North American Collaboration on Ecosystem Carbon Sources and Storage

Goals

1. Develop tri-laterally agreed methods and products to monitor continental land cover change and model landscape-level ecosystem carbon changes to improve North America’s capacity to store carbon and reduce GHG emissions.
2. Model carbon dynamics in Mexican forest ecosystems for the assessment of long-term carbon dynamics in Mexico and North America.
4. Provide recommendations for a North American modeling and analysis approach to support REDD+ in Mexico.

Methodology and Proof of Concept

1. Land Cover and Land Cover Change Products
   - Continental Baseline map 2005 using MODIS imagery.
   - 5 year change product (2005-2010).
   - 19 land cover classes (level II).
   - Continental baseline map 2005 using MODIS imagery.

2. Application of the Canadian Forest Service Carbon Budget Model (CBM-CFS3) in Mexico
   - Research on application of CBM-CFS3 model for spatially-explicit (e.g. REDD+ projects) and spatially-referenced (regional to national scale) projects.
   - Estimations of past and possible future GHG emissions and removals from land use, land use change, and forestry in Mexico.
   - Evaluation of Model for Mexican Tier 3 reporting and early action REDD+ estimations of GHG emissions and removals over time.

Outcomes and Products

- Contribution to the reduction of GHG emissions associated with forest degradation and land cover change by generating and improving access to better information on land cover change and carbon accounting.
- Recommendations for a North American modeling and analysis approach to support REDD+ in Mexico.
- Proof of concept for a national-scale carbon accounting system for Mexico.
- Publicly available databases.
- Comprehensive set of forest growth curves for Mexico.
- Comparison and evaluation of land cover change products at different resolutions.
- Improved institutional capacity to monitor carbon stocks in Mexico.
- Training of scientists and students.

3. Modeling Forest Carbon Dynamics in Several Intensive Sites in Mexico
   - Development of forest growth and mortality estimates from field observations and modeling of forest dynamics.
   - Socio-economic estimates and maps of carbon stocks, fluxes and ground-based estimates of changes in carbon stocks in response to management, disturbances, and climate.
   - Evaluation of different process-based models, including INTEC, Brome-BGC, and Forest-GMD.

4. Impact of Different Disturbances and Activities on Carbon Pools
   - Analysis of how different disturbance and forest activity data impact different changes that shape the forest by altering their composition, structure and function.
   - Analysis of how these disturbances and activities impact carbon pools.

References

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