



COST ES0805 – WG-3. Modeling plant ecology

## **“How to optimally use remote sensing data in Dynamic Global Vegetation Models?”**

ESA ESRIN, Frascati Italy, 23-25 May 2011

### **Organizers:**

Michael Berger (ESA -ESRIN)

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Victor Brovkin (MPI Hamburg)

### **Background:**

The Earth System modeling community started recently to include terrestrial biospheric dynamics on an equal level with atmosphere and ocean dynamics into their models. At the same time, the remote sensing community is improving the monitoring of ecosystem conditions and trends with very high spatial and temporal resolution. Biologists are revising classical theories by analyzing huge datasets of plant trait data collected during the last decade. The ample amount of recently acquired information about the functioning of the terrestrial biosphere and an ever-increasing spatial resolution of Earth System models call for a new level of integration between modelers, developers of ecological theory and data gathering communities. The TERRABITES network is a cross-community initiative to join efforts for improving the reliability of future combined climate-biosphere projections by accounting for recent progress in understanding, modeling and quantification of biospheric processes in the Earth System. Working Group three of this network aims at contributing to this overall objective by improving and quantifying the ecosystem scale processes.

### **Aims:**

In this particular workshop, we aim to explore the feasibility of making use of Remote Sensing products within Dynamic Global Vegetation Models, applying different methodologies. Specifically, we aim to discuss open scientific issues behind this topic, hopefully leading to specific recommendations for the design of possible future study activities to test and validate different data ingestion methods.

**programme:**

*Monday 23 May:*

The first day aims at making sure that everyone knows what is the state of the art within both RS-products and DGVMs to facilitate discussions

14.00 start of the workshop.

14.15 presentation 1:

Victor Brovkin - How is land use/vegetation information used within models, incl. resolution of data and uncertainties?

15.15 presentation 2:

Jose Moreno - parameterisation of vegetation properties based on land cover information vs. quantitative RS inputs or direct radiance assimilation

16.15 presentation 3:

Phil Lewis - Data ingestion techniques, radiative transfer models and other data parametrisation models used in RS in comparison to those in DGVMs to be aware of similarities and distinctions

*Tuesday 24 May:*

Plenary discussion on the topics to be tackled to achieve the above mentioned integration and data ingestion methods which may lead to specific recommendations of future study activities.

Possible topics for discussions include:

- Global or regional, what is a good case study?
- which land cover maps will be compared?
- How to estimate the propagation of uncertainties in land cover to the estimates from the DGVMs?
- Instead of using land cover maps as input, are there more direct ways of using RS products. If so, how to do that? In other words; how to proceed to a full integration of RS assimilation routines into DGVMs? Will this decrease uncertainties?
- Instead of land cover maps, would it be interesting to parameterize biophysical or vegetation parameters in a similar way. If so, which parameters?

Wrap up from 16.00 onwards to come to a first summary.

*Wednesday 25 May:*

Getting to the next phase:

- which issues need to be dealt with or tested to come to a successful feasibility study
- who will undertake which action and in which time frame to make this effort successful?

Finalizing the workshop around noon.