**Summary**

The MOD12 product provides datasets related to two distinct dimensions of terrestrial ecosystems: (1) land cover, which is defined in terms of thematic classes; and (2) land cover dynamics, which characterizes the seasonal variation in global vegetation phenology. Recent activities have focused on:

- Evaluating the quality and accuracy of the MOD12Q1 product
- Developing methods to map wetlands and seasonal flooding patterns in large wetland complexes using MOD12Q2
- Developing methods to improve characterization of croplands from MOD12Q1
- Validation of the MOD12Q2 product using available datasets.
- Development of cost-effective data collection methods for calibration and validation of the MOD12Q2 product.
- Assessment of uncertainty and sources of error in the MOD12Q2 product.
- Preparation for collection 5 processing.
- Future planned activities include continued refinement and accuracy assessment of our algorithms, and transition to C5 processing based on 5-day 500-m native BRDF-adjusted data.

**Land Cover (MOD12Q1) - Accuracy Assessment**

We have also been exploring methods to use MODIS to map wetlands extent and seasonal flooding patterns. Below we present results from an analysis for the Florida Everglades where we were able to successfully map flooding patterns at 16-day intervals from MODIS data. We have also been exploring methods to use MODIS to map wetlands extent and seasonal flooding patterns. Below we present results from an analysis for the Florida Everglades where we were able to successfully map flooding patterns at 16-day intervals from MODIS data.

**Land Cover Dynamics - Accuracy Assessment**

Comparison between flowering time measured in the field and the onset of greenness increase retrieved from MODIS data (data from Plantwatch).

**Recent Publications**


**Ongoing Activities: MOD12Q1: Land Cover**

Croplands are inherently difficult to classify as a distinct land cover type. However, phenology may be a useful tool for identifying and accurately characterizing cropland training sites. We are currently employing both the MODIS Land Cover Dynamics product (MOD12Q1) and temporal trajectories of the MODIS EVI product (MOD09) to examine and update the five hundred cropland exemplars in the System for Terrestrial Ecosystem Parameterization (STEP) training database, which is a key element of the MOD12Q1 classification algorithm. In many cases, phenological characterization makes crop lands separable from surrounding natural vegetation. It is also promising method for discrimination between broad crop categories, such as cereal crops and broadleaf crops.

**Ongoing Activities: MOD12Q2: Land Cover Dynamics**

Selection of the vegetation index is a key factor that affects the quality of phenological metrics derived from MODIS. Our results show that the sensitivity of MOD12Q2 algorithm to the choice of vegetation index depends on the biome type. Specifically, we observed distinct differences in phenology inferred from EVI versus NDVI in densely vegetated areas caused by saturation of the NDVI. The biggest difference is in estimated senescence dates. NDVI for natural dense vegetation is unchanged while the greenness of vegetation decreases (refer to the bottom figure). In semi-arid areas were observed large differences arising from weak phenology.

**Top three plots show temporal changes in NBAR EVI, EVI, and NDVI in 2002. The bottom two plots show the phenological dates derived from three VIs. The data are achieved by averaging all pixels in a class in the h12v04.**