Supplementary material

Biomass model and water balance application for watershed drought analysis

# APPLICATION OF WEIGHTS FOR EACH VARIABLE OF THE FOREST BIOMASS MODEL

* **Topography**

Source**:** Martins et al. (2009) and Iverson (1994)

Data: SRTM project data Farr et al. (2007)

Table 1 - Reclassification and weights of slope classes for study region

|  |  |
| --- | --- |
| Slope Class | Weights |
| 0 - 10 % | 12 |
| 10 – 20 % | 10 |
| > 20 % | 8 |

Source: Authors

Table 2 - Reclassification and weights of altimetry classes for study region

|  |  |
| --- | --- |
| Altimetry Class | Weights |
| 0-15 m | 8 |
| 15 – 50 m | 11 |
| 50 – 750 m | 13 |
| 750 – 1000 m | 12 |
| 1000 – 1500 m | 11 |
| > 1500 m | 7 |

Source: Authors

* **Soils**

Source**:** Martins et al. (2009) and Iverson (1994)

Data: Instituto Brasileiro de Geografia e Estatística

Table 3 - Reclassification and weights of soil type classes for study region

|  |  |
| --- | --- |
| Soil Class | Weights |
| Fértil, textura média-fina a média-grossa | 12 |
| Fértil, textura fina ou grossa | 10 |
| Não -fértil | 6 |

Source: Authors

Table 4 - Reclassification and weights of fertility classes for study region

|  |  |
| --- | --- |
| Fertility Class | Weights |
| Média a alta. | 13 |
| Baixa a média. | 11 |
| Média a muito baixa | 10 |
| Baixa | 9 |
| Baixa a muito baixa | 8 |
| Muito baixa. | 7 |

Source: Authors

* **Rainfall**

Source**:** Martins et al. (2009) and Iverson (1994)

Data: Tropical Rainfall Measuring Mission (TRMM)

Table 5 - Reclassification and weights of precipitation classes for study region

|  |  |
| --- | --- |
| Precipitation Class | Weights |
| 800 – 1000 mm/ano | 10 |
| 1000 – 1200 mm/ano | 11 |
| 1200-1600 mm/ano | 13 |
| 1600-2000 mm/ano | 16 |
| 2000- 2400 mm/ano | 19 |
| 2400-2800 mm/ano | 22 |
| 2800-3200 mm/ano | 25 |
| 3200-3600 mm/ano | 22 |
| >3600 mm/ano | 19 |

Source: Authors

* **Weck's Modified Climate Index**

Source**:** Martins et al. (2009) and Iverson (1994)

Data: IBGE (2019) and CRESESB (2000)

Table 6 - Reclassification and weights of WMCI classes for study region

|  |  |
| --- | --- |
| WMCI Class | Weights |
| 50-100 | 2 |
| 100-150 | 3 |
| 150-200 | 4 |
| 200-250 | 5 |
| 250-300 | 6 |
| 300-350 | 7 |
| 350-400 | 8 |
| 400-450 | 9 |
| 450-500 | 10 |

Source: Authors

# ESTIMATED VALUES OF VOLUME, CARBON BIOMASS PER BIOM



Fonte: SNIF (2020)

# References

CRESESB. *ATLAS Solarimétrico do Brasil*. Recife: Universidade Federalde Pernambuco, 2000.

FARR, T. G. *et al.* The Shuttle Radar Topography Mission. *Reviews of Geophysics*, v. 45, n. 2, p. 1–33, 2007. Disponível em: <http://doi.wiley.com/10.1029/2005RG000183>.

IBGE. *Dados vetoriais*. Disponível em: <https://www.ibge.gov.br/geociencias-novoportal/informacoes-ambientais/climatolo gia /15817-clima.html?=&t=downloads>. Acesso em: 22 jul. 2020.

IVERSON, L. R. ET AL. Use of GIS for estimating potential and actual forest biomass for continental south and Southeast Asia. *Effects of land-use change on atmospheric CO concentrations*. Berlin: Springer-Verlag, 1994. .

MARTINS, O. S. *et al.* *Estimativa da densidade de biomassa potencial com uso de SIG no Estado de São Paulo*. 1. ed. São Paulo: Imprensa Oficial do Estado de São Paulo Secretaria. Secretaria do Meio Ambiente, 2009.

SNIF. *Estoque das Florestas - Referências - Metadados*. Disponível em: <http://snif.florestal.gov.br/pt-br/estoques-das-florestas/627-metadados?tipo=tableau&modal=1>.