Forest Carbon Tracking

GEO Sub-Task CL-09-03b

Significant Outcomes for 2009 and 2010 and Space Agency Commitments

Dr Gary Richards
Australian Department of Climate Change

Why forests?

- Around 20% of global emissions are thought to arise from tropical deforestation
- Reduced deforestation and increased reforestation is one of the most rapid responses that can be made to reducing emissions
- There are very significant economic implications that parallel the climate implications
  - Our efforts on monitoring must focus on these as economic and policy issues and operational systems will be needed.

The policy context

- The Kyoto Protocol has limited treatment of forests
  - Only post-1990 afforestation, reforestation and deforestation for developed countries
  - Only reforestation projects for developing countries
  - Under Article 3.7 Australia includes national reductions in deforestation against 1990 baseline (i.e. reduction in emissions over Kyoto reporting period against a 1990 estimate)
    - This is similar to a national reduction in deforestation
- The post-2012 international negotiations are considering broader inclusion of 'land use, land use change and forestry'
  - The Copenhagen Conference of the Parties in Dec 2009 will be the key negotiation to advance land sector policy

Barriers to inclusion

- **Leakage:** the potential for a climate mitigation project in one area to displace activity to another area, rather than abate emissions.
- **Permanence:** the persistence of emissions reduction made in forest carbon projects.
- **Baselines:** time-series consistent monitoring from archival data can provide a baseline of historical trends. Spatially explicit baselines also allow for insights into sub-national trends.
- **Additionality:** where policy frameworks call for additionality, one or both of two key tests usually apply (1) activity will have effect beyond BAU projections (2) activity would not be otherwise economically viable
- Absence of comprehensive monitoring during Kyoto negotiations was a determining factor in the limited treatment of forests
- Policy solutions are available if supported by **appropriate information**

What is *Appropriate* information?

- We will not have certainty until a policy framework is settled – however some, but not all, monitoring approaches will cover foreseeable outcomes
- The framework could be:
  - National, allowing both sample and wall-to-wall approaches
  - Project-based-discrete land unit
  - 'Nested' project and national – requiring wall-to-wall
- Given the potential approaches (scale) and policy issues (leakage etc) wall-to-wall monitoring is needed to cover potential outcomes

Guidance

- The IPCC has been the foundation of guidance on emissions estimation – for both Approaches to land representation and Tiers of emissions calculation
  - The guidelines are policy neutral, and accounting rules and modalities are an overlay
  - The guidelines do not provide technical standards or accuracy assessment protocols, therefore bodies like GEO and CEOS will be important

What is needed?

- To deliver wall-to-wall monitoring there are 4 key outcomes that need to be 'secured' so that negotiations can proceed with an understanding of potential monitoring approaches

1. Data and processing

- Affordable, continuous, accessible supply of mid-resolution satellite data, both optical and radar, supported by processing to relevant forest cover information (areas of deforestation and degradation)
- Surety of information supply is the 1st step to showing the policy community both feasibility and commitment

2. Interoperability

- Debates about 'best' sensor or sensor types may be worthwhile scientific debates, but the operational questions are; what instruments are fit-for-purpose, and how can they be made interoperable
- The need to determine past trends will rely on optical instruments while, particularly for many cloud covered countries, radar may be a preferred current option – interoperability is needed to meet the dual goals

3. Linking remote sensing to emissions estimation

- There are three ways to link remote sensing and emissions estimations:
  - traditional forest inventories
  - ecosystem models
  - direct satellite measures (this is more of a research challenge than a current operational potential)
- Methods and protocols for this linking should be 'standardised' to the extent that users can presume robustness in technical applications

4. Validation procedures

- Protocols and practices for validation need to be developed so that users can presume consistency and accuracy in standards derived
  - The way these accuracies are dealt with in accounting policy is a matter for the user community
  - The technical community should provide information that is consistent and can robustly support the accounting policy rules that will be negotiated

The CEOS resolution

- GEO and CEOS support is critical to achieving each of the 4 goals outlined
- These are significant global policy issues and by delivering these four objectives, GEO and CEOS can jointly provide the global leadership to ensure that the policy community has enough flexibility and confidence in monitoring capabilities to move forward with effective global policy frameworks
- Timing is imperative, and success in this work must be presumed in advance of Copenhagen