establishment of pastoral systems. Subsequently these areas undergo stages of pasture intensification, vegetation dominated pasture degradation, land abandonment and secondary forest succession. These stages are of major importance to quantify regrowth of the Amazon rainforest, which has huge implications for the global carbon budget, functional aspects within Amazonian ecosystems and the regional social/economic development. Since 2013 L1T corrected Landsat time series of the Amazon rainforest are available in the USGS-archive, which heavily promotes novel possibilities for studying LULCC in this region. In your work, we provide a new methodological approach for investigating pasture dynamics using the full depth of Landsat archive from 1984-2012. Results derived from a case study in southern Pará show that Landsat time series allow to map the processes of intensification, degradation, land abandonment and secondary forest succession on pastoral lands. It underpins the possibilities of long term time series based data analysis, which has even more potential with upcoming data from Landsat 8 and Sentinel missions. This talk intends to enrich the session on its methodological parts. We communicate our experiences in time series analysis on Landsat data, how we deal with conceptual limitations and which possibilities we see in the future. We also emphasize the importance of the newly available data for investigating land use dynamics in the Brazilian Amazon to improve understanding of ecosystem conditions and drivers of land use change.

| 0597 | Spatial modeling of ecosystem services in support of ecosystem accounting for Limburg province, the Netherlands | Roy Remme | The Netherlands |

Ecosystem accounting is receiving increasing interest as a way to systematically monitor the conditions of ecosystems and the services they provide. It provides opportunities to combine biophysical and economic aspects of ecosystem services and monitor these relationships. Ecosystem accounting makes it possible to address changes in the human-nature relationship frequently and at regular intervals. To further develop this concept, the United Nations has recently published the System of Environmental-Economic Accounting Experimental Ecosystem Accounting (SEEA EEA). A critical element of this approach is understanding the annual flows of ecosystem services from a spatial perspective. We follow the spatial ecosystem accounting approach of the SEEA EEA and test it at a provincial scale. The provincial scale provides an informative scale of analysis because it includes a large variety of ecosystems, and also enables detailed spatial analysis. Furthermore, many land planning decisions are made at this administrative level, which can be facilitated by ecosystem accounting. We study Limburg province, the Netherlands, which is densely populated and heavily managed, providing an intense human-nature relationship. Seven ecosystem services are spatially analyzed, both biophysically and monetarily. These ecosystem services are crop production, fodder production, drinking water extraction, hunting, air quality regulation, forest carbon sequestration and recreational cycling. We have developed spatial models for each service, which allow for biophysical and monetary analysis in line with ecosystem accounting. Annual biophysical flows are quantified and spatially modeled. Using a diverse set of valuation techniques the monetary value of ecosystem services are estimated. The relation between land use and the modeled services is analyzed, assessing whether land use is a good starting point for monitoring changes in ecosystem services. In addition, potential bundles of ecosystem services and trade-offs are studied. To date, the role of biodiversity within ecosystem accounting has received little attention. Therefore, we aim to further explore spatial relations between biodiversity and ecosystem services within the context of ecosystem accounting. This study will focus on the spatial relations within ecosystem accounting, focusing specifically on ecosystem service flows, land use and biodiversity.

| 0598 | Modeling the functioning of Mediterranean agroecosystems to assess impacts of global change on ecosystem services | Simon Decock, Alberte Bondeau, Sinan Shi, Wolfgang Cramer | France |