

## Water/energy budget in boreal forests –a study using a land-surface model and concept of common potential responses–

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The existence of a parameter set expressing potential response was suggested according to all pooled data of leaf-level stomatal conductance in the Far East. Similar seasonal change of water and energy fluxes are simulated using a land-surface model, 2LM, with both parameter sets, pooled common (PC) and within-site (WS). The results suggest that water and energy fluxes can be simulated using only one parameter set at least at forests in wide region of north-east Eurasia. This parameterization includes restriction term of soil water.

We investigated the reason why similar fluxes were simulated with both PC and WS parameters although there was clear difference between these two parameter sets. According to sensitivity test, it was found that the effects of maximum stomatal conductance and soil water content cancel out in Yakutsk, and optimum temperature effect was added. Furthermore, the calculated sensible/latent flux increased/decreased by 10-20  $Wm^{-2}$  compared with the estimation using previous parameters obtained in GAME.

We adapted 2LM with this common parameter set to FLUXNET sites. Seasonal changes of water and energy fluxes were reasonably simulated in many sites of EUROFLUX, AmeriFlux and AsiaFlux. However, there were some sites where latent heat flux was overestimated.

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