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Research Areas

- Tropical hydrology using a combination of experimental, theoretical and numerical modeling across a wide range of temporal and spatial scales. 2) Promote sound water management practices and provide a solid foundation on which to build sustainable water resources management in Hawaii with conflicting land usages (urban, agriculture, and conservation).
- Develop site-specific water management practices for different land covers, using real-time sensing technology, geographic information system and ground positioning system.
- Hydrologic processes in soil including water flow, solute movement, and heat and gaseous transport
- Conduct numerical modeling at the watershed scale (DHSVM, AnnAGNPS, N-SPECT) and field scale (LEACHM, HYDRUS2D, and VS2DT) to predict water movement, heat flow, fate and transport of sediment, nutrients and pollutants in soils, ground and surface waters.

Selected Recent Publications

- **Fares, A.** and A. Elkadi. 2008 (Editors). Coastal Watershed Management. Progress in Water Resources Series, WIT Press, Southampton, UK, May 2008. 438 pp. ISBN: 978-1-84564-091.
- **Fares A.**, A. Farhat, A. Ahmed, J. Deenik and M. Safeeq. 2008. Response of selected Soil Physical and Hydrological Properties to Manure Amendment Rates, Levels, and Types. *Soil Science Journal*. 173: 522-533.
- Ryder, M.H. and A. **Fares**. 2008. Evaluating Cover Crops (Sudex, Sunn Hemp, Oats) for Use as Vegetative Filters to Control Sediment and Nutrient Loading From Agricultural Runoff in a Hawaiian Watershed. *JAWRA*, 44(3): 640-653.
- **Fares A.**, Dogan A., L. R. Parsons, T. Obreza, and K.T. Morgan. 2008. Effects of Citrus Canopy Interception on Effective rainfall Calculations Using Water Budget Analysis and TR-21 Method. *SSSAJ*. 72:578-585.
- **Fares A.**, Hamdhani and D.M. Jenkins. 2007. Temperature Dependant Scaled Frequency to Improve the Accuracy of Multisensor Capacitance Probes. *SSSAJ*. 71:10-16.
- Elrashidi, M.A., D. Hammer, **A. Fares**, C. Seybold, C. Ferguson, S.D. Peaslee. 2007. Loss of heavy metals by runoff from agricultural watersheds. *Soil Science*. 172:876-894.
- **Fares, A.** and V.O. Polyakov. 2006. Advances in Crop Water Management Using Capacitive Water Sensors. In D. Sparks (ed.) pp. 43-77. *Advances in Agronomy*. Vol.90, Academic Press.
- **Fares, A.**, Hamdhani, H., and H. Valenzuela. 2006. Real-time soil water monitoring for optimum water management. *JAWRA Sustainable Watershed Special Issue*, 42:1-8.
- **Fares, A.**, P., Buss, M. Dalton, A. I. El-Kadi, and L.R., Parsons. 2004. Dual field calibration of capacitance and neutron sensors in a shrinking-swelling clay soil. *Vadose Zone Journal* 3: 1390-1399.
- Abbas, F. and **A. Fares**, 2008. Soil Organic Carbon and CO₂ Emission from an Organically Amended Hawaii Tropical Soil. *Soil Science Society of America Journal* (In Press).
- Mair A, **A. Fares** and A. I. Elkadi. 2007. Evaluation of the Effect of Groundwater Extraction and Long-Term Weather Patterns on the Makaha Valley's Streamflow. *JAWRA*, 43:1-12.
- Polyakov, V., **A. Fares**, D. Kubo, J. Jacobi & C Smith. 2007. Evaluation of a non-point source pollution model, AnnAGNPS, in a tropical watershed. *Environ. Mod. & Soft.* 22:1617-1627.