Estimation of Sensible and Latent Heat Fluxes in New Mexico Using Optical Scintillometry

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The estimation of spatial and temporal distributions of sensible and latent heat fluxes is a long standing challenge for hydrologic science. In this study we present our experiences with the emerging method of scintillometry for the direct estimation of sensible heat fluxes and the derivation of evapotranspiration as a residual of the energy balance. Large Aperture Scintillometers (LAS) operating at optical wavelengths are employed to measure the sensible heat flux over irrigated fields, riparian areas, deserts, lava flows, and mountain highlands in New Mexico (NM-LASNet). We will evaluate the potential of scintilllometers for reliable and robust estimation of evapotranspiration rates for hydrologic applications at scales of the pixel-size of satellite images or grid cells of hydrologic and meteorological models (approximately 0.1-10 km^2).

Bio sketch:

Jesus D. Gomez was born in Medellin, Colombia (1983). In 2005 he got his B.S. degree in Civil Engineering from the National University of Colombia at Medellin. During his undergraduate program, he worked on an independent thesis project studying multifractal properties of rainfall over the tropical Andes of Colombia. Upon graduation, Jesus moved on to New Mexico Tech in May of 2006 to begin my M.S. under the guidance of Dr. Jan Hendrickx.