1127-34-266   **Komi Segno Messan*** (`kmessan@asu.edu`), SAL MCMSC, Arizona State University, Tempe, AZ 85287-3901, **Gloria DeGrandi-Hoffman**, Tucson, AZ 85719, **Carlos Castillo-Chavez**, SAL MCMSC, Arizona State University, tempe, AZ 85287-3901, and **Yun Kang** (`yun.kang@asu.edu`), Mesa, AZ 85212. *Migration effects on population dynamics of the honeybee-mite interactions.*

Honeybees are an amazing and highly beneficial insect species that play important roles in undisturbed and agricultural ecosystems. Unfortunately, honeybees are increasingly threatened by numerous factors, most notably the parasitic varroa mite (*Varroa destructor* Anderson and Trueman). A recent field study showed that migrations of migration of mites into hives on foraging bees' greatly contributes to the rapid growth of mite populations in colonies, and increases the mortality of honeybee. Motivated by this, we propose a simple two-patch honeybee-Varroa model to explore how foraging behavior of honeybees in the presence of Varroa mite infestations affect the population dynamics of honeybees and mites, respectively. Our analytical and numerical studies reveal the dynamical outcomes of migration including: (a) Under proper conditions, high rates of mite migration could save one honeybee colony from collapsing. (b) Intermediate migration rate could generate multiple locally stable honeybee-mite coexistence equilibria. (c) An increase in migration rate causes a growth of the varroa population, which in return has a negative feedback on the colony population. Our results provide novel insights on the effects of foraging and Varroa migration on colony survival. (Received February 06, 2017)