$$E_{fire} = \sum_{i=1}^{n} A_i^{fire} \cdot B_i \cdot C_c \cdot G_{ef} \cdot 10^{-3} \qquad (1)$$

$$E_{defor} = \sum_{i=1}^{n} A_i^{defor} \cdot B_i \cdot C \cdot \left(\frac{44}{12}\right) \qquad (2)$$

$$A^{adj} = \frac{A \cdot (1 - e_c)}{1 - (e_c + e_o)} \qquad (3)$$
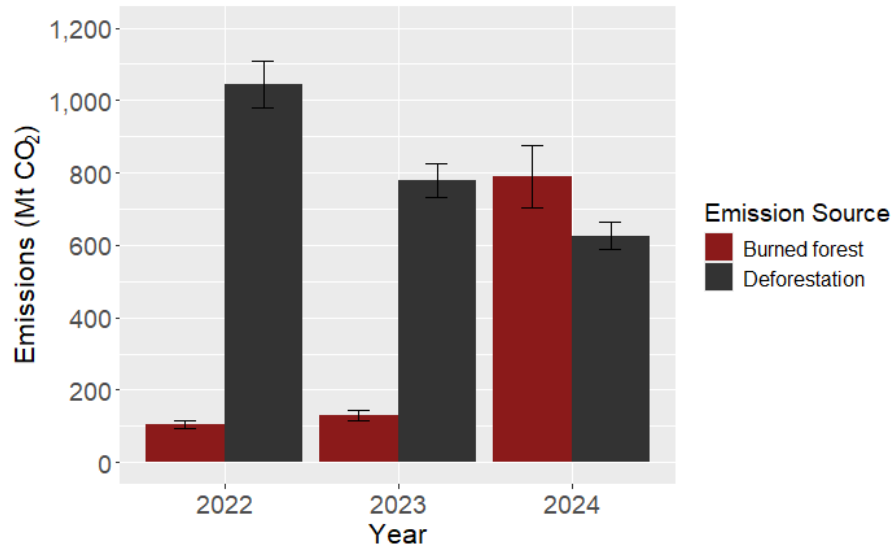
Figure 2: Pan-Amazon emissions from deforestation and fire-driven degradation in 2022-2024. Emissions from small-scale degradation processes (e.g., selective logging) or from disturbances in areas where GWIS thermal anomalies do not overlap with TMF forest degradation are not included in this analysis. Bars represent the mean values, and vertical error bars indicate the standard deviations, both derived from combining uncertainties using Monte Carlo simulation.