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Groundwater Dynamic in a period of drought - alluvial plain of Mogi Guaçu River, Sao Paulo, Brazil.

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Shallow aquifers are responsible for supporting the Savannah and Semideciduous forests that occur in wide plains in Brazil. In long periods of drought, the decay of groundwater levels may affect these forests. The study area has 4 km² and localizes in the floodplain of the Mogi Guaçu River in the EEcMG (Ecological Station of Mogi-Guaçu). The research aimed to understand the dynamics of groundwater in periods of drought. In the hydrographic basin of the Mogi-Guaçu River, the average annual temperatures range from 20.5°C to 22.5°C, and the average annual rainfall varies from 1,400 to 1,600 mm. In the rainy season (October to March), the average precipitation accumulated varies from 1,100 to 1,250 mm, and in the dry season (April to September) from 250 to 300 mm [1]. The Alluvial Semideciduous Forest occurs predominantly along the Mogi-Guaçu River. Two areas of Wet Field are located within the EEcMG, and they present some grass coverings [2]. 20 monitoring wells were installed in terraces, recent plains, abandoned meanders, and Wet Field. The sediments of the aquifer show medium sandy texture, and hydraulic conductivity ranged from 3.83×10^{-6} m/s to 1.03×10^{-3} m/s [2]. The results of monitoring water table levels held in September 2015 represent the dry season of a period that lasted two years in the region. Figure 1 shows groundwater flow of higher areas to the north towards the south (effluent behavior of Mogi Guaçu River). Wet Field presents shallow water level (less than 2 meters depth) in the middle of the plain. In general, the water table level reached more than 5 meters depth (in some places got around 15 meters depth) in terraces and recent plains close to the river, affecting the undergrowth. During this drought period, Comprido creek fed and maintained the Wet Field, but in terraces and recent alluvial plain a no-recharge condition was observed. * FAPESP 2013/22729-2.

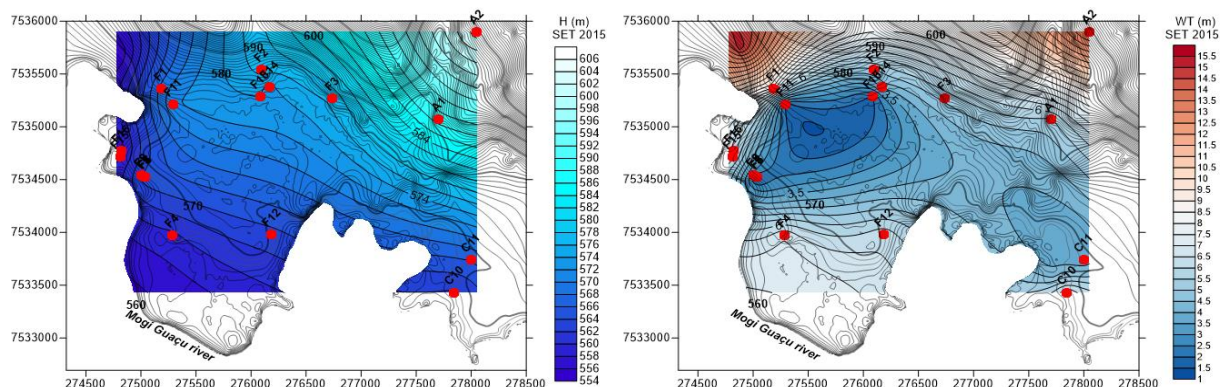


Figure 1: Mogi Guaçu alluvial plain – on the left, potentiometric map; on the right side, water level map - September 2015 (dry season).

References:

- [1] CBH-Mogi - Mogi-Guaçu river Watershed Committee. [1999]. Technical Report. 252 pp.
- [2] Ricardi-Branco, F.S. et al. [2015]. In: Springer Earth System Sciences. 1ed., p. 667-705.

