REDD and Fire
The GOFC Sourcebook

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Summary

What is REDD?

GOFC Sourcebook

- What is the purpose?
- Fire Section
  - Emission estimation
  - REDD and fire management

More general issues – Fire and REDD

- What can we do with current products?
- What role for GOFC? Capacity building?

What is REDD?

- REDD=Reducing Greenhouse Gas Emissions from Deforestation and Degradation in Developing Countries
- Not enough? Ask Danilo!

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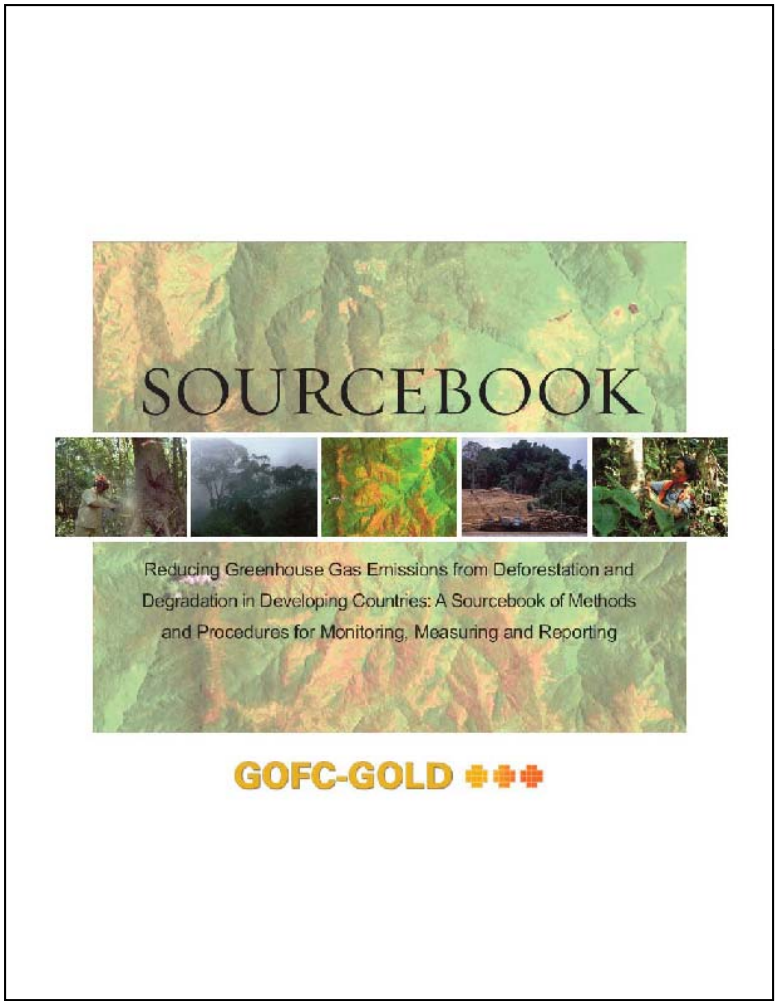

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- Based on:
  - the current level of negotiation,
  - the UNFCC approved methodologies
- What is it?
  - additional explanation to support REDD actions
  - target user: national monitoring systems
  - Strong emphasis on the use of satellite data
- Available online:
  - http://www.gofc-gold.uni-jena.de/redd/

GOFC Sourcebook

- Living document, periodically updated (now COP15 version)
- Format: Step-by-step approach. For each activity:
  - What data are needed
  - How to get an process the data
  - How to perform the calculations

Fire chapter

2.5 METHODS FOR ESTIMATING GHG'S EMISSIONS FROM BIOMASS BURNING

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2.5.1 Scope of chapter

Chapter 2.5 is focused on fires in forest environments and how to calculate greenhouse gas emissions due to vegetation fires, using available satellite-based fire monitoring products, biomass estimates and coefficients.

Section 2.5.2 introduces emissions due to fire in forest environments and approaches to estimates emissions from fires.

Section 2.5.3 focuses on the IPCC guidelines for estimating fire-related emission.

Section 2.5.4 focuses on Systems for observing and mapping fire.

Section 2.5.5 describes the potential use of existing fire and burned area products.

2.5.2 Introduction

2.5.2.1 REDD and emissions due to fire in forest environments

Fire is a complex biophysical process with multiple direct and indirect effects on the atmosphere, the biosphere and the hydrosphere. Moreover, it is now widely recognized

Fire chapter

- Started strictly as "methods for estimating GHG emissions from biomass burning"
- For IPCC,

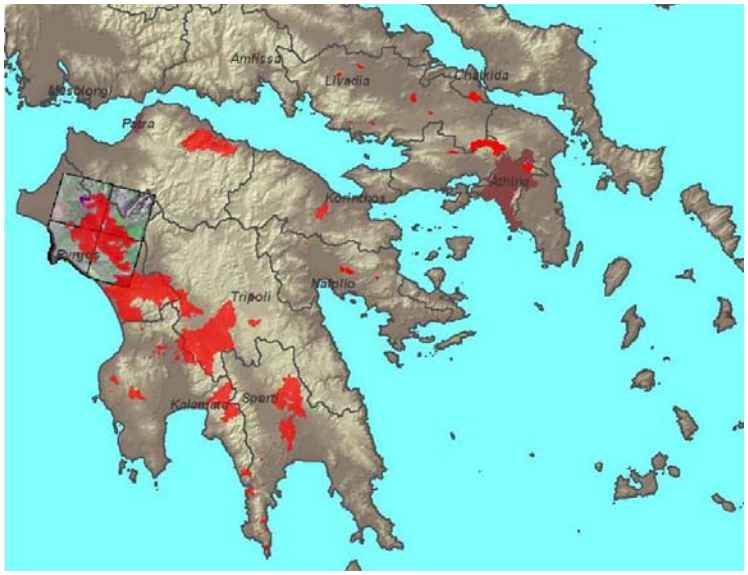
$$Lfire = A \times Mb \times Cf \times Gef \times 10^{-3}$$

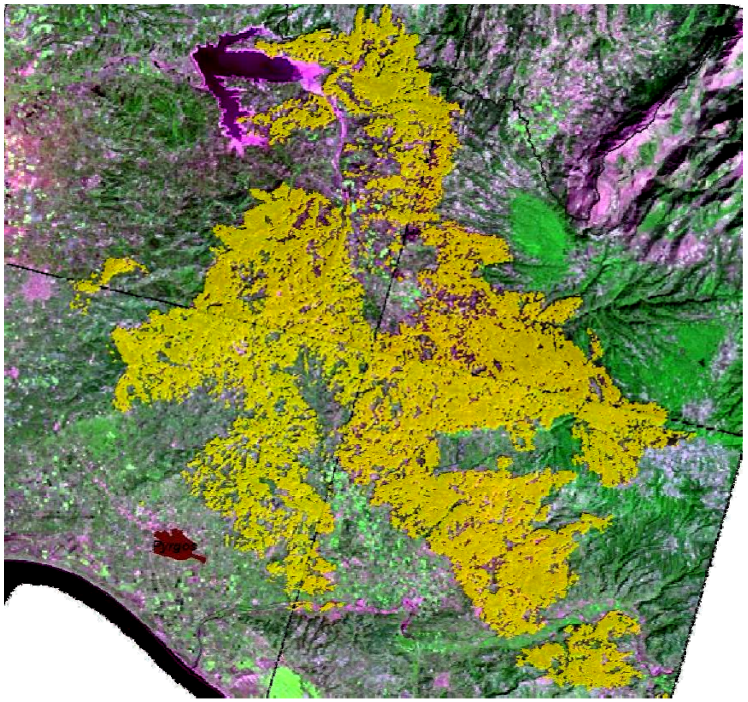
- Always the same problem - do we have those data from satellite?

Fire chapter

- Even worse, do we have those data with the accuracy needed? e.g., mapping forest loss at 1ha
  - Plenty of systematic fire products, none at the moment with sufficient spatial resolution (not to mention the validation)
  - Some high resolution mapping systems (e.g. ESA supported Landsat scale mapping in Mediterranean, EFFIS, MTBS) but not systematic, and not in many countries that would need it

Will this ever become operational?



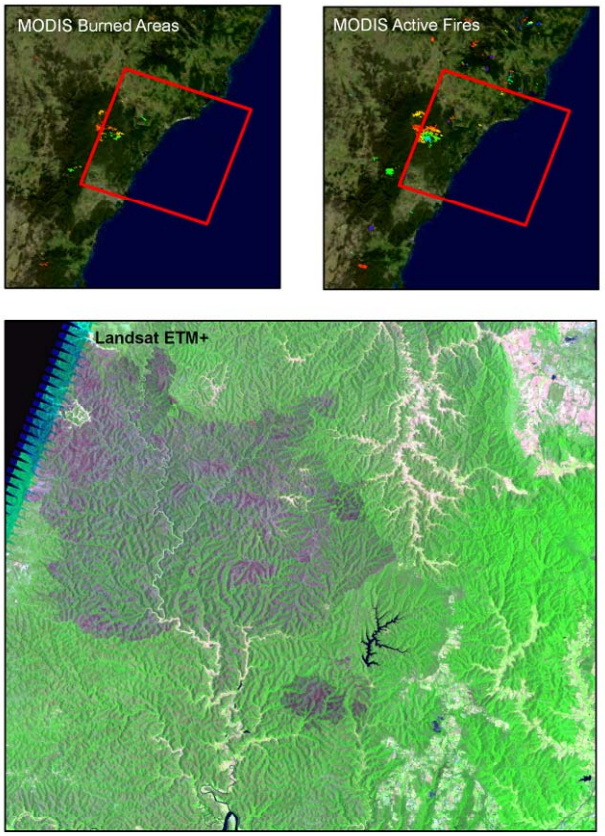


Olympia site, mapped from Formosat-2

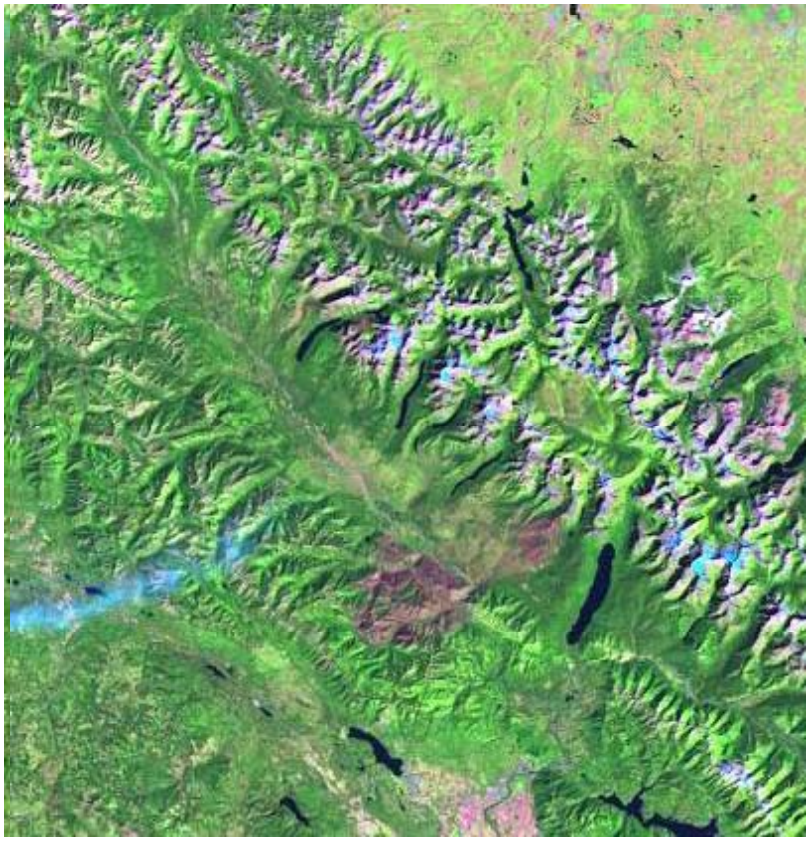
- ESA Risk –EOS high resolution maps for 2007 Greece fires

Potential use for fire products

- Identification of areas where forest fires occurred, to guide acquisition of high resolution imagery
- The mapping is refined on the high resolution imagery



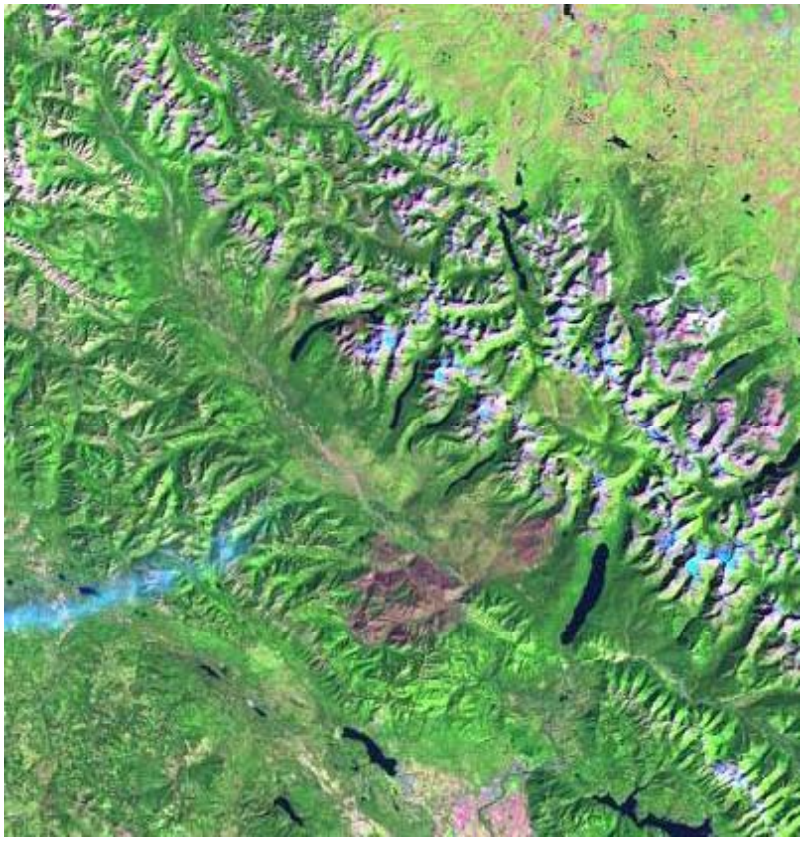
Satellite data for post-fire characterization



2001

Conversion from forest to other use after fire?

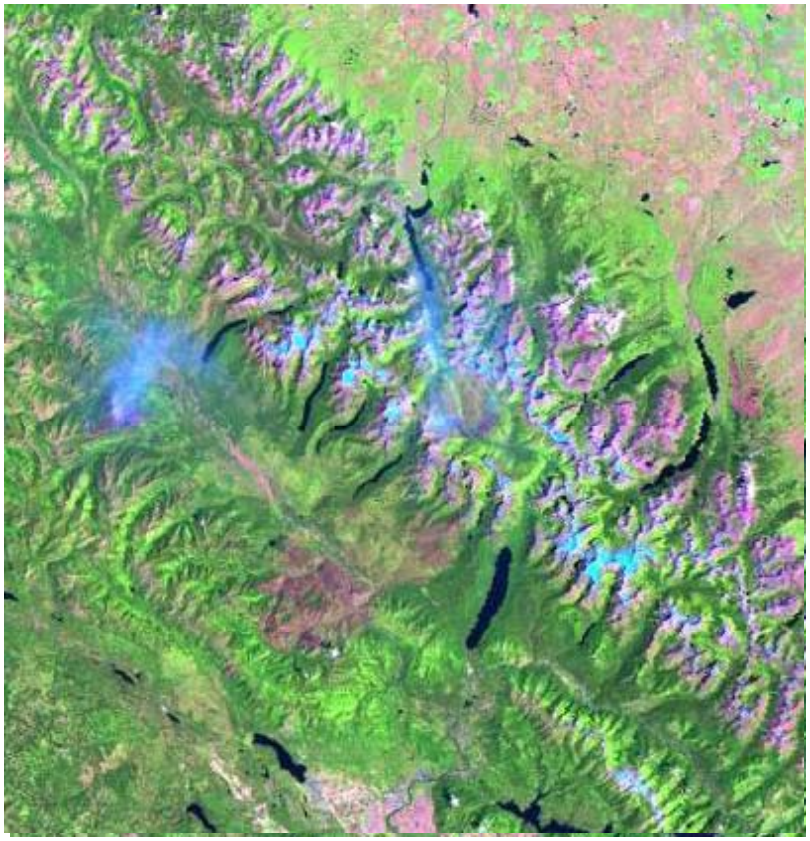
Satellite data for post-fire characterization



2002

Conversion from forest to other use after fire?
1 year later: no

Satellite data for post-fire characterization

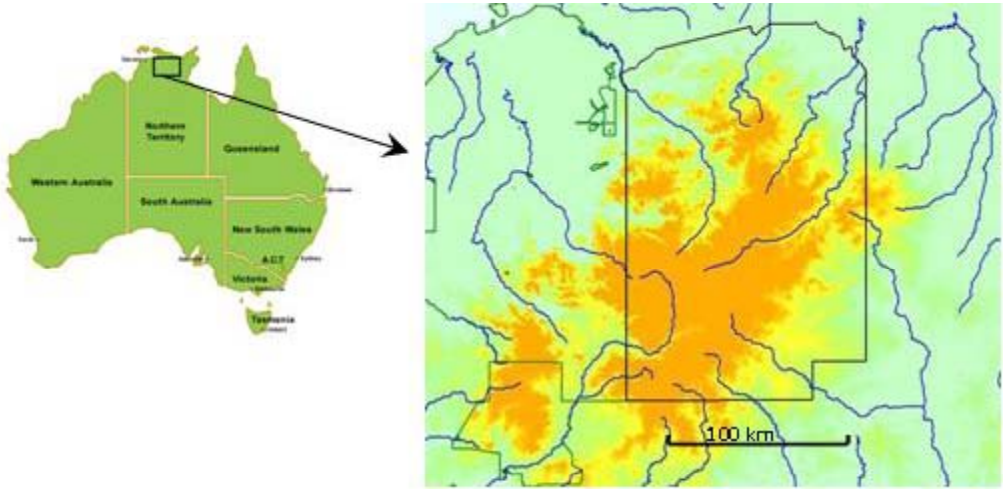


2003

Conversion from forest to other use after fire?
1 year later: no
2 years later: no

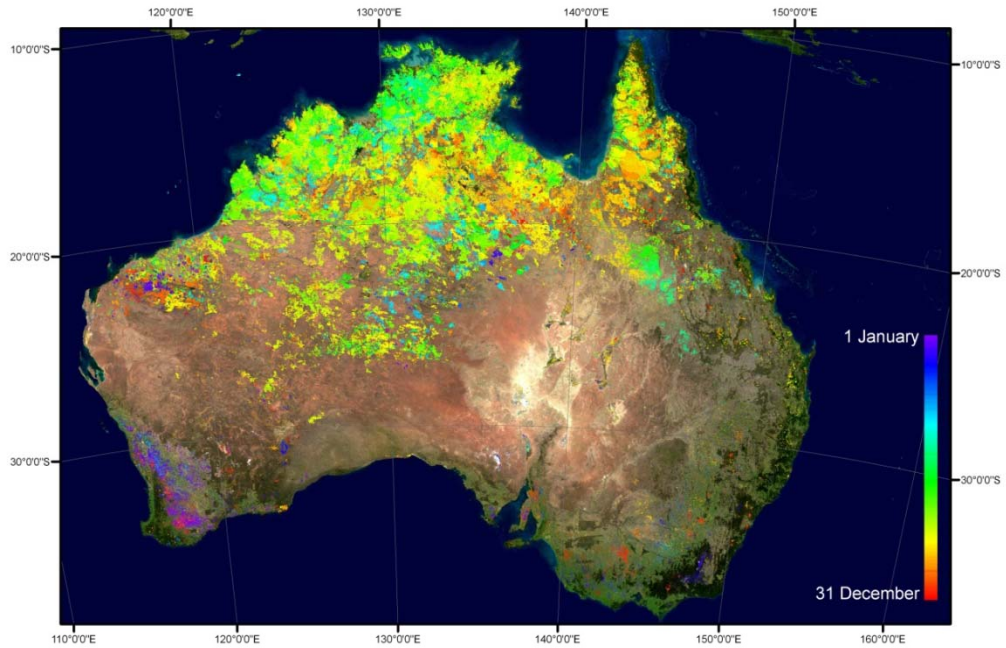
Alternative view: fire management

- What is forest? Tree cover between 10% and 30% can be considered.
- Change in total annual emissions by managing fire and changing the seasonality (early versus late fires)
- Example: WALFA in Northern Australia



Alternative view: fire management

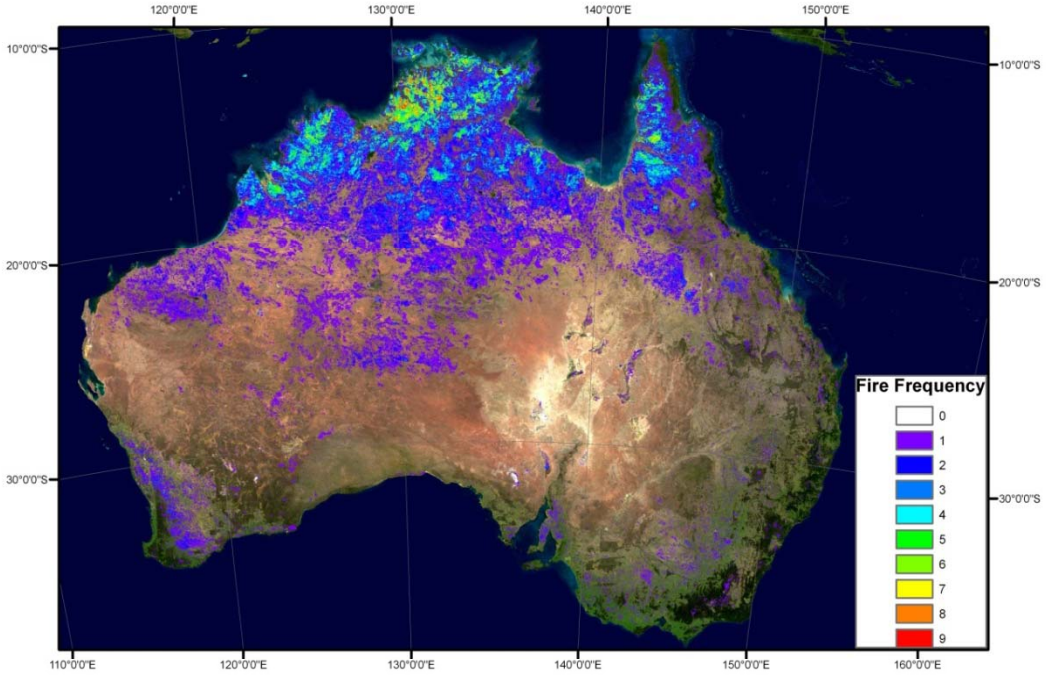
- Useful information can be provided from moderate resolution data.



Median day of burning from 8 years of MODIS burned area data

Alternative view: fire management

- Useful information can be provided from moderate resolution data.



Fire frequency from 8 years of MODIS data

Existing products – what can be done

- Recognise that we have different user communities, scientists are only one.

- Data must be:
  - Easy to access
  - Easy to understand (documentation)
  - Easy to handle in commercial software
  - User support

More for the discussion

- Products: can we produce what is needed for REDD?

- Capacity building and GOFC
  - Strong tradition (regional networks)
  - Missing link: GOFC local partners are not always involved in REDD initiatives in their own countries
  - Data portal – is it the role of GOFC?
  - Working group on data format for users?