Original algorithm:

1. initiate vector in encounter of a valley
2. note increase in stress during rainfall of vector
3. count occurrences of ranges as one cycle
4. do analysis to find lifetime (not figured out)

Where n represents the number of bins chosen in the study; Nc(DOD) represents the number of consumed partial cycles at a given DOD level, derived by counting in the corresponding period; No(DOD) represents the maximum number of partial cycles that can be performed before battery failure at that DOD level.

Where ExpL denotes the expected lifetime of the BS, and Tp represents the length of the counting time period. (You, et al., 2011)

Implemented algorithm:

1. Discover discharge valleys (can only occur after 8 consecutive hours of discharging)
2. Count cycles to failure:
3. Accumulate cycles to failure
4. Estimate battery lifespan

A requirement for finding the lifespan in years, is that the spendage of lifetime fractions are summed over one year precicely. This way we get the amount of years that the battery need.

Currently this function is evaluated for every instance of DoD valley that occurs, which has an complexity of O(n). Considered an extension of the program might trigger far more occurences of DoD, before a simulation is considered complete, it makes sense to follow the procedure of (Simple Rainflow Counting Algorithms, 1982) and preemptively generate a table of maximum cycles before failure for every DoD percentage.