Some views on possible approaches to test and improve vgetation net primary productivity models

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Global NPP model intercomparisons performed under the auspices of IGBP have shown that large discrepancies exist between model results such as NPP and above all intermediate prognostic variables (e.g. light use efficiency, autotrophic respiration). The origin of these discrepancies probably arise from different treatments of processes, owing to the large gaps that exist in our understanding of biological phenomenons. Our capability to estimate biospheric carbon fluxes and budget under current and mainly future environmental conditions is therefore questionable. In this study, we used both parametric, satellite driven, and mechanistic, global, uncalibrated, NPP models. We will first present and discuss the comparison of model results with in-situ measurements, satellite data and CO2 atmospheric concentration. Interannual variabilities have been analysed. We will then present the potential of multispectral satellite data assimilation to derive model parameters. Finaly, a possible strategy to make models more reliable is proposed. It relies on multiscale observations of interannual variabilities.