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Phenological Models for the Leaf out Date of subtropical Biomes determined from NDVI

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The triggers of the leaf out of subtropical deciduous are still subject of discussion. Yet, predictions of future climate change depend crucially on the response of the terrestrial vegetation to climate and the feedbacks between the atmosphere and the biosphere. Thus models describing the time of leaf out in these biomes for large scale land surface models are urgently required.

It has been suggested that the plants respond to increasing humidity before the rainy season, increased soil moisture or stem moisture status. Here we explore the importance of the various triggers with a remote sensing based greenness index and climate data as well output from a land surface model. The observed relationship between greenness and climate are then formalized into models for the prediction of the time of leaf out. Preliminary work (Kaduk and Heimann, 1996) has suggested that this is indeed possible and we present here new models based on an improved compilation of the FASIR NDVI data (Los et al., 2001) and various methods to determine leaf out from NDVI (Kaduk and Heimann, 1996, Botta et al., 2000), climate data from the Global Soil Wetness Project II and a model run of the land surface model JULES with these climate data.

References

Kaduk, J. and Heimann, M., 1996. A prognostic phenology scheme for global terrestrial carbon cycle models. *Climate Research*, 6, 1-19.

Los, S.O., G.J. Collatz, L. Bounoua, P.J. Sellers, and C.J. Tucker, 2001. Global interannual variations in sea surface temperature and land surface vegetation, air temperature and precipitation. *Journal of Climate*, 14:1535-1549

Botta A, Viovy N, Ciais P, Friedlingstein P, Monfray P (2000) A global prognostic scheme of leaf onset using satellite data. *Global Change Biology,* **6,** 709-725.