MOD12Q2 Land Cover Dynamics – Known Issues

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The purpose of this document is to provide guidance to users regarding known issues associated with the MODIS Global Land Cover Dynamics product (MOD12Q2), which provides information related to global vegetation phenology. This document is not meant to be exhaustive, but merely serves to identify currently known issues and problems associated with the product.

1. Vegetation phenology is not detected for pixels where persistent cloud cover precludes the generation of MODIS Nadir-BRDF-Adjusted Reflectances (NBAR) data (MCD43B) for more than two 8-day periods. We also use a threshold of 5 degrees (C) to identify periods when vegetation activity is not significant. Similarly, phenology values are not produced for pixels where seasonal variation in enhanced vegetation index (EVI) data produced from NBAR data is too subtle (e.g., some areas with evergreen vegetation), where no vegetation is present, and at high latitudes in the winter time.
2. The quality of detected phenology is likely to be lower at high latitudes because of large solar zenith angles, contamination of EVI data by snow, and cloud cover.
3. The quality of onset of greenness increase (SDS1) in some agricultural areas planted with crops with early emergence dates (e.g., winter wheat) may also be problematic because of contamination by snow.
4. Because vegetation phenology does not follow a uniform annual cycle everywhere on Earth, pixels can contain incomplete cycles in any 12-month period. That is, depending on the exact period considered, vegetation greenup onset is not necessarily accompanied by a complete cycle of maturity onset, senescence onset and dormancy onset, and vice versa. As a consequence, more than one 12-month time period of products is necessary to identify complete phenological cycles for all 1-km^2 pixel, globally.
5. The NBAR-EVI area (SDS7) provides the integration of daily EVI during the corresponding preceding growth cycle, and is only calculated for complete vegetation growth cycles. For all such pixels, the EVI area for incomplete cycles is provided in the subsequent time period when a complete growth cycle is available. In rare cases, a complete cycle may not be produced in any product period, in which case the user will need to compute the EVI area manually.
6. MODIS data in late June and early July 2001 were not acquired because of instrument problems. As a result, phenological metrics were not computed for a significant proportion of pixels and the accuracy of phenological retrievals that were made near to this period is significantly diminished.
7. The QA/QC SDS in Collection 5 was recently discovered to be corrupted due to a bug in source code. We are working to resolve this for Collection 6.