESM model.

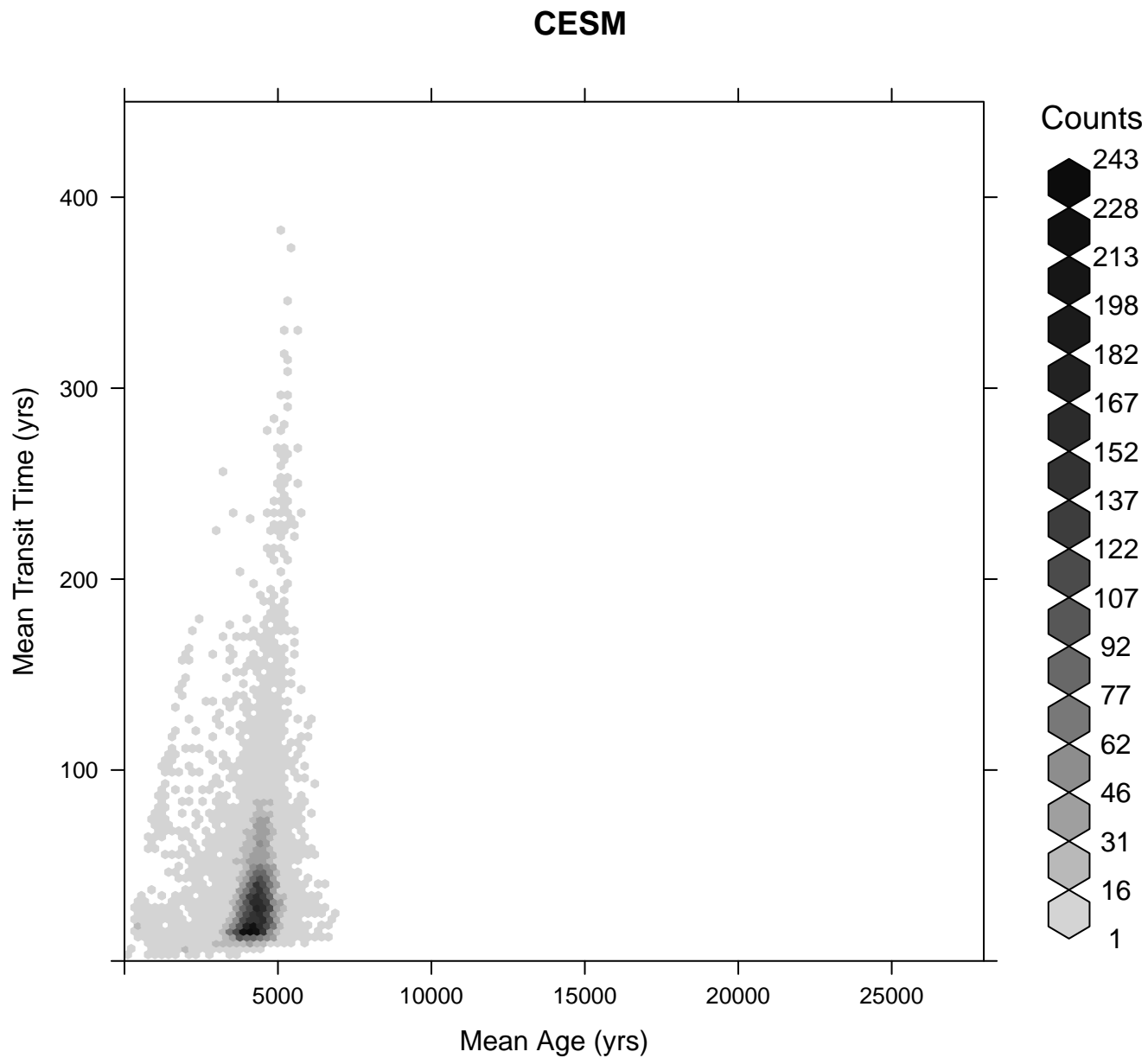




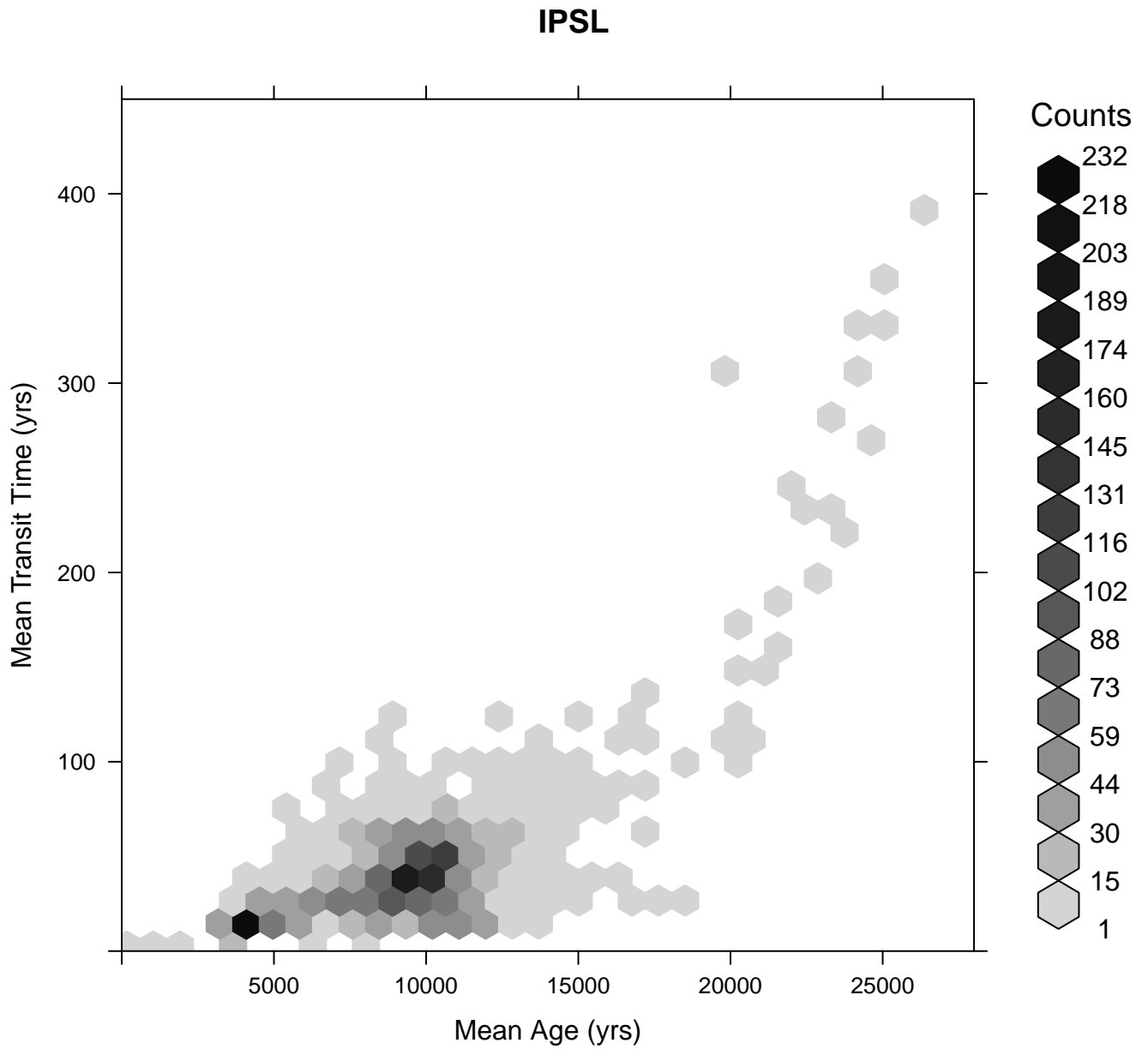
**Figure 8.** 95% quantile of the age distribution calculated for the reduced complexity version of the IPSL model.



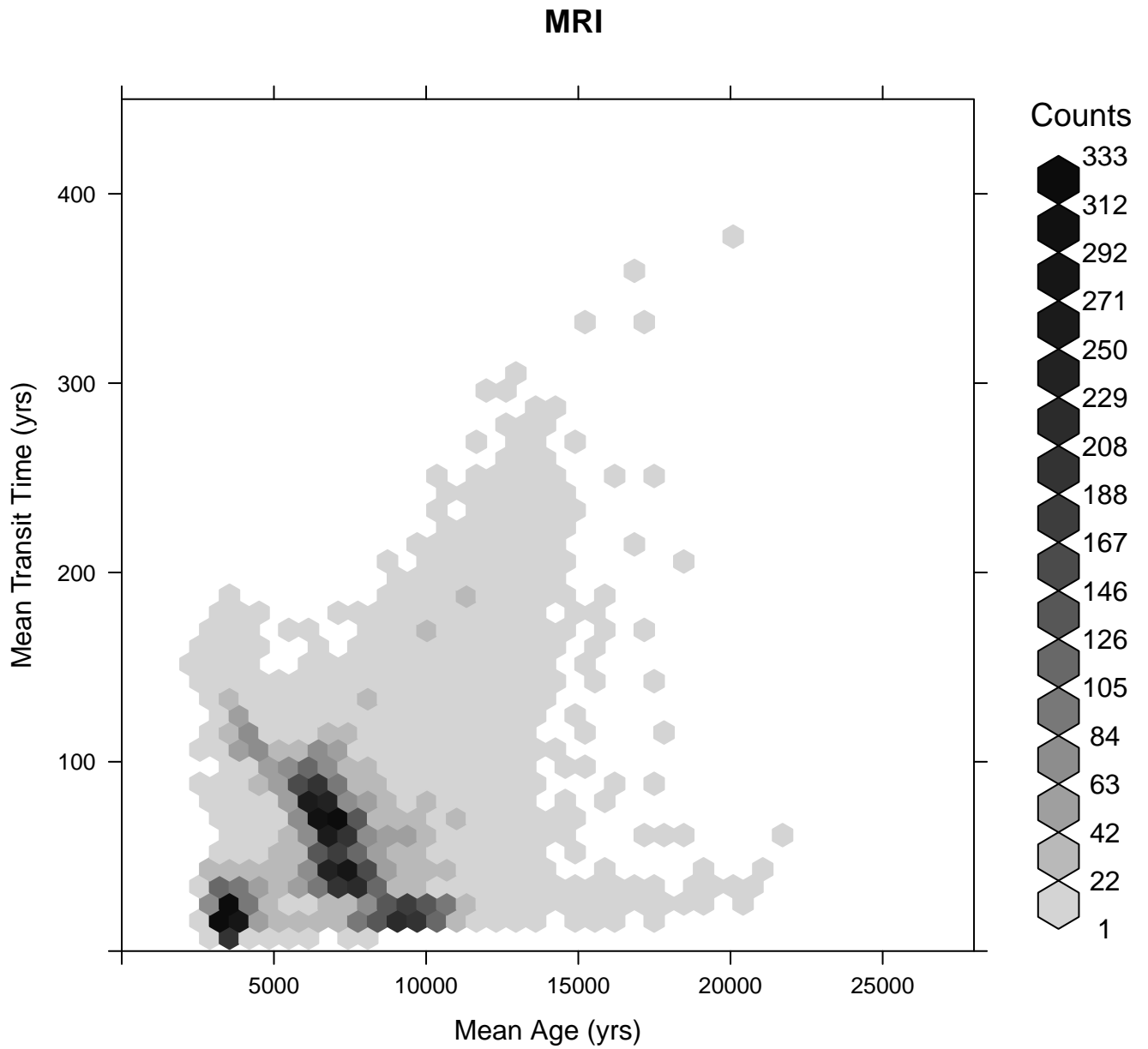
**Figure 9.** 95% quantile of the age distribution calculated for the reduced complexity version of the MRI model.



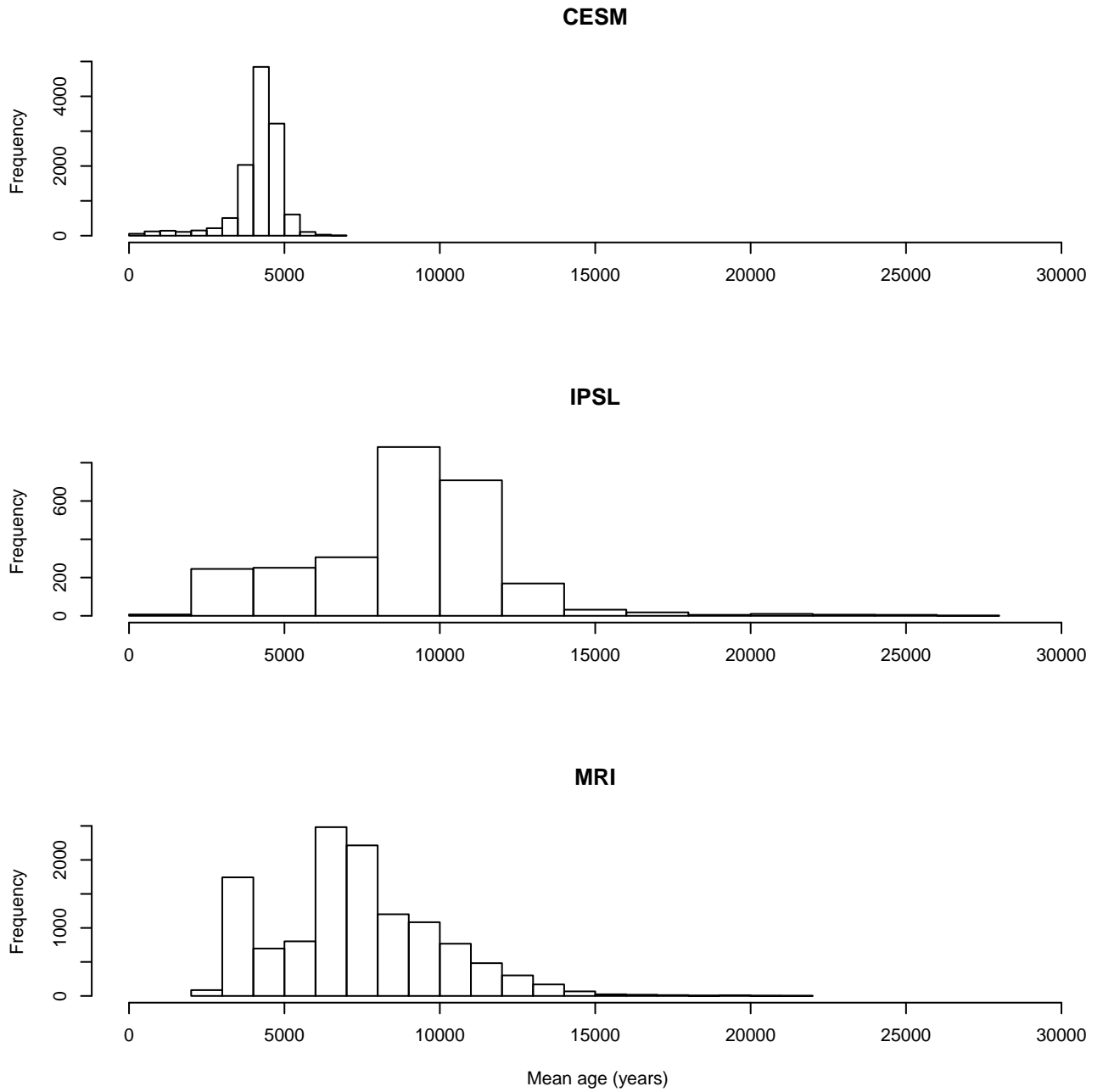
**Figure 10.** Hexbin plot showing the relation between mean age and mean transit time for the CESM model. Darker colors are indicative of a larger number of grid cells with similar values.



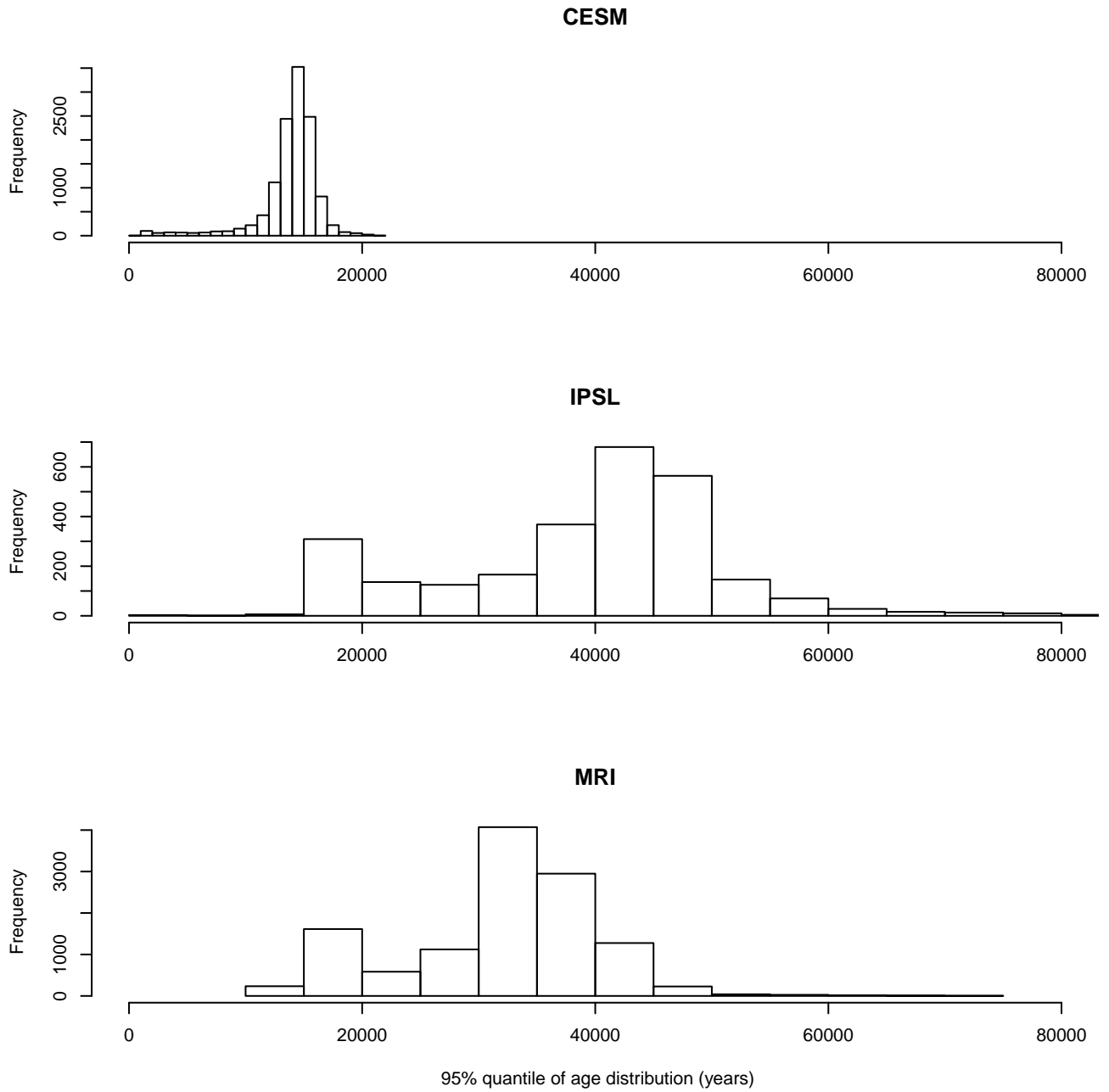
**Figure 11.** Hexbin plot showing the relation between mean age and mean transit time for the IPSL model. Darker colors are indicative of a larger number of grid cells with similar values.



**Figure 12.** Hexbin plot showing the relation between mean age and mean transit time for the MRI model. Darker colors are indicative of a larger number of grid cells with similar values.



**Figure 13.** Histogram of mean ages for all models



**Figure 14.** Histogram of 95% quantiles of the age distribution for all models