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30 Jul 25

MEMORANDUM FOR THE RECORD

Subj: EXECUTIVE SUMMARY OF WATER CUBE COMPUTATIONAL MODELING

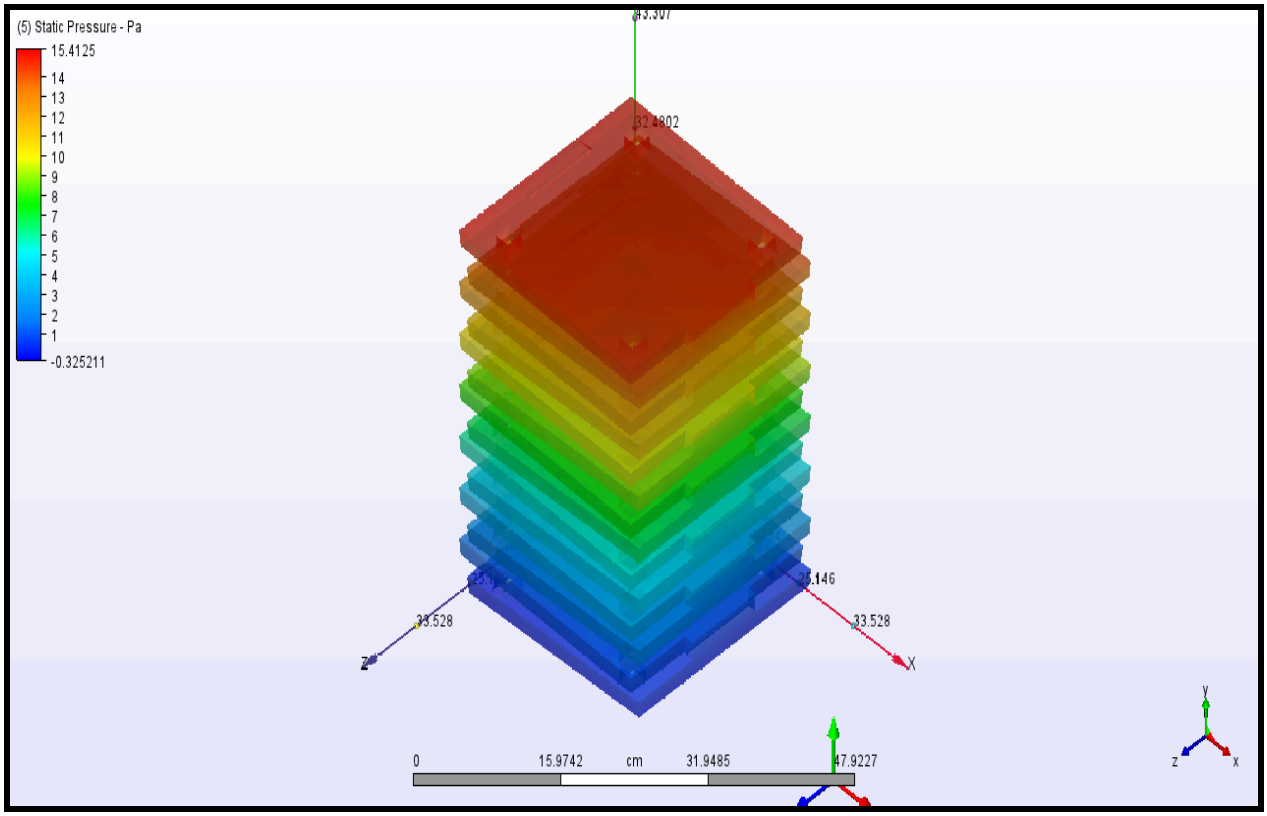
Beginning in June 2025 and completing at the end of July 2025, Thurston Laboratories in partnership with Anthracene Softworks conducted computational modeling of the fluid and heat flow and the evaporation of water in the "Water Cube" device. The technical data package was provided by Crystal Newton of Great Basin Irrigation. Drafting work and modification of the provided 3D models for computational analysis was provided by Mr. Brandon Carter. Mathematical modeling, derivation, and project oversight was provided by myself.

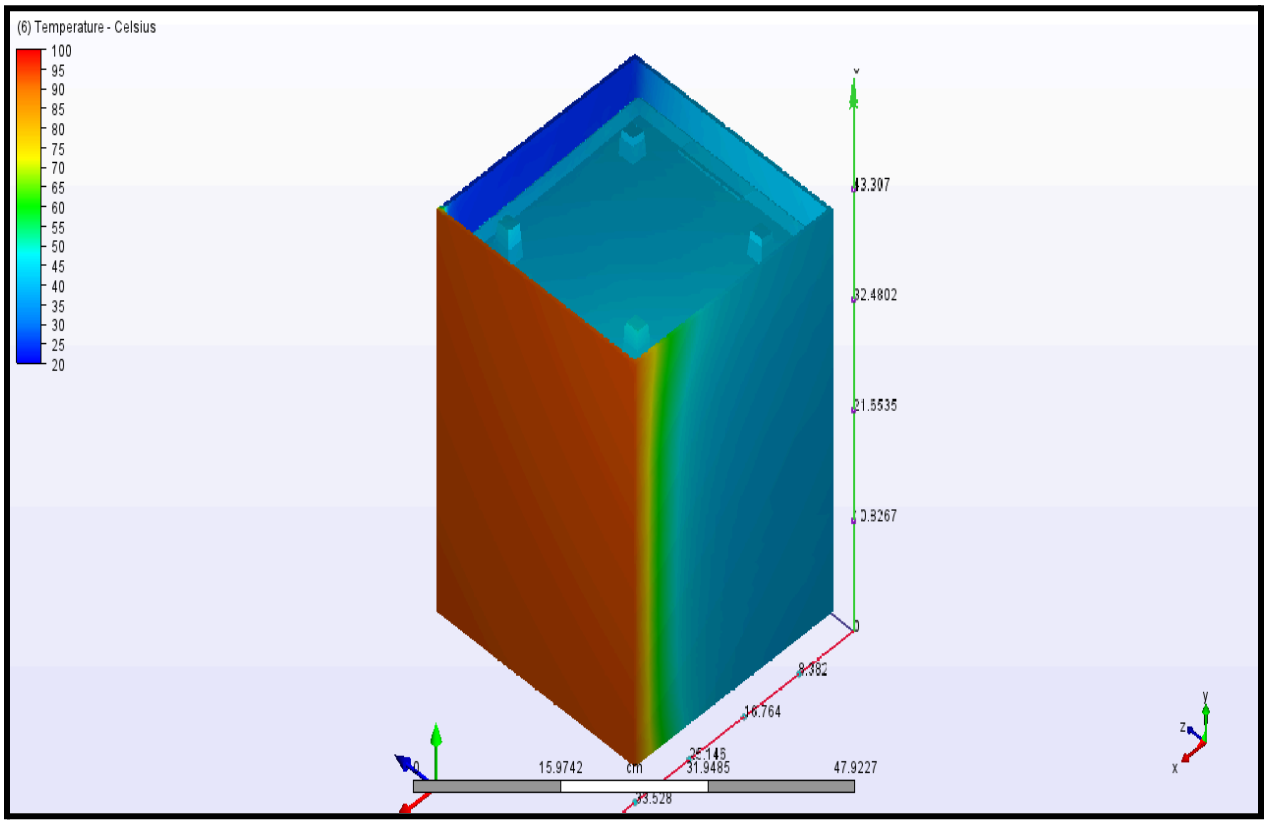
Fluid flow was handled through the steady state solution of the Navier Stokes equations. The flow rate was specified as 0.1 gallons per minute. Under these conditions, the assumption of laminar flow was made. The cube was assumed to have radiant heating via solar irradiance primarily on one side (the south side) and the top. Temperature increase from solar irradiance was calculated using the Stefan Boltzman formula. The cube material, black thermo-plastic, was assumed to have an emissivity constant of 0.92.

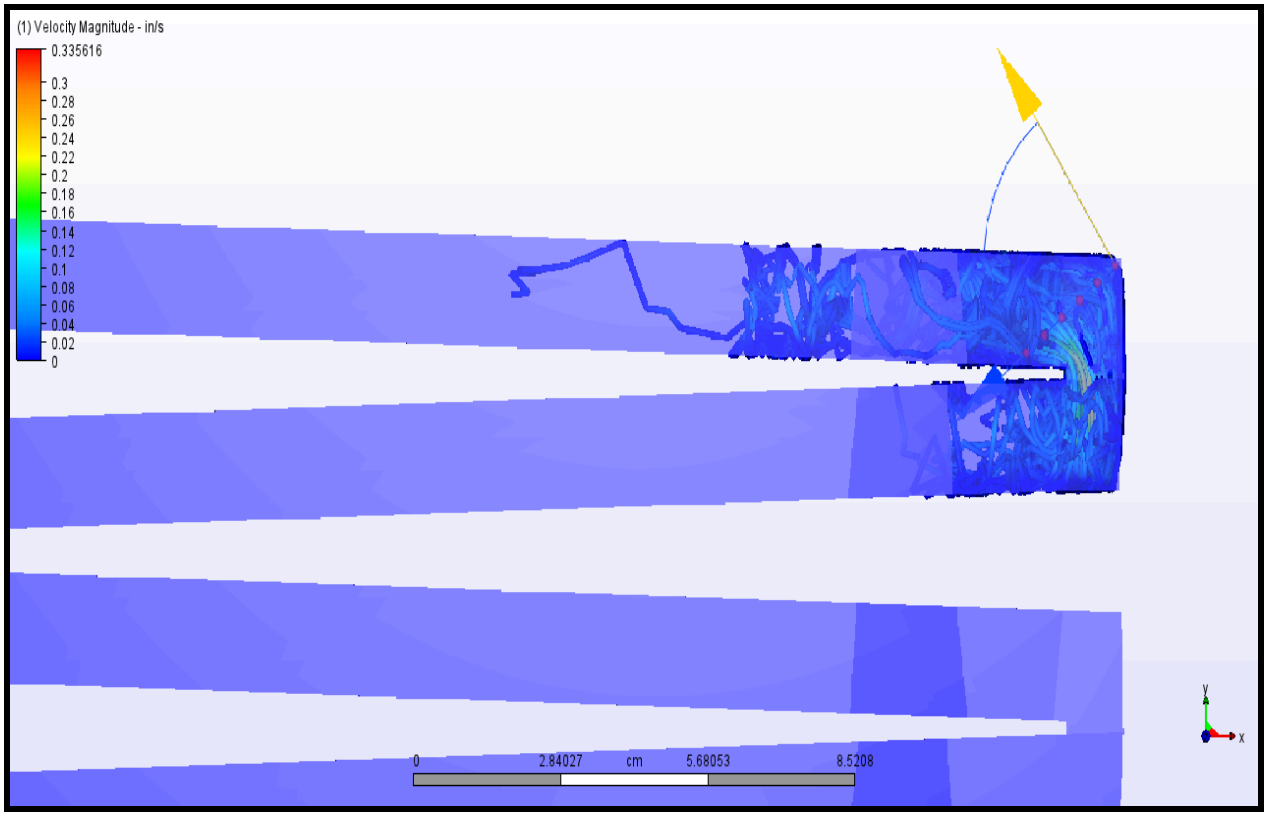
We assumed prevailing winds in the perpendicular direction (East-West). Environmental data was used from the Sea of Cortez for the months of May through September, inclusive. The ambient temperature was taken as the daily high minus three degrees centigrade. Evaporation rate was calculated from the simplest widely published formula, a function of temperature and humidity ratio of saturated air. The former value was obtained from the simultaneous solutions of Navier Stokes and the heat diffusion equation. The latter was obtained from an empirical fit to data. Evaporation rates were normalized to $kg/(hr*m^2)$.

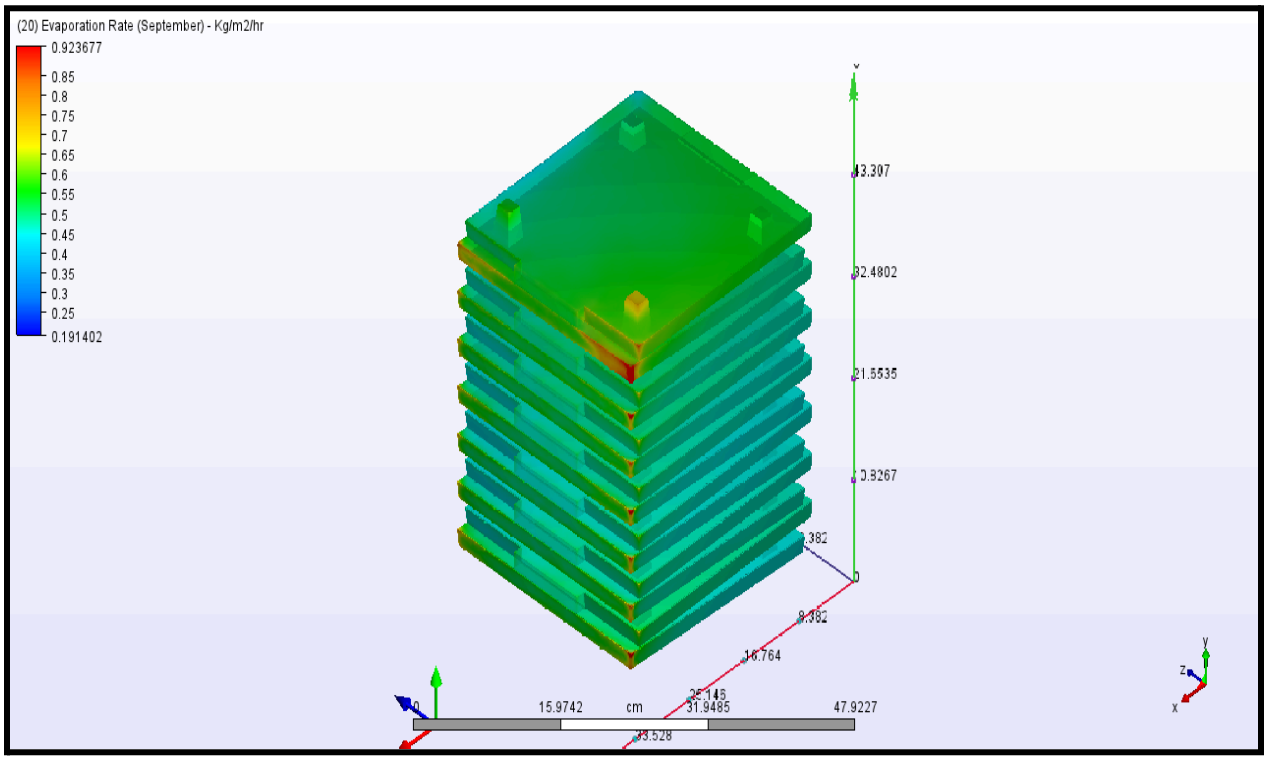
As the resultant data is too large to provide via email, copies will be provided on physical media. Point of contact for this matter is myself, and I can be reached by email at hankt@thurstonlabs.com or by phone at (775) 738-4611. Please reach out with any questions or concerns.

/S/
Hank Thurston, PhD
CEO, Thurston Laboratories


(5) Static Pressure - Pa
15.4125
14
13
12
11
10
9
8
7
6
5
4
3
2
1
-0.325211
43.307
32.4802
33.528
33.528
0
15.9742
cm
31.9485
47.9227
y
z
x


(6) Temperature - Celsius
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
25
20
43.307
32.4802
21.6535
0.8267
0
8.382
16.764
25.145
33.528
0
15.9742
cm
31.9485
47.9227
y
z
x


(1) Velocity Magnitude - in/s
0.335616
0.3
0.28
0.26
0.24
0.22
0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
0
2.84027
cm
5.68053
8.5208
y
x


(20) Evaporation Rate (September) - Kg/m2/hr
0.923677
0.85
0.8
0.75
0.7
0.65
0.6
0.55
0.5
0.45
0.4
0.35
0.3
0.25
0.191402
43.307
32.4802
21.5535
0.8267
.382
0
8.382
16.764
25.145
33.528
0
15.9742
cm
31.9485
47.9227
y
z
x