1. Context

Tropical forests contain 50% of carbon stocks (Pan et al. 2011). Deforestation and degradation of these forests contribute to 12% of annual global emissions (van der Werf et al. 2009).

The implementation of REDD+ (Reducing Emissions from Deforestation and forest Degradation) depends on the estimation of the biomass and carbon stocks contained in tropical forests.

The aim of this study is to present the current state of knowledge on the estimation of biomass and carbon stocks contained in tropical African forests and to identify priorities for future research.

2. Methods to estimate biomass and carbon stocks

- **Tree level**
  - Allometric equation
  - Pantropical
  - Local (5 studies)
  - Without African data
  - Including African data
  - 2 in Rainforests
  - 3 in Miombo woodlands

- **Stand level**
  - Spatial variation of biomass
    - 305 Mg ha⁻¹ West Africa
    - 287 ± 105 Mg ha⁻¹ Central Africa
    - 419 ± 91 Mg ha⁻¹ East Africa
    - 274 Mg ha⁻¹
  - Temporal variation of biomass
    - 0.12 Mg C ha⁻¹ yr⁻¹
    - 1.1 Mg ha⁻¹ yr⁻¹
    - 3 Mg ha⁻¹ yr⁻¹

3. Biomass and carbon stocks in tropical African forests

- **Regional level**
  - Baccini et al. (2012)
  - Strong biomass in DRC
  - Strong biomass in GABON

4. Conclusion and perspectives

- **UNCERTAINTIES** on biomass and carbon stocks in tropical African forests
  - Lack of both forest inventory data over large spatial scale and appropriate allometric models

- **NEED FOR REFERENCE SITES** (both allometry and forest inventory) to provide accurate biomass estimates for an effective implementation of the REDD+

Acknowledgments: The authors would like to thank the state of Congo Republic through OGES, Nature+, and IFS for their financial support to the doctoral work of M. Loubota Panzou.