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Model-specific variability of ocean biogeochemistry in Earth system models

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Climate models are the measure of choice when observations are scarce or for questions concerning the future. However, when working with models, not only the internal variability of the climate system is of importance. The specific variability of the models has also to be taken into account, especially when they are compared on a quantitative scale. Till now the focus of multi-model or model ensemble studies has been on the research question itself, inter-model differences were of minor importance or completely neglected. Here we present results based on both control runs and transient simulations with a range of different Earth system models. One finding is that, for variables such as surface DIC, pH and pCO_2, the inter-model spread of a model ensemble is larger for the inter-annual variability than for the anthropogenic trend.