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# Spatial and temporal distribution of evaporation flux from heterogeneous porous media based on IR imagery

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Evaporation from porous media containing textural heterogeneities may result in nonunifrom surface fluxes due to lateral capillary-induced flows from coarse-textured regions to supply evaporation from finer-textured regions which remain wet and coupled with the atmosphere. Recent advances in high spatial and temporal resolution infrared imaging methods enable detailed observation of temperature fields of evaporating surfaces at highly resolved temperature differences (<0.02K). We report of IR imaging of temperature variations resulting from differences in surface evaporation flux densities induced by prescribed textural inclusions. Experiments with fine-textured inclusions in coarse sand background supported high evaporative fluxes that sustained temperature difference exceeding 3K lower than background sand. These values are corrected for thermal diffusion and used to estimate and remotely map evaporation fluxes from heterogeneous soil surfaces. An analytical solution of simplified energy balance equation may provide a means for quantitative estimation of spatial and temporal distribution of evaporation rates from IR imagery and remotely map evaporation fluxes from heterogeneous soil surfaces.