



## **The Optimisation InterComparison project (OptIC): evaluation of methods for parameter estimation in biogeochemical cycle models**

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OPTIC TEAM

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Model-data fusion is an important tool for combining remotely sensed data and models of biogeochemical cycles. Parameter estimation is one component of this. The OptIC project is an international intercomparison of optimisation methods for parameter estimation in biogeochemical models. The aim is to evaluate methods for their ability to handle different data inadequacies such as noise, correlations and gaps. A highly simplified test model, with many characteristics similar to models used in real applications, was used to generate pseudo-data, to which noise was added. Noisy pseudo-data for 16 different experiments, each with different parameter values, noise characteristics and/or missing data, was provided to participants in the OptIC project who used the method of their choice to estimate the model parameters. Nine participants contributed results using one of the following methods: Levenberg-Marquardt, adjoint, Kalman filter, Metropolis and Metropolis-Hastings Markov-Chain Monte Carlo. We will present an initial analysis of results, looking at the differences between methods, noise types and parameter ranges. (OptIC website: <http://www.globalcarbonproject.org/ACTIVITIES/OptIC.htm>)