Geophysical Research Abstracts,
Vol. 10, EGU2008-A-05700, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-05700
EGU General Assembly 2008

Integrative assessment of disturbance and land-use change on total greenhouse gas balance and nutrient cycling in savanna ecosystems

S. Grover (1), L. Hutley (1), S. Arndt(2), S. Livesley (2), G. Cook (3), J. Beringer (4), K. Butterbach-Bahl (5)

(1) School of Environmental and Life Sciences, Charles Darwin University, NT 0909, Australia, (2) School of Forestry and Ecosystem Sciences, The University of Melbourne, VIC 3010, Australia, (3) CSIRO Sustainable Ecosystems, Darwin NT 0828, Australia, (4) School of Geography and Environmental Science, Monash University, VIC, 3800, Australia, (5) Institute of Meteorology and Climate Research, Department for Atmospheric Environmental Research, Forschungszentrum Karlsruhe GmbH, Kreuzeckbahnstr. 19, D-82467 Garmisch-Partenkirchen, Germany

(samantha.grover@cdu.edu.au / Fax: 618 8946 6847 / Phone: 618 8946 6796)

This project provides a comprehensive assessment of greenhouse gas emissions from tropical savannas of north Australia. Soil derived emissions of nitrous oxide and methane plus carbon sequestration will be assessed at savanna sites of contrasting land use (cleared vs uncleared, burnt vs unburnt). Emissions from soil termites will also be examined, a potentially significant but unquantified flux. Emission estimates plus data describing emissions from savanna burning will be integrated into the AGO's National Carbon Accounting System to improve model precision and calibration and provide a management tool for land managers to track emissions from tropical savannas, a biome occupying 25% of the Australian continent.

Climate change and variability is expected to have an impact on the NT environment and economy. This project will enable NT specific calibrations of climate variability-land use models, such as the National Carbon Accounting System. The NT Government will have access to a high quality database and calibrated models relating to

greenhouse gas emissions as a function of land use change. The project will improve estimates and management of GHG and provide a basis for the NT to potentially exploit future carbon-trading initiatives or GHG abatement schemes as fundamental data describing emissions as a function of land use will be available. This is of national significance given the size of the savanna biome in Australia.