Movie S1: Termite response to a flow of external (lower-humidity) air across a mound surface. In still conditions at night, termites deposit at the tops of crests of soil at an active build site on the mound surface, beyond protective troughs. At 0:19, a small hand-held fan outside the mound is turned on and the airflow directed across the mound surface. Termites not presently depositing retreat behind the build crests, while termites in the process of depositing finish their activity and follow suit. By 0:50 no termites are visible at or above the surface crests, though some deposition activity from within the troughs can still be seen, closing off the openings.

Figure S1: Dry mass data as a function of the average humidity of each trial. We assigned different colours to the three different colonies (red, green and blue). The black line refers to the fitted linear-mixed model to these data, while the shaded area shows its confidence interval.

|  |  |  |  |
| --- | --- | --- | --- |
| **Fixed Effect** | Volume (cm3) | **CI** | **P-value** |
| Intercept | 2.33 | -2.7 – 7.41 | < 0.01 |
| Humidity | 0.12 | 0.06 – 0.18 | < 0.01 |
|  |  |  |  |
| **Random Effect** |  |  | St. Dev |
| Colony |  |  | 2.879 |

Table SI 1: Caption: Linear mixed-model results for volumetric envelope as a function of humidity,18 observations, 3 replicas in 3 different colonies for 2 different treatments, DF=4 Marginal R^2 / Conditional R^2 0.31 / 0.641

|  |  |  |  |
| --- | --- | --- | --- |
| **Fixed Effect** | Area (mm2) | **CI** | **P-value** |
| Intercept | 12914 | 24 - 25804 | < 0.001 |
| Humidity | 436 | 254 - 617 | < 0.001 |
|  |  |  |  |
| **Random Effect** |  |  | St. Dev |
| Colony |  |  | 4897 |

Table SI 2: Caption: Linear mixed-model results for area of the plate covered by soil as a function of humidity,18 observations, 3 replicas in 3 different colonies for 2 different treatments, DF=4 Marginal R^2 / Conditional R^2 0.500 / 0.615