



# After Paris. Burden-sharing and the role of forestry in climate change mitigation

## Some considerations at global level

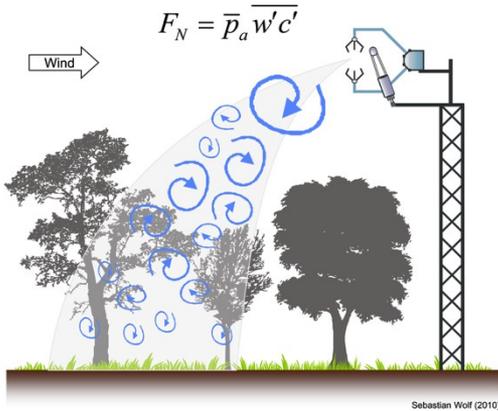
Jean-Marc Guehl

INRA Nancy



# The revolution of the « eddy correlation » measurements of ecosystem-atmosphere exchange (early 90s)

## Méthodology of 'eddy correlations'



Fluxes of heat, water vapour, vapeur d'eau, CO<sub>2</sub>, methane...

Guyaf flux tower , Paracou Guyane  
UMR ECOFOG Kourou

Net CO<sub>2</sub> fluxes between ecosystem and atmosphère (NEE)

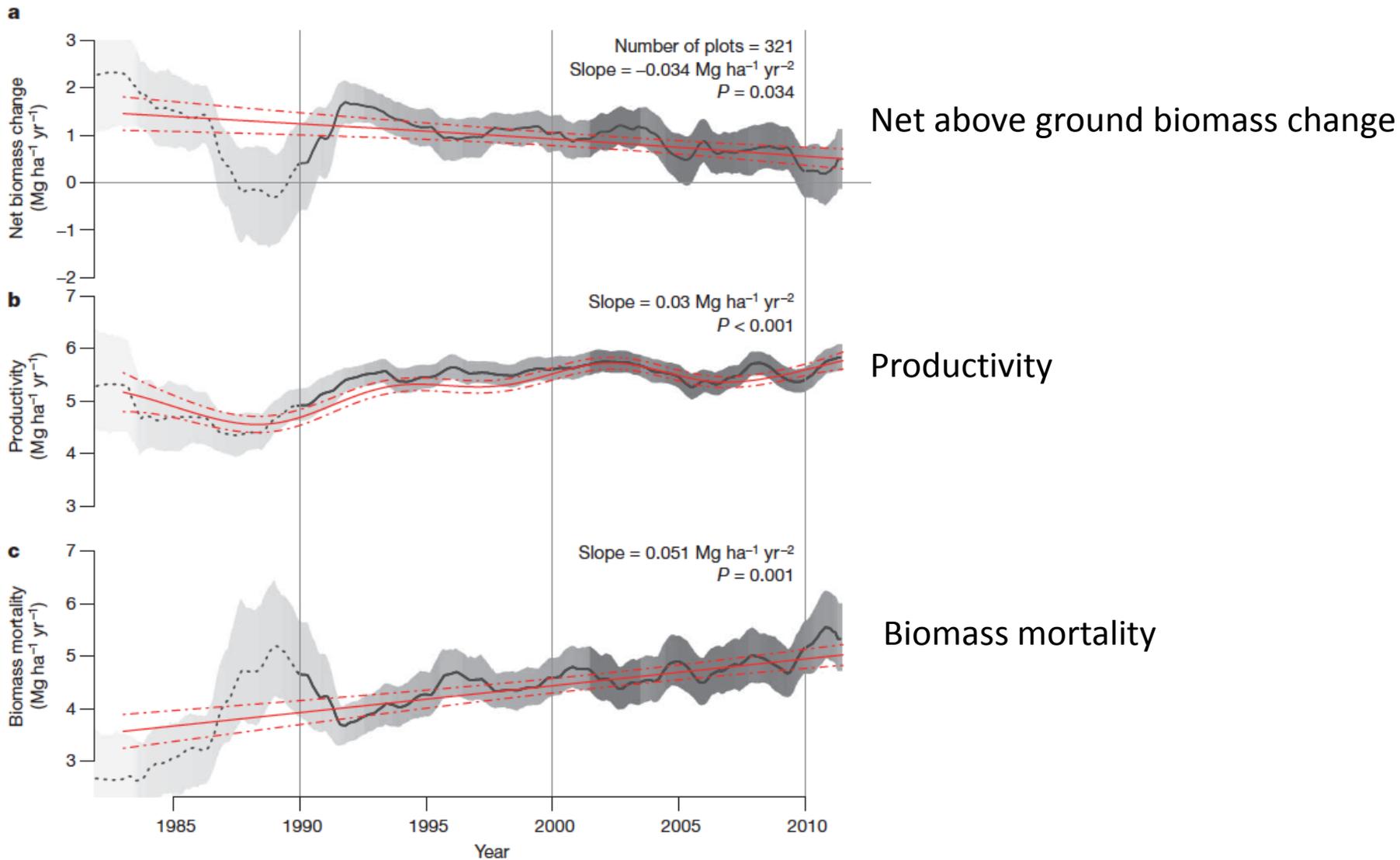
$$NEE = GPP - R_{\text{écosystème}}$$

Gross photosynthesis (GPP) ↓ ↑ Ecosystem Respiration (R<sub>eco</sub>)

GPP = 38.7 tC /ha/an  
Réco = 36.0 tC /ha/an  
NEE = 2.7 tC /ha/an  
Mean values over 10 years



## Long-term decline of the Amazon carbon sink RJW Brienen et al.



# An assessment of the global carbon balance of forests (Gt C an<sup>-1</sup>) for 1990-2007

Forest inventories, empirical or 'process-based' modelling, remote sensing

## Sources and sinks of carbon of forest biomes Gt C year<sup>-1</sup>

1990-2007

Sinks = positive values  
Sources = negatives values

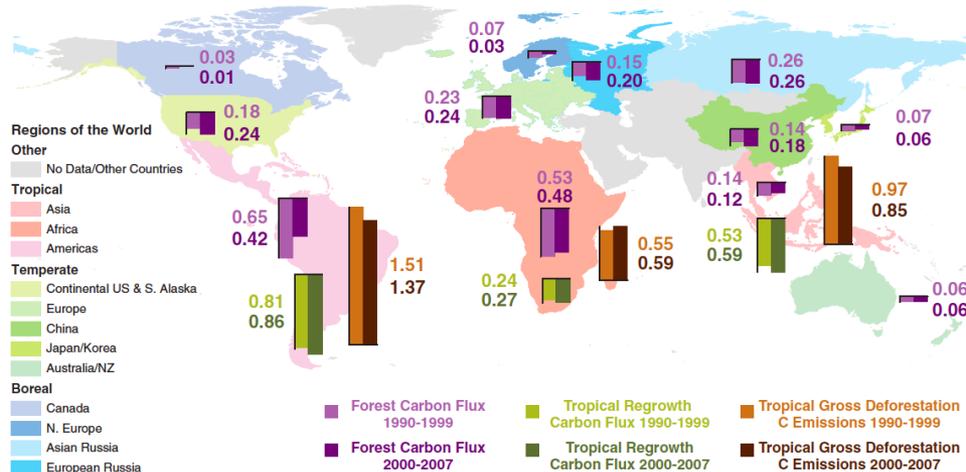
Boreal forests	0.50 ± 0.08
Temperate forests	0.72 ± 0.08
Non disturbed tropical forests	1.19 ± 0.41
<b>Total C sink of established forests</b>	<b>2.41 ± 0.42</b>
Gross emissions by tropical deforestation	-2.94 ± 0.47
Regrowth of tropical forests following disturbance	1.64 ± 0.52
<b>Net emissions of disturbed tropical forests</b>	<b>-1.30 ± 0.70</b>
<b>Global net carbon sink of forests</b>	<b>1.11 ± 0.82</b>

**Equivalent to the continental C sink (IPCC)**

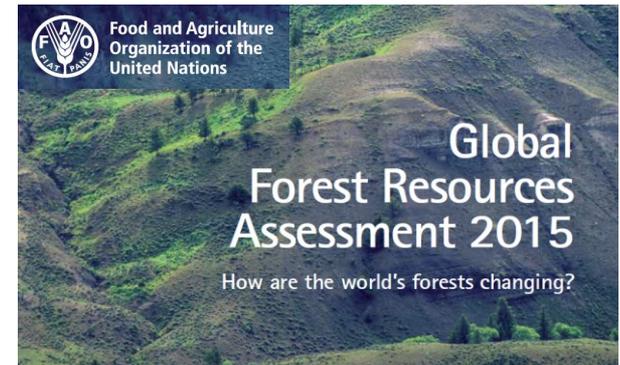
**Ca. 4 Gt CO<sub>2</sub> year<sup>-1</sup> for 4 billion ha forests.**

**(1 t CO<sub>2</sub> ha<sup>-1</sup> year<sup>-1</sup>)**

**ie. 14% of fossile CO<sub>2</sub> emissions.**



See also



**Pan Y et al. 2011. A large and persistent carbon sink in the world's forests. Science 333, 988-993.**

# Some outlines of the French viewpoint (1)

- ✧ France is historically very present in forestry. Both through its cooperation, but also as an important partner in the development and **support for the REDD+ mechanism**. As chair of the Cop21, **the country was careful to ensure that forests play an important role in the fight against climate change**.
- ✧ France supported the political visibility of forests in the international agenda 2015 and the momentum created since the New York Declaration on Forests, launched at the Climate Summit in September 2014, to put forward forests and their importance in the fight against climate change.
- ✧ France is aware of **the rise of "zero deforestation" initiatives** and is willing to support them. France is available to **initiate a European reflection on a possible EU plan on reducing deforestation** and on the relevant actions at national level.

## Some outlines of the French viewpoint (2)

- ✧ In 2016 it is crucial to continue cooperation and synergies between the different countries and players involved in the implementation of concrete solutions
  - Strengthen and expand the initiatives launched in Paris and multiply the number of large coalitions pledging to work together for the climate;
  - Integrate in global cooperation to tackle climate change, the increasing and essential contribution of non-state actors.

*The input by colleagues of the Ministries in charge of Environment and energy and in charge of forests is acknowledged!*

*Sylvie ALEXANDRE and Jean-Paul TORRE, Catherine Rivoal.*