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Small-scale collection variability associated with high-density deployments of standard fog collectors

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In Monterey, CA (USA) in Spring 2018 and Spring 2019 two different high-density deployments of 8-10 fog standard and standard '+' (area 2.4 m2) fog collectors were deployed within relatively small areas of approximately 1 and 4 hectares. Both sets of fog collectors were constructed using double-layered 35% shade coefficient raschel coresa mesh manufactured by Marienberg. The purposes of these deployments were multi-fold. One of them, consisting of ten standard '+' fog collectors, deployed near the library of California State University, Monterey Bay, were set up to assist in providing moisture to sapling oak trees that were planted on site. In addition to being deployed with tipping bucket rain gauges to measure the water collected, the water obtained from these passive devices was routed through a series of tubes to the roots of the newly-planted sapling oak trees. They also highlight to the campus community the unique opportunities that living in a foggy zone may provide for novel means of water collection.

The eight standard fog collectors deployed at the other site, several kilometers away, at a natural reserve, were set up specifically to determine the optimal placement of a large fog collector that is intended for this location as a beta test. This other site is also intended to examine the small-scale gradients in fog water collection over a chaparral area.

Initial results from the ten collectors near the Library site indicate significant collection variability between sites that contradicted our expectations. The four larger fog collectors that were deployed closer to the library, at a location that we would have suspected would result in greater sheltering from the Library and other buildings, seemed to show in many cases over double the volume of water collected per event compared to the more-exposed fog collectors. This may be evidence of small-scale building-induced circulations of fog-laden winds that accompanied the larger-scale northwesterly winds that are typically generated during fog events.

Results are forthcoming from the chaparral site, but summaries of the data from both sites will yield interesting suggestions on the small-scale spatial variability of potential fog-water deposition.