Geophysical Research Abstracts
Vol. 20, EGU2018-4612, 2018
EGU General Assembly 2018

Vegetation water stress detection in the Amazon

Tim van Emmerik (1), Susan Steele-Dunne (1), Pierre Gentine (2), Rafael Oliveira (3), and Nick van de Giesen (1)

(1) Water Resources Section, Delft University of Technology, Delft, Netherlands (t.h.m.vanemmerik@tudelft.nl), (2) Columbia University, Department of Earth & Environmental Engineering, New York, NY, USA, (3) Department of Plant Biology, Institute of Biology, UNICAMP, Campinas, SP, Brazil

The Amazon contains half of the world's rainforests. Yet, it remains a poorly understood component of the global carbon and water cycle. The Amazon rainforests appear to be sensitive to increasing moisture stress, and future droughts might considerably change the water and carbon balance. Improved understanding and detection of vegetation water stress will therefore contribute to a better understanding of the Amazon's role in the (global) water and carbon cycle.

Recently it has been shown that radar backscatter from canopies is affected significantly by vegetation water stress [1,2]. To explore the full potential of water stress detection using radar, novel sensors [3] have been installed on 19 individual trees in the Amazon rainforest. Quantifying the effects of water stress in various tree species increases our understanding of how hydrological and plant physiological signatures of water stress affect radar backscatter. In this presentation, we link (novel) ground measurements to radar observations over the Brazilian Amazon to demonstrate the effects of vegetation water stress across scales.

References

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