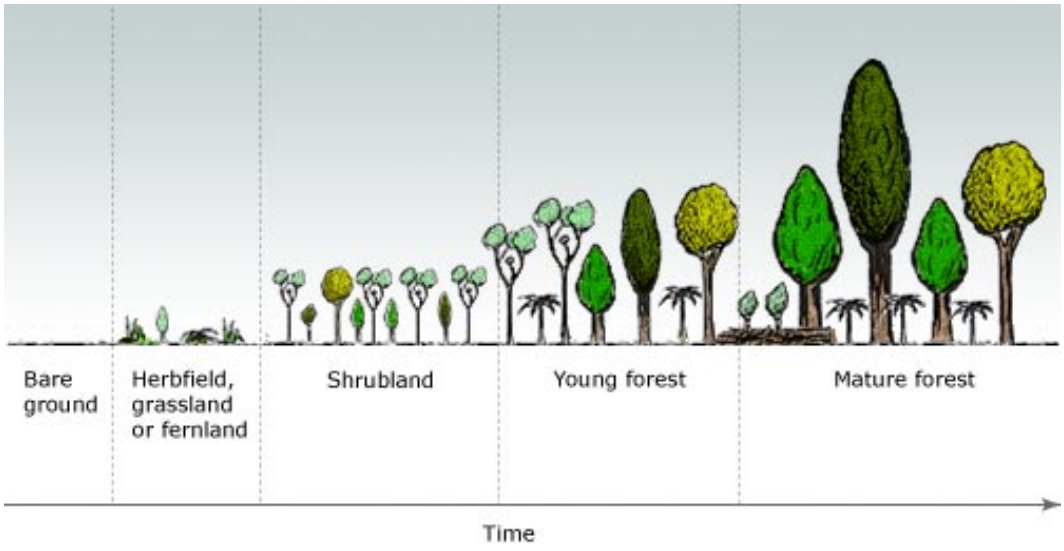
**COST TERRABITES Workshop on Large-Scale Modeling of Forest Disturbance and Age Dynamics**

**When: 23-26 September, 2013**
**Location: Centre of Studies of Alpine Environment, University of Padova, San Vito di Cadore, Italy**




**Rationale**

Despite the importance of stand age and forest management in the terrestrial carbon cycle, the integration of both factors into global carbon cycle models has remained elusive. Similarly, many aspects of successional change and carbon cycle dynamics following natural disturbances at stand-scale level, such as fires and windthrow, are not widely represented in such models. Forest disturbance manipulates species composition, stand density, and forest age, and alters the pattern of accumulation of biomass in vegetation and soils. The process of forest recovery and development represents the balance of carbon uptake and losses, as limited by nutrient, light, competition, and architectural constraints. The importance of secondary forest dynamics has been recognized as a key component for closing continental to global-scale carbon budgets, but carbon cycle models, in particular, dynamic global vegetation models are confronted by a range of data, theoretical, and computational challenges. This TERRABITES workshop aims to bring together a small group of experts in forest inventory, ecophysiology, remote sensing, and modeling to discuss and identify possible solutions for representing forest disturbance and forest age dynamics more explicitly in carbon cycle models.

**Background**

The workshop, funded as part of the TERRABITES COST Action (The Terrestrial Biosphere in the Earth System), will promote discussions that focus on four topics central to the theme of forest disturbance and secondary forest dynamics:

(1) The workshop will begin with a one-day field trip in the Dolomites region to visit a variety of forest stands at different stages in the management process. The field trip will be led by local experts in forest ecology and management associated with the Center of Studies of Alpine Environments.

(2) A survey of forest management, cohorts, and aging processes as represented in process-based carbon cycle models (e.g. ORCHIDEE, LPJ-GUESS, JSBACH, OCN, and JULES) will be presented. A particular focus on the logic behind the current range of key assumptions for upscaling will be addressed.

(3) The definition of stand age, how it is measured (from inventory (e.g., US FIA, EFISCEN) and satellite observations), and data availability will be covered.

(4) From field and experimental studies, an understanding of forest carbon dynamics during succession (i.e., physiological changes (e.g. hydraulic architecture), carbon allocation and allometry, and stand dynamics).

(5) Discussions will then focus on potential solutions for integration of data, theory, and computational challenges, and our expected results, for incorporating forest disturbance and successional processes in carbon cycle models.

By the end of the workshop we plan to have a summary document that outlines the key data limitations, theoretical requirements, and computational challenges for representing forest disturbance and succession more realistically in global carbon cycle models.

**Organization and scientific committee**

Ben Poulter (LSCE, France)
Julia Pongratz (MPI-M, Germany)
Marco Carrer (UNIPD, Italy)
Jed O. Kaplan (EPFL, Switzerland)

**Invited Participants (*italics confirmed*)**

*Ben Poulter (LSCE)*
*Julia Pongratz (MPI-M)*
*Jed Kaplan (EPFL)*
*Marco Carrer (UNIPD)*
*David Frank (WSL, Switzerland)*
Philippe Ciais (LSCE, France)
Chris Jones (MET, United Kingdom)
Anna Harper (Exeter, United Kingdom)
Thomas Hickler (Senckenberg, Germany)
Jo House (Bristol, United Kingdom)
Bernhard Kenter (World Forestry, Germany)
Heike Lischke (WSL, Switzerland)

Sebastiaan Luyssaert (LSCE, France)
Yude Pan (USFS, USA)
Neil Pederson (LDEO, USA)
Mart-Jan Schelhaas (Alterra, Netherlands)
Elena Shevliakova (GFDL, USA)
Soenke Zaehle (MPI-BGC, Germany)

**Practical Information**
**Sunday, 22nd September**
Evening arrival for those participating in the optional field trip

**Monday 23rd September**
Optional one-day field trip organized by Marco Carrer to gradient of forest management stands in the valley.
Evening dinner

**Tuesday 24th September**
Morning: Overview of carbon cycle with focus on managed and secondary forests
Afternoon: Survey of current modeling approaches and rationale

**Wednesday 25th September**
Morning: Observations and datasets
Afternoon: Integration

**Thursday 26th September**
Morning: Summary document
Departure at noon

**Travel expenses**
The workshop will be held in San Vito, Italy, at the Center of Studies of Alpine Environment http://www.tesaf.unipd.it/Sanvito/where.asp#Dove
To get there, participants are recommended to fly to Venice, and take public transportation to the Center. A train from Venice or Padova will take you to Calaizo di Cadore (about 25 euro). From there, a bus will take you to Cortina d'Ampezzo (http://www.tesaf.unipd.it/Sanvito/transport.asp). Please contact Ben Poulter (benjamin.poulter@lsce.ipsl.fr) prior to making travel arrangements. Our accommodation will be at the "Hotel Dolomiti" in Cortina 10 minutes walk from the lab: http://www.hoteldolomiti.com/

**Food and accommodation**
In addition to travel, each participant will receive a fixed amount of approx. € 450 to cover your food and accommodation costs during the workshop. We are organizing a group rate at one of the hotels in San Vito – the total cost should be less than €65 per night. All meals during the workshop will be taken together at local restaurants. The total costs of food and accommodation should be such that you can stay in San Vito for four nights if you wish to attend the field trip with a minimal additional contribution of your own funds, though only three days/nights of your participation will be required.