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Expectations for carbon cycle observation from a global warming projection modeler

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The protocol for 5th Phase of Coupled Model Intercomparison Project (CMIP5) includes experiments which require earth system models (ESM), i.e., climate models with biogeochemical components. As of February, 2013, projection data produced by ESMs have been submitted by institutes from across the world. Analysis on those data revealed significant of land use change by human activities on future behavior of global carbon cycle, critical importance of interactions between nitrogen and carbon cycle, and possible regulation on feedback intensity by formulation of photosynthetic rate on terrestrial vegetation, which may serve to prioritize research targets for observational planning. Also, well-formatted gridded observational data with sufficient self-explanation are often indispensable for validating model results. Indeed, Carbon Strategy by Group on Earth Observations (GEO) emphasizes the vital importance of metadata. Necessity of systematic metadata design has been claimed in modeling community, and it may be a common issue for observation and simulation community.

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