



Universidade Federal
de Campina Grande

COMISSÃO DO MEIO AMBIENTE SENADO FEDERAL



AS RIQUEZAS DA CAATINGA: SERVIÇOS AMBIENTAIS ESSÊNCIAS

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24 de abril de 2023 | Campina Grande, PB, Brasil

REDE DE PARCEIROS NAS ÁREAS EXPERIMENTAIS

**BACIA EXPERIMENTAL
SUMÉ, PB
PERÍODO 1981 - 1986**



**BACIA EXPERIMENTAL
SÃO JOÃO DO CARIRI, PB
PERÍODO 1987 - ATUAL**



**OBSERVATÓRIO DA CAATINGA – OCA
CAMPINA GRANDE, PB
ÁREA EXPERIMENTAL DO INSA
PERÍODO 2019 - ATUAL**



Aldrin Pérez

Ricardo Lima

Instituto Nacional do Semiárido

José Etham Barbosa

Joseline Molozzi

Universidade Estadual da Paraíba - UEPB

Carlos Galvão

Iana Rufino

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Bernardo Barbosa da Silva

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Francisco Brasileiro

Thiago Pereira

Centro de Engenharia Elétrica e Informática - UFCG

Davi Melo

Valéria Borges

Universidade Federal de Paraíba

Magna Moura

EMBRAPA

Desirée Ramos

Universidade Estadual Paulista

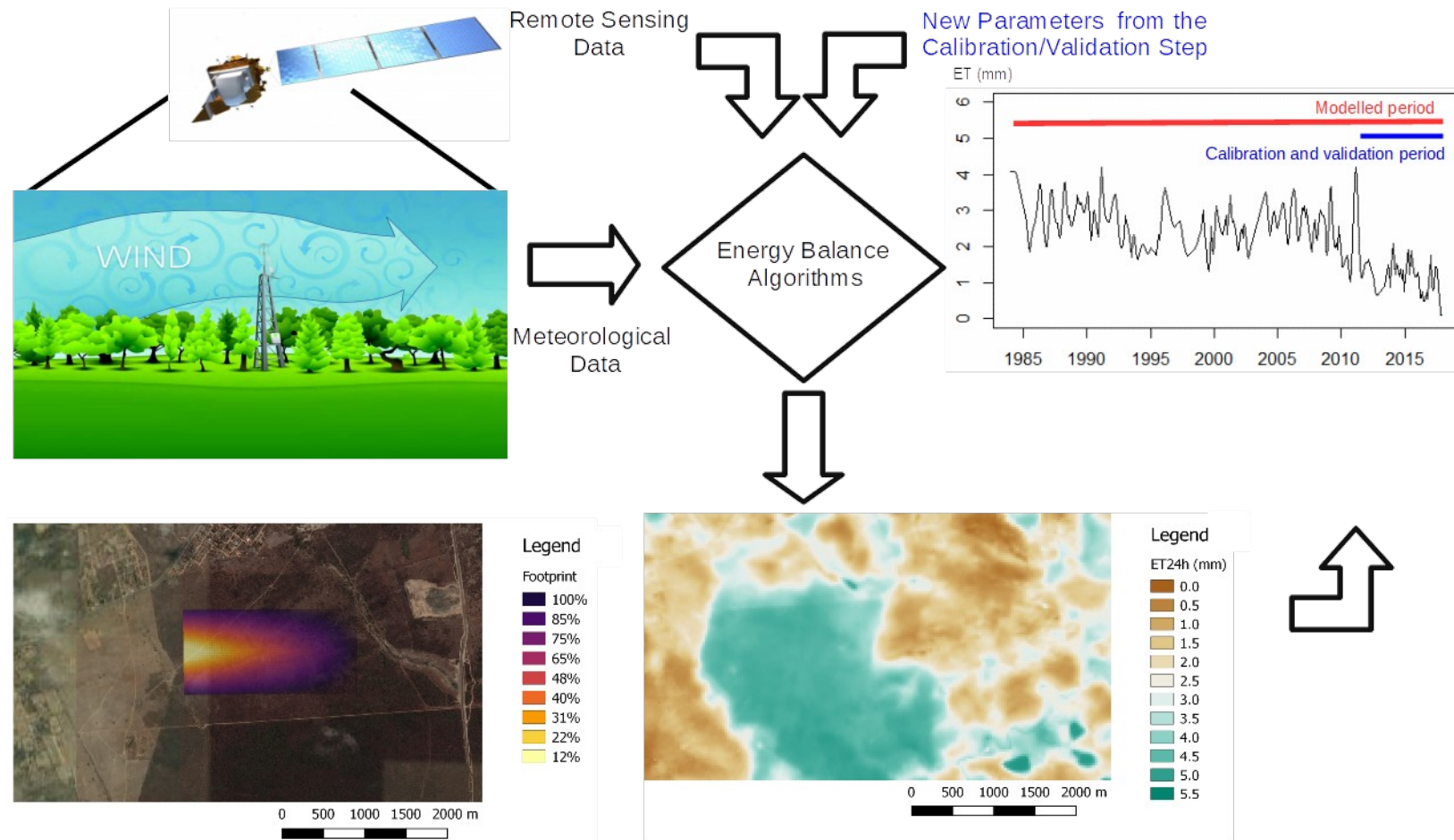
Fernanda Valente

Universidade de Lisboa

Rodolfo Nóbrega

University of Bristol

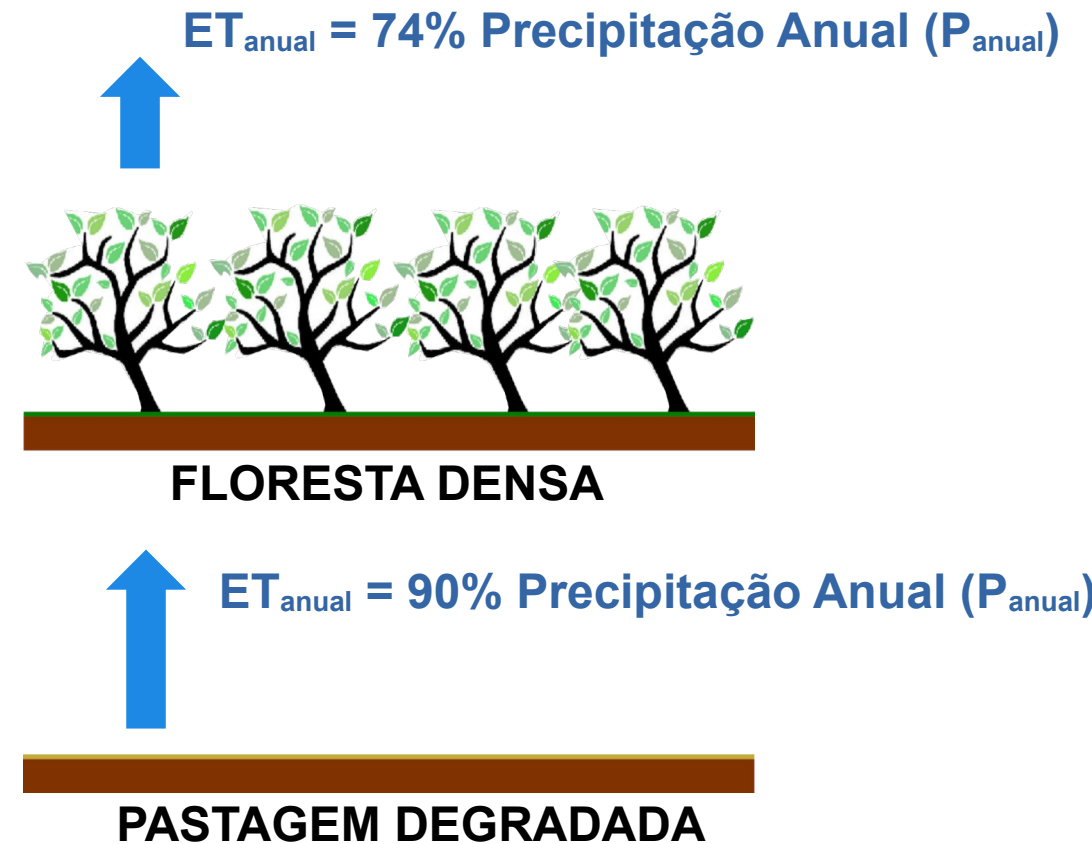
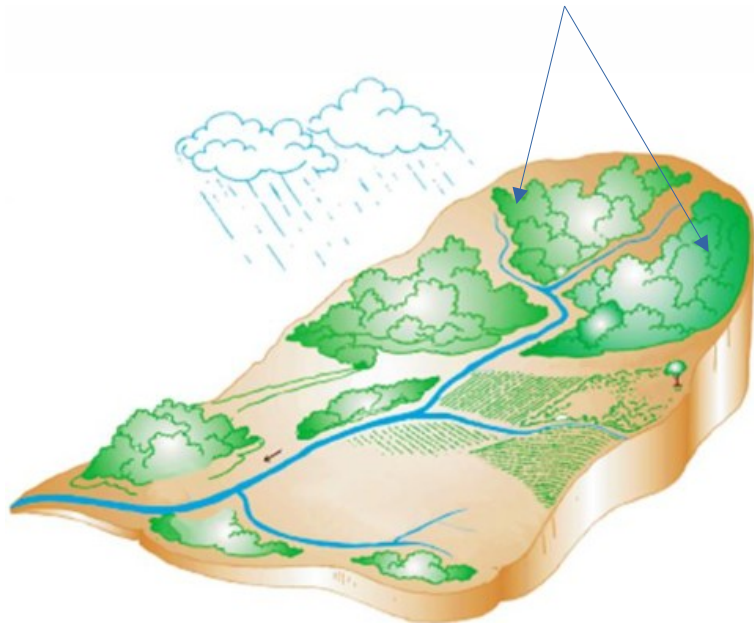
ABORDAGEM METODOLÓGICA



Fonte: Cunha et al., Computers & Geoscience, 2020, DOI:10.1016/j.cageo.2019.104341

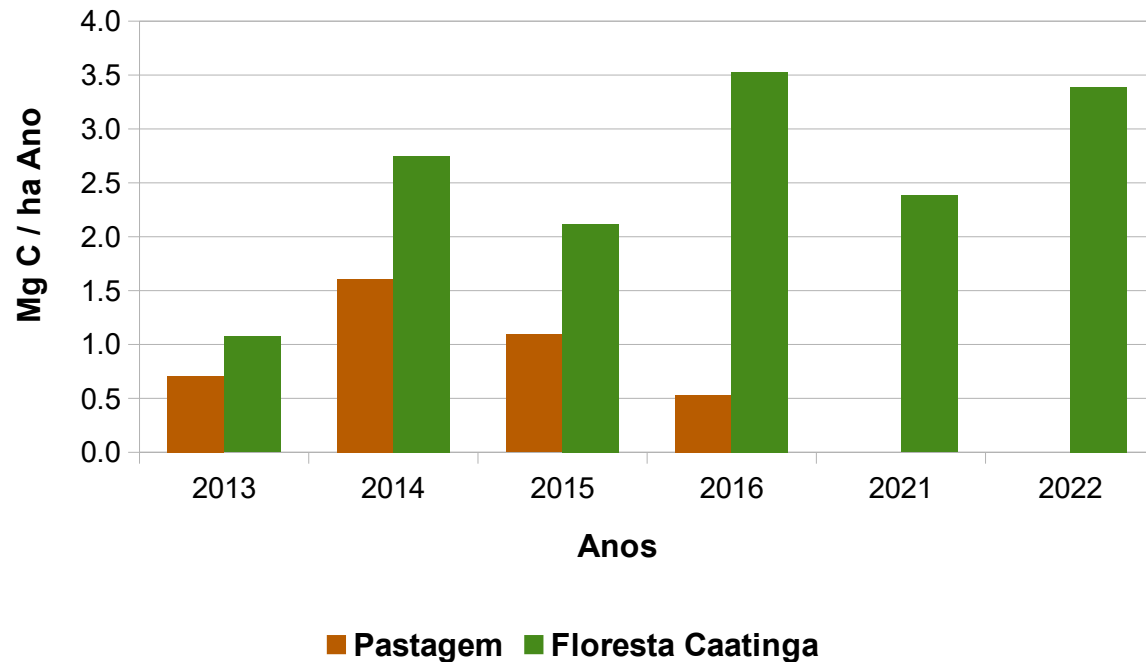
EVAPOTRANSPIRAÇÃO

As áreas florestadas influenciam positivamente na disponibilidade hídrica em uma bacia hidrográfica



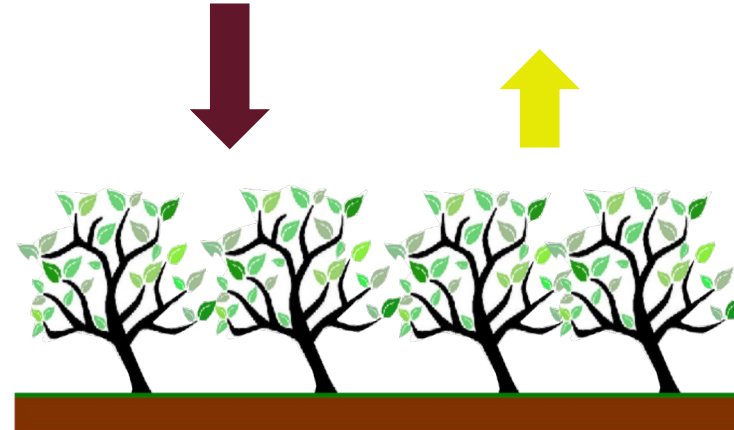
BALANÇO DE DIÓXIDO DE CARBONO (CO₂)

TOTAL ANUAL DE FIXAÇÃO CARBONO NA CAATINGA



PRODUTIVIDADE PRIMÁRIA GLOBAL

RESPIRAÇÃO



FLORESTA DENSE

Taxa de Fixação CO₂ . 54%

PRODUTIVIDADE PRIMÁRIA GLOBAL

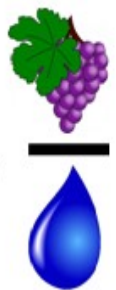
RESPIRAÇÃO

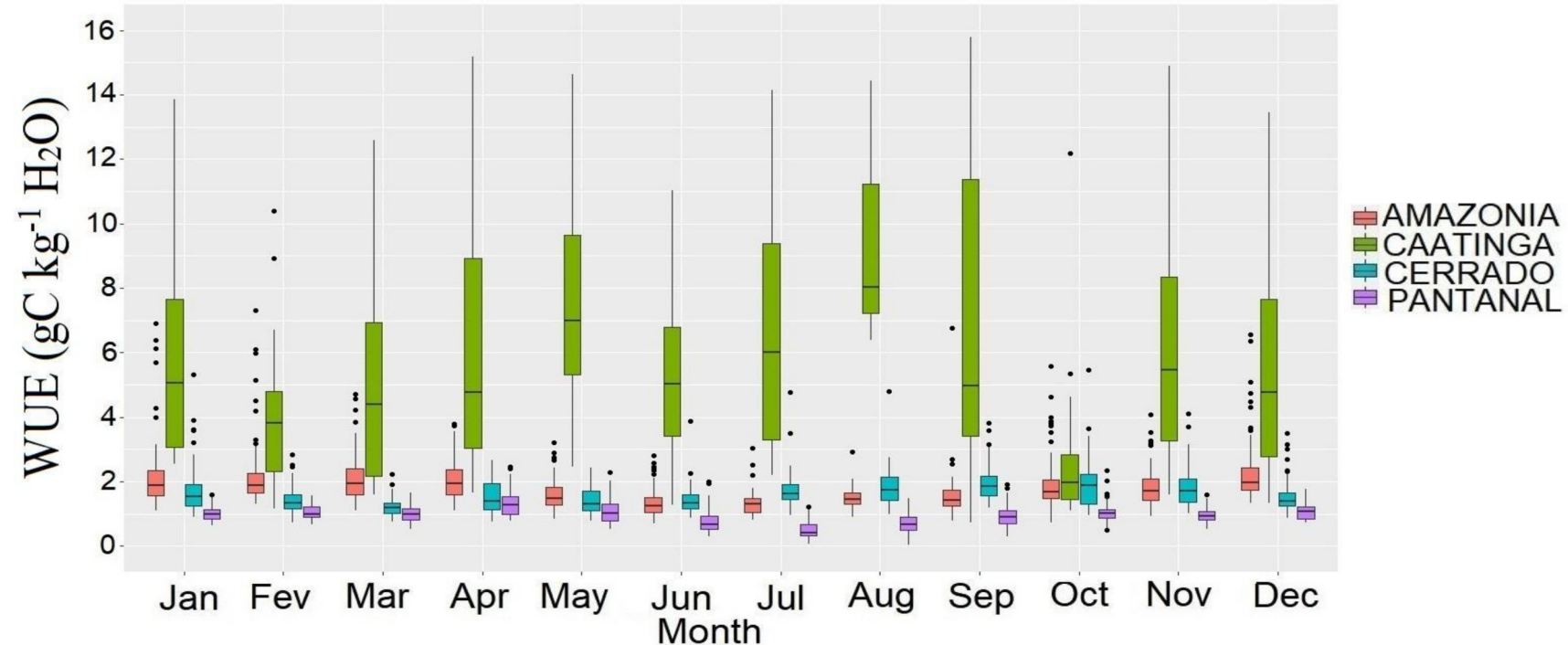


PASTAGEM DEGRADADA

Taxa de Fixação CO₂ . 33%

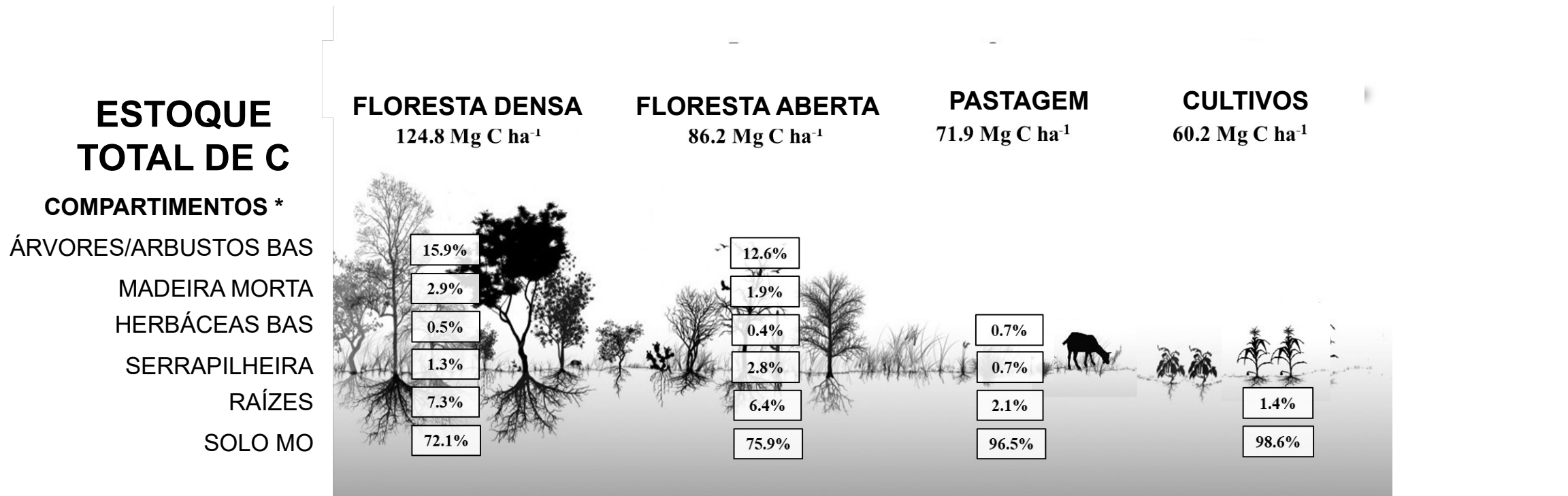
EFICIÊNCIA DO USO DA ÁGUA PELAS PLANTAS NA CAPTURA DE CARBONO DA ATMOSFERA (WUE)

$$WUE = \frac{\text{Fixação de Carbono}}{\text{Consumo de Água}}$$




Fonte: Costa et al, Remote Sensing, 2022, DOI:10.3390/rs14143241

ESTOQUE DE CARBONO

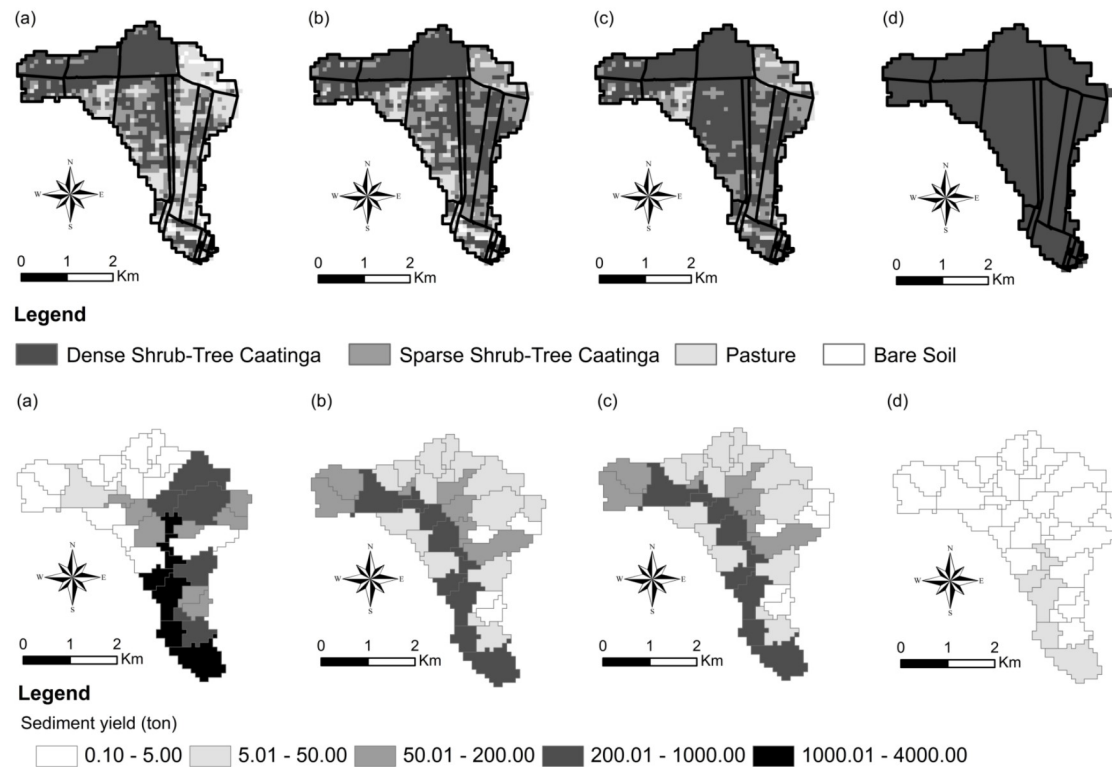


*PERCENTUAL DO TOTAL DO ESTOQUE DE CARBONO EM CADA COMPARTIMENTO; BAS – BIOMASSA ACIMA DO SOLO; MO – MATÉRIA ORGÂNICA

Fonte: Menezes et al, GEODERMA, 2020, DOI: 10.1016/j.geoderma.2021.114943

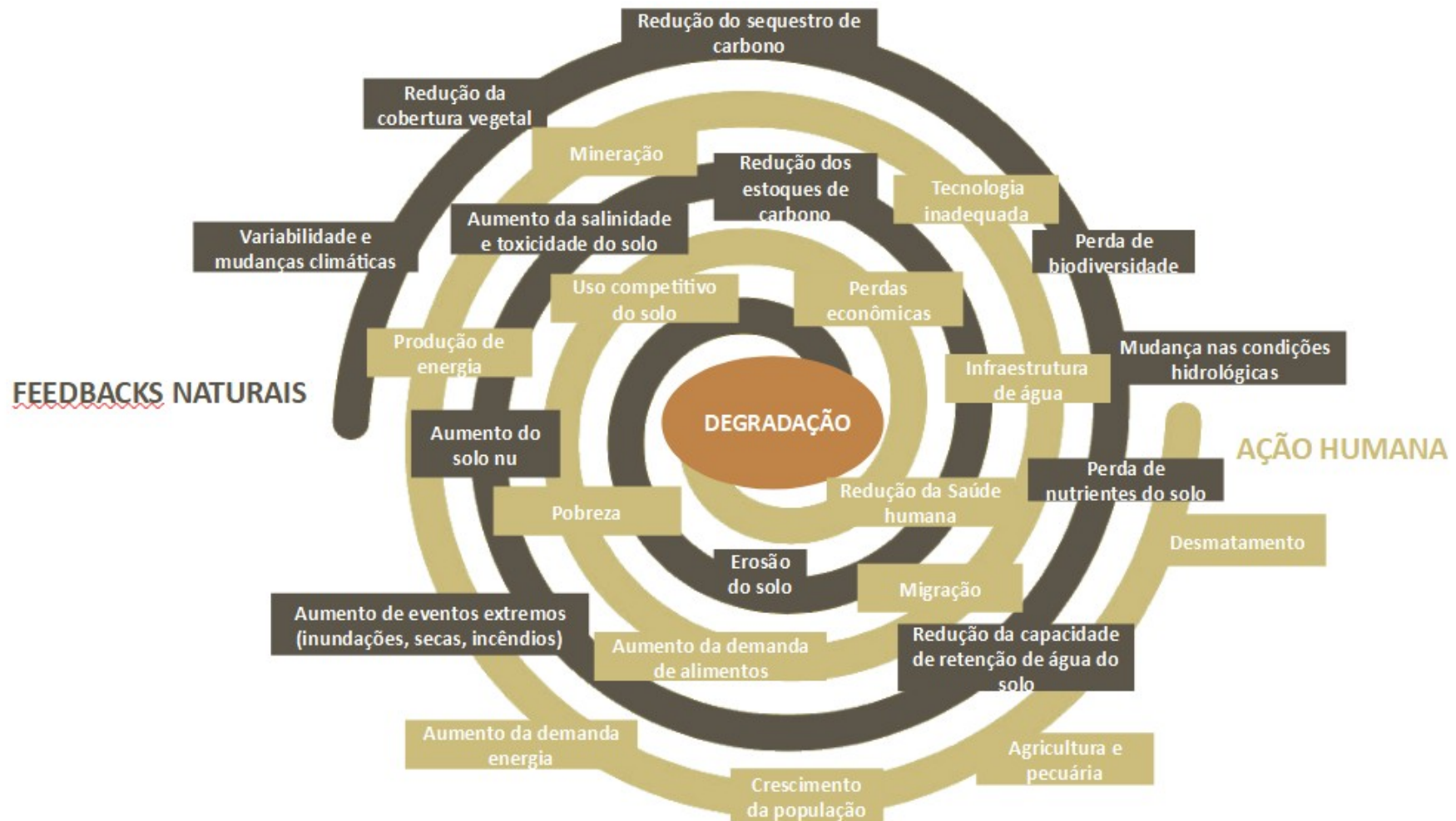
GERAÇÃO DE SEDIMENTOS

SIMULAÇÃO HIDROSSEDIMENTOLÓGICA PARA UMA PEQUENA BACIA HIDROGRÁFICA NO MUNICÍPIO DE SÃO JOÃO DO CARIRI-PB



**A CARGA ORGÂNICA E
OS SEDIMENTOS
GERADOS VÃO TER
IMPACTO DIRETO NOS
RESERVATÓRIOS**

PRECISAMOS DE ALTERNATIVAS PARA SAIR DESTA ESPIRAL DE DEGRADAÇÃO



APLICATIVOS PARA AVALIAR OS SERVIÇOS AMBIENTAIS

Earth Engine Apps

Q

Search places

⋮

ET Caatinga - Time Series Inspector

ET Caatinga - Time Series Inspector is an application that allows the user to choose the Evapotranspiration (ET) model of his preference. Models available: STEEP, SEBAL, and S-SEBI.

The ET Caatinga - Time Series Inspector was designed to estimate ET over the course of a year, at the Caatinga limits.

References of ET models:
[STEEP](#) [SEBAL](#) [S-SEBI](#)

Warning: Depending on your Internet speed, this procedure may take a few moments. Please wait. If any "Computation Timed out" message occurs, rerun the application. If the problem persists, please get in touch with us.

Contact - ulisses.alencar17@gmail.com

Instructions:
1. Select year

select a year

2. Select model

select a model

3. Click on map

4. Click on the Run Model button to execute

Run Model

5. Click on the Generate Chart button to obtain the pixel's time series

Generate Chart

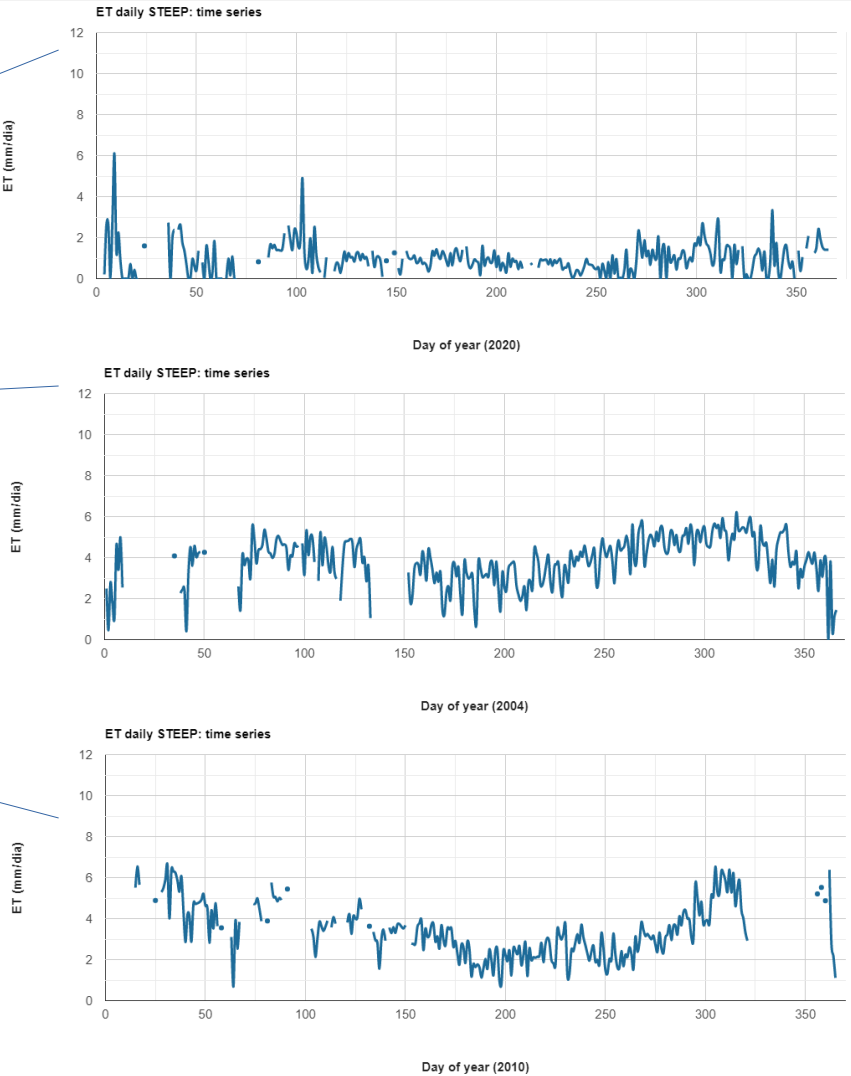
6. Export Image (Annual accumulated actual ET)

Download viewport:



Google

Atalhos do teclado | Imagens ©2023 TerraMetrics | Termos de Uso



ET daily STEEP: time series

ET (mm/dia)

Day of year (2020)

ET daily STEEP: time series

ET (mm/dia)

Day of year (2004)

ET daily STEEP: time series

ET (mm/dia)

Day of year (2010)

OUTROS TRABALHOS DESENVOLVIDOS

BioClimate: A Science Gateway for Climate Change and Biodiversity research in the EUBrazilCloudConnect project. Future Generation Computer Systems, 2019. DOI:10.1016/j.future.2017.11.034

Surface albedo as a proxy for land-cover clearing in seasonally dry forests: Evidence from the Brazilian Caatinga. REMOTE SENSING OF ENVIRONMENT, 2020. DOI:10.1016/j.rse.2019.111250

Evaluating single and multi-date Landsat classifications of land-cover in a seasonally dry tropical forest. Remote Sensing Applications-Society And Environment, 2021. DOI:10.1016/j.rsase.2021.100515

MONITORING AND MODELING OF HYDROLOGICAL PROCESSES IN THE SEMIARID REGION OF BRAZIL: THE CARIRI EXPERIMENTAL BASINS. HYDROLOGICAL PROCESSES, 2021. DOI:10.1002/hyp.14194

Remote sensing-based assessment of land degradation and drought impacts over terrestrial ecosystems in Northeastern Brazil. SCIENCE OF THE TOTAL ENVIRONMENT, 2022. DOI:10.1016/j.scitotenv.2022.155490

Remote Sensing Phenology of the Brazilian Caatinga and Its Environmental Drivers. Remote Sensing, 2022. DOI: 10.3390/rs14112637

OBRIGADO!

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