

Evaluation of the Evapotranspiration in the Southern Brazil region

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INTRODUCTION AND METHODOLOGY

- The use of evapotranspiration (ET) is essential in evaluating the water resources, agricultural and irrigation management, mostly in Southern Brazil (SB), characterized such as agricultural region.
- In SB, the knowledge of the ET pattern permits to understand the climate variability effects on agriculture production (*commodities*), basis of the Brazilian economy.
- Recognizing its relevance, the ET estimation via environmental satellites aids in the investigation of larger regions.
- In this approach, the goal of this effort is to assess the ET pattern in the SB region.
- This work made use of ET data from 4th version of the GLASS Product (0.05° x 0.05°), from 1982 to 2018.
- Descriptive statistics analysis was used to assess the ET (mean, standard deviation - SD, and coefficient of variation - CV).

RESULTS

Annual Pattern

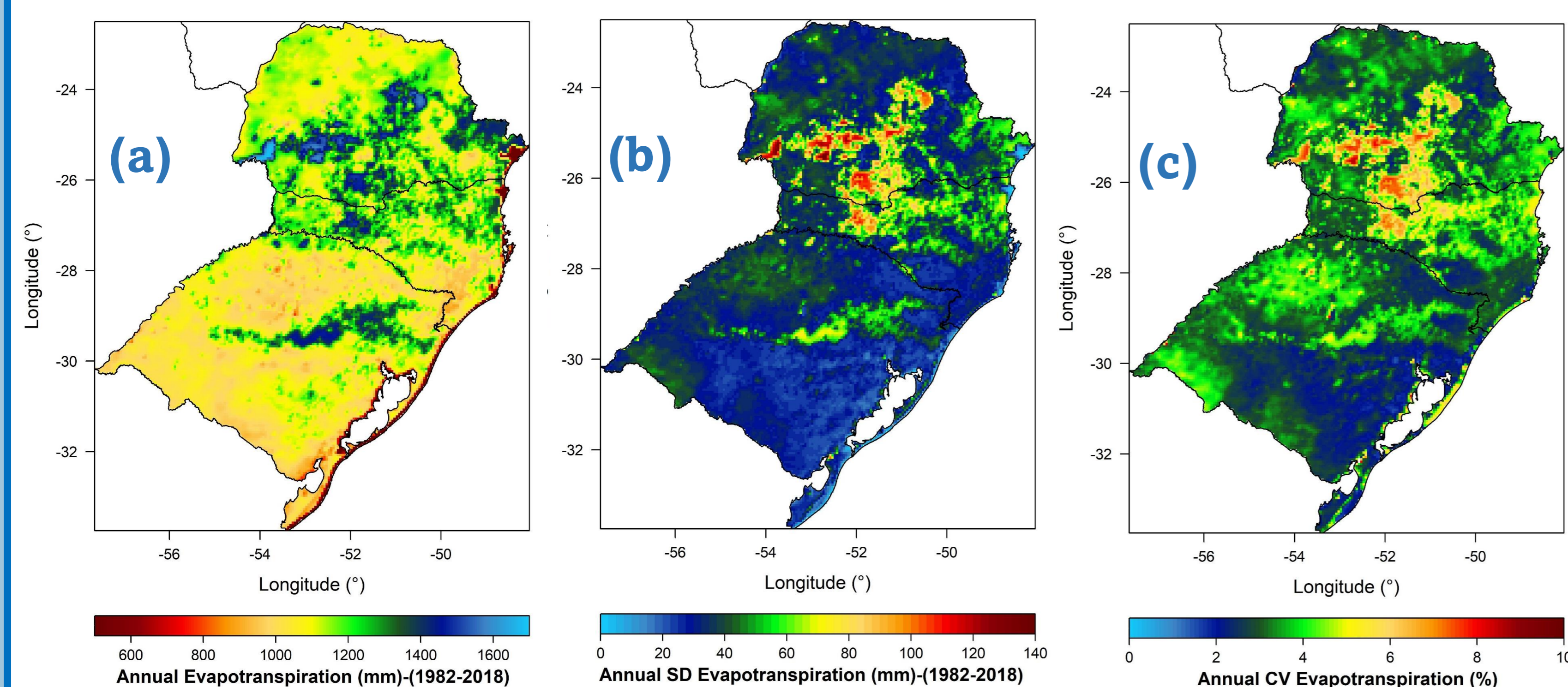


Figure 1 – Annual evapotranspiration pattern maps: (a) mean, (b) Standard Deviation (SD), and (c) Coefficient of Variation (CV), for 1982-2018.

Seasonal Pattern

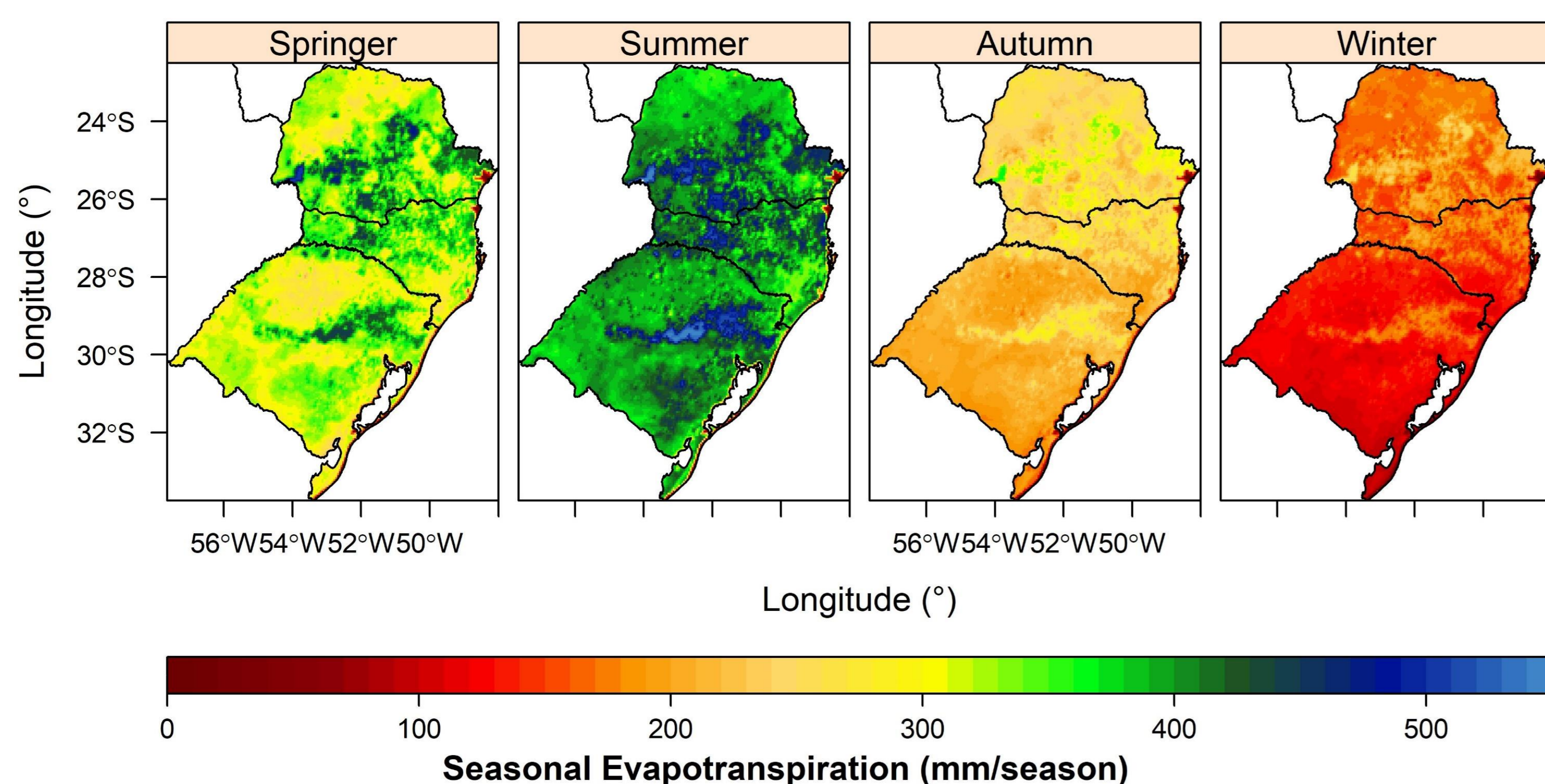


Figure 2 – Seasonal mean evapotranspiration (1982-2018) in the Southern Brazil region.

- In terms of annual mean values, SB region exhibits the lowest ET values with values ranging between 850-1680 mm/year and a SD of 20-140 mm/year.
- The highest ET values are detected in the central regions of the Paraná (due to the Paraná River) and Rio Grande do Sul (due to the Jacuí valley with elevation < 500 m), with values > 1400mm/year.
- In terms of CV, the values are not greater than 10%.
- In seasonal patterns, austral winter (summer) presented the smallest (highest) ET values, with values < 150 mm/season (> 500 mm/season).
- In the summer, the rainfall weather systems affects the patterns of bigger and lesser ET indices in SB region.

FINAL CONSIDERATIONS

- The preliminary results appointed that the biggest ET values have been proven in the central regions of Paraná and Rio Grande do Sul states due the local and climatic characteristics.
- The austral winter (summer) exhibited that the smallest (highest) ET values occurred due to rainfall seasonal weather systems in the SB region.

