

Vanuatu Carbon Credits Project

Reducing Emissions From Deforestation

Helps to build capacity in Vanuatu to utilise carbon markets to help fund REDD and associated sustainable development activities

Informs international policy development on reducing emissions from deforestation in developing countries

Team Lead



Sean Weaver
Environmental Studies
School of Geography, Environment, and Earth
Sciences
Victoria University of Wellington

Project partners

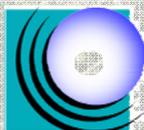


CLIMATEFOCUS

Robert O'Sullivan
ClimateFocus, Rotterdam, Netherlands.
<http://www.climatefocus.com/start.htm>

GOFC-GOLD

Martin Herold
ESA GOFC GOLD, Department of Geography,
Friedrich-Schiller-University Jena, Germany.
<http://www.gofc-gold.uni-jena.de/>



Murray Ward
GtripleC Global Climate Change Consultancy,
Wellington. <http://www.GtripleC.co.nz/>



Brian Phillips
Vanuatu, National Advisory Committee on Climate
Change, Vanuatu Government.

Ioan Viji
Department of Forests, Vanuatu Government.

Acknowledgement



Foreign and Commonwealth Office
Global Opportunities Fund

This project has been funded by the Global Opportunities Fund of the UK Government's Foreign and Commonwealth Office, and Victoria University of Wellington.

Forest cover mapping

Background

International negotiations are currently underway (2006 and 2007) within the UNFCCC to build incentives for developing countries to reduce or avoid emissions from deforestation and forest degradation (REDD). In that context, the project was designed to build capacity in Vanuatu to utilize carbon markets to help fund REDD and associated sustainable development activities. The project approaches one essential requirement: the development of a historical deforestation database using satellite observations.

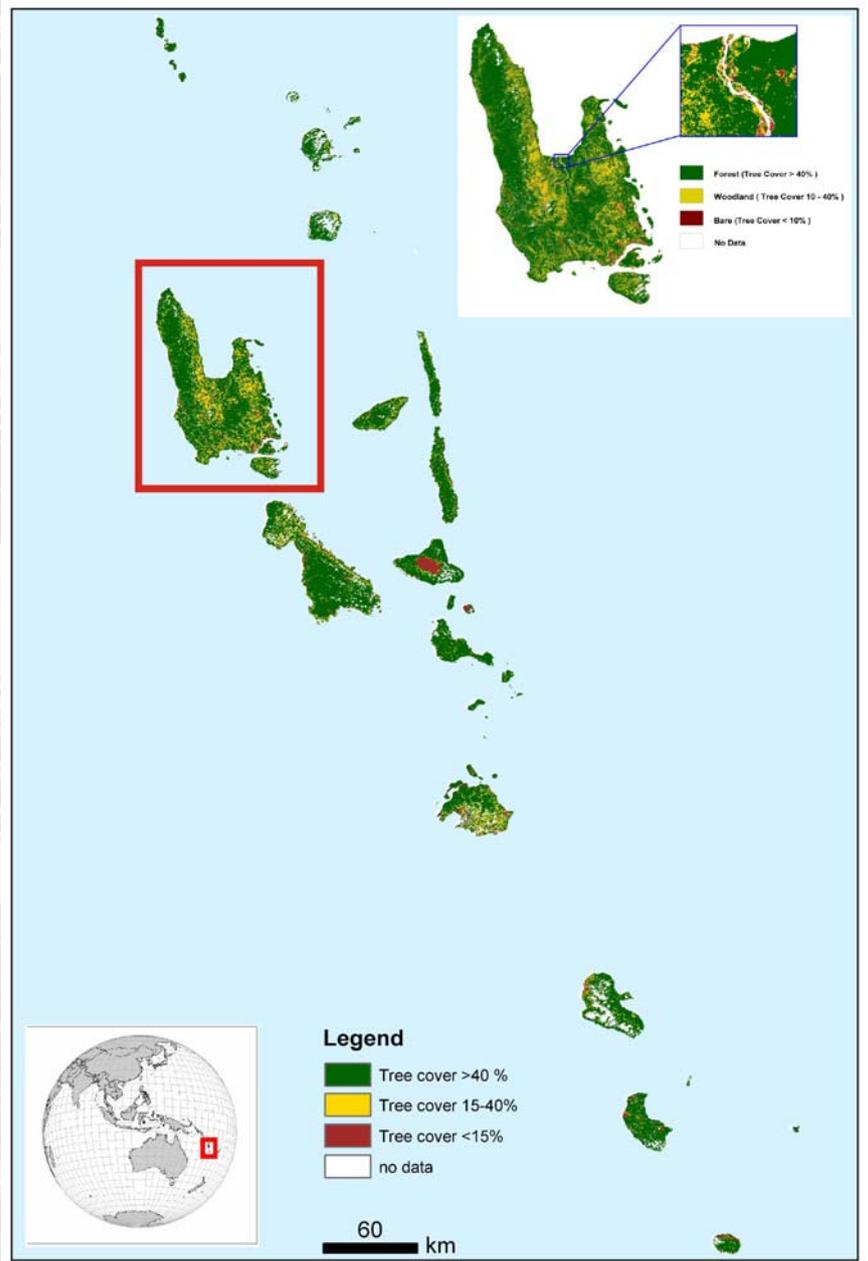
Republic of Vanuatu

- Island nation located in the South Pacific Ocean.
- North-south oriented chain of 13 principal islands and 67 smaller islands, total area size of 12 190 km², volcanic origin.
- Capital: Port-Vila located on the island of Efate
- Population: 209 000 inhabitants.
- Economy: mainly agriculture, cattle raising and fishing and an increasing tourism sector.
- Vanuatu has comparatively low rates of historical deforestation.



SPOT

Forest cover map derived from Landsat and ASTER imagery of the year 2000



Achievements of the 1990-2000 remote sensing assessment

- Processing and analysis of 61 individual satellite images with the cost for satellite being only a small fraction (<10 %) of the overall project budget.
- Development of the Vanuatu historical deforestation database version 1 from a wall-to-wall forest cover and forest change assessment including all islands of Vanuatu with the results being complimentary to the existing Vanuatu Resource Information System (VANRIS).
- Derivation of a spatially explicit forest cover map accompanied by targeted field visits.
- Monitoring of forest cover change for 1990 and 2000 to quantify the rates of deforestation, and spatial identification of deforestation hot spots and major processes causing loss of forest.



Landsat satellite

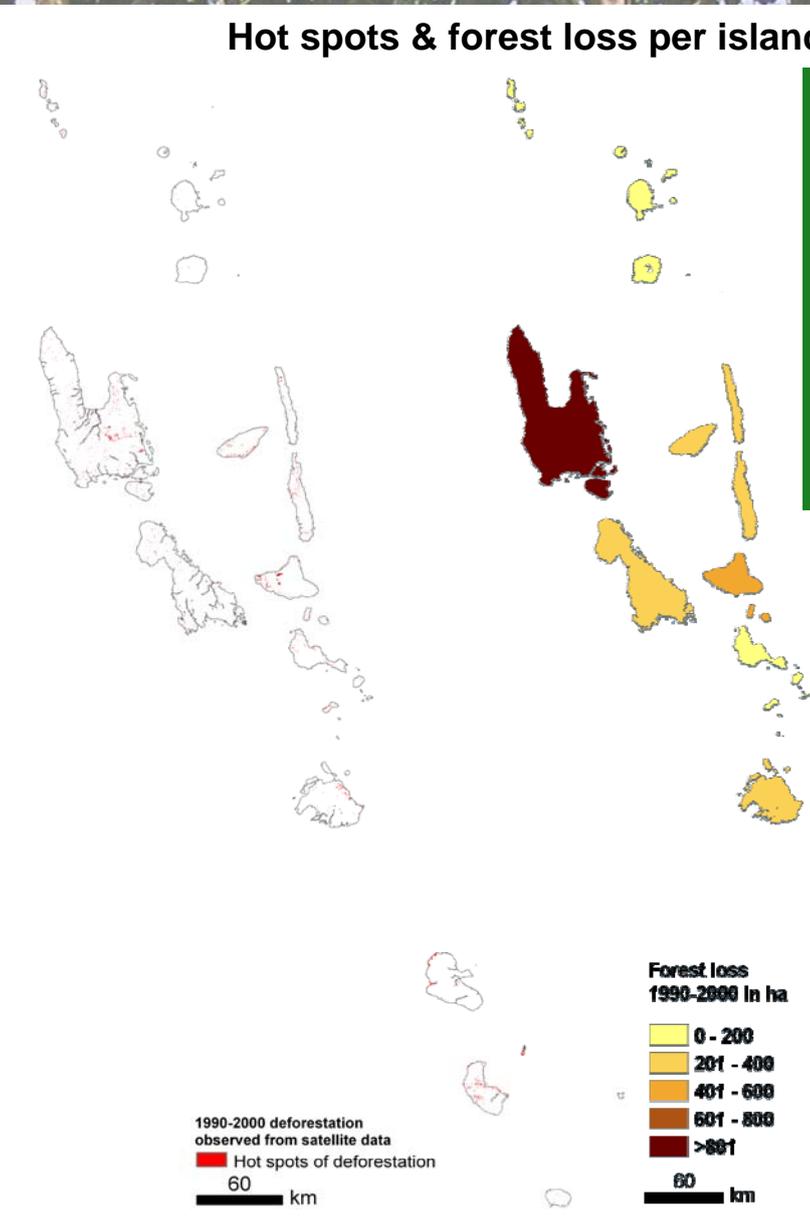


ASTER on Terra

Deforestation assessment

Hot spots & forest loss per island

The results show a gross deforestation area of more than 4600 ha. In an international context, such a rate of forest loss is comparatively low but there are distinctly different patterns for the different parts of Vanuatu. The different processes relate to industrial logging, changes in plantations and agricultural pattern, and subsistence timber extraction. Developments of policies and carbon crediting options have to consider these different processes at work. For the same period 1990-2000 FAO (2005) reports a net increase of 1.000 ha per year forest cover.



Deforestation



Coconut plantations

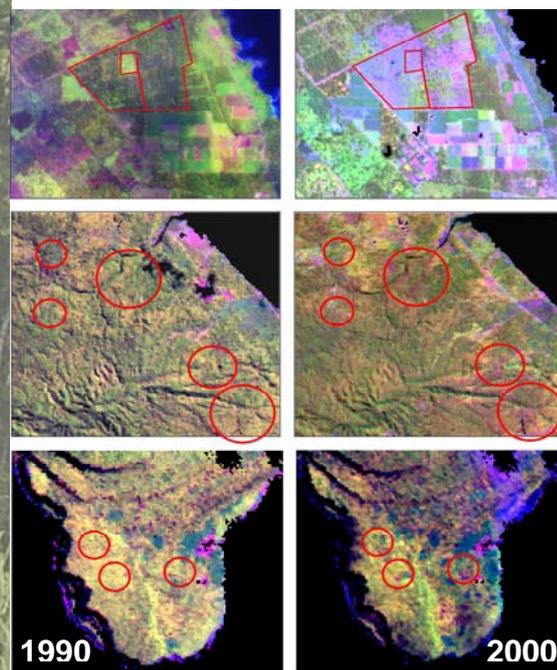


Invasive species

Statistics of forest loss derived from satellite data analysis 1990-2000

Island (group)	Area [ha]	Loss of forest 1990-2000 [ha]	Loss of forest [ha/a]
Torres Islands	11.520	45,8	4,6
Isles Banks	75.359	56,8	5,7
Santo	423.897	1114,4	111,4
Maewo	30.390	217,0	21,7
Aoba	40.566	210,4	21,0
Pentecost	49.490	249,0	24,9
Malakula	206.756	293,4	29,3
Ambrym	73.246	447,4	44,7
Epi	53.324	190,3	19,0
Efate	97.004	302,5	30,3
Erromango	88.874	666,0	66,6
Tanna	56.668	811,6	81,2
Anatom	17.210	73,0	7,3
Total	1.224.304	4677,6	467,8

Deforestation types in Vanuatu shown in the satellite imagery



Outreach & outlook

Project outreach

The project is endorsed in ongoing UNFCCC activities. Project findings were and will be presented at the following events:

- Coalition for Rainforest Nation workshop on REDD, Santa Cruz, January 2007.
- UNFCCC REDD workshop in Cairns, March 2007
- 2nd GOF-C-GOLD Workshop on Reducing Emissions from Deforestation, St. Cruz, Bolivia, April 2007
- Nature Conservancy's Global Climate Change Initiative Technical Advisory Panel, Washington DC, April 2007.
- Vanuatu side event at UNFCCC SBSTA 26th session, Bonn May 2007
- SBSTA 27th session & COP-13 (UNFCCC 13th Conference of Parties), Indonesia December 2007.

Media Coverage:

- Keeping it Green - Dominion Post (NZ) 7 March 2007
- Vanuatu Represented at UNFCCC - Vanuatu Daily Post, 13 March 2007



Next steps

The development of version 1 of the Vanuatu deforestation database provides the first and essential step to further evolve the basis for Vanuatu's participation in any REDD carbon crediting system. There are a number of next steps to have to be pursued to further progress in this arena:

- Extend remote sensing survey 2006 to develop the Vanuatu historical deforestation database version 2. Such a step can be accomplished in rather short time and limited funding with the resources and experiences developed as part of this project.
- A detailed study of identified deforestation hot spots help to further understand the processes and future threats for the loss of forest.
- A thorough carbon emissions assessment will have to integrate previous forest inventory information, remote sensing-based estimates, and additional field work to quantify the carbon emissions from deforestation. The IPCC technical guidelines provide the methodological framework.
- With the database evolving (version 3 and 4), different options for policies and sustainable development implementation will have to be defined and explored. Perhaps, this database together with existing VANRIS system will allow for a number of joint benefits relating to international reporting obligations (FAO-FRA, UNCBD) and helps to build a thorough environmental accounting system that can be maintained by a country like Vanuatu.

The technical approach used and proven in this Vanuatu case study could be directly transferred to other national circumstances in the south pacific region and beyond. Since major deforestation problems tend to be of international origin and involve regional impacts, the project will certainly aim to extend beyond the boundaries of Vanuatu.

Contact

Dr. Sean Weaver
Victoria University, Wellington, New Zealand
Tel: + 64 - 4 - 463 5392
Fax: + 64 - 4 - 463 5186
E-mail: sean.weaver@vuw.ac.nz

Dr. Martin Herold
GOF-C-GOLD Land Cover Project Office, Jena, Germany
Tel: + 49 (0) 3641 94 88 87
Fax: + 49 (0) 3641 94 88 82
E-mail: m.h@uni-jena.de