



## Special Seminar

Please join us:

- DATE:** Friday, June 11 2010  
**TIME:** 9:30 am  
**PLACE:** Hickman 116, University of Victoria  
**SPEAKER:** Alvaro Montenegro  
**TITLE:** Climate effects of afforestation from observations and global simulations.

### ABSTRACT

---

Climate effects of afforestation from observations and global simulations.

*Alvaro Montenegro, Assistant Professor, Department of Earth Sciences,  
St. Francis Xavier University, Antigonish, NS*

Climate models indicate that warming due to increase in shortwave absorption from the lowering of albedo caused by afforestation reduces and can even overcome, particularly at high latitudes, the cooling caused by the carbon drawdown. High resolution ( $0.05^\circ \times 0.05^\circ$  to  $1^\circ \times 1^\circ$ ) global satellite observations are used to investigate the effects of afforestation. Results are markedly different from previous model based studies. Between  $40^\circ$  S and  $60^\circ$  N afforestation always results in cooling. Many of the areas with the highest net carbon drawdown (drawdown after albedo effects) are at high latitudes. There is large zonal variability in drawdown and latitude is not a good indicator of afforestation efficiency. The overall efficiency of afforestation, defined as the net carbon drawdown divided by the total drawdown, is about 50%. 21st century earth system model simulations that only promote afforestation over areas presently occupied by crops and where trees would grow naturally show no warming due to afforestation at high latitudes but that afforestation in the tropics is more efficient. By only considering the total drawdown and not considering albedo effects, the Kyoto Protocol carbon accounting rules grossly overestimate the cooling caused by afforestation drawdown.

Coffee and cookies will be available during the seminar.

If you wish to contact us, please email [climate@uvic.ca](mailto:climate@uvic.ca).