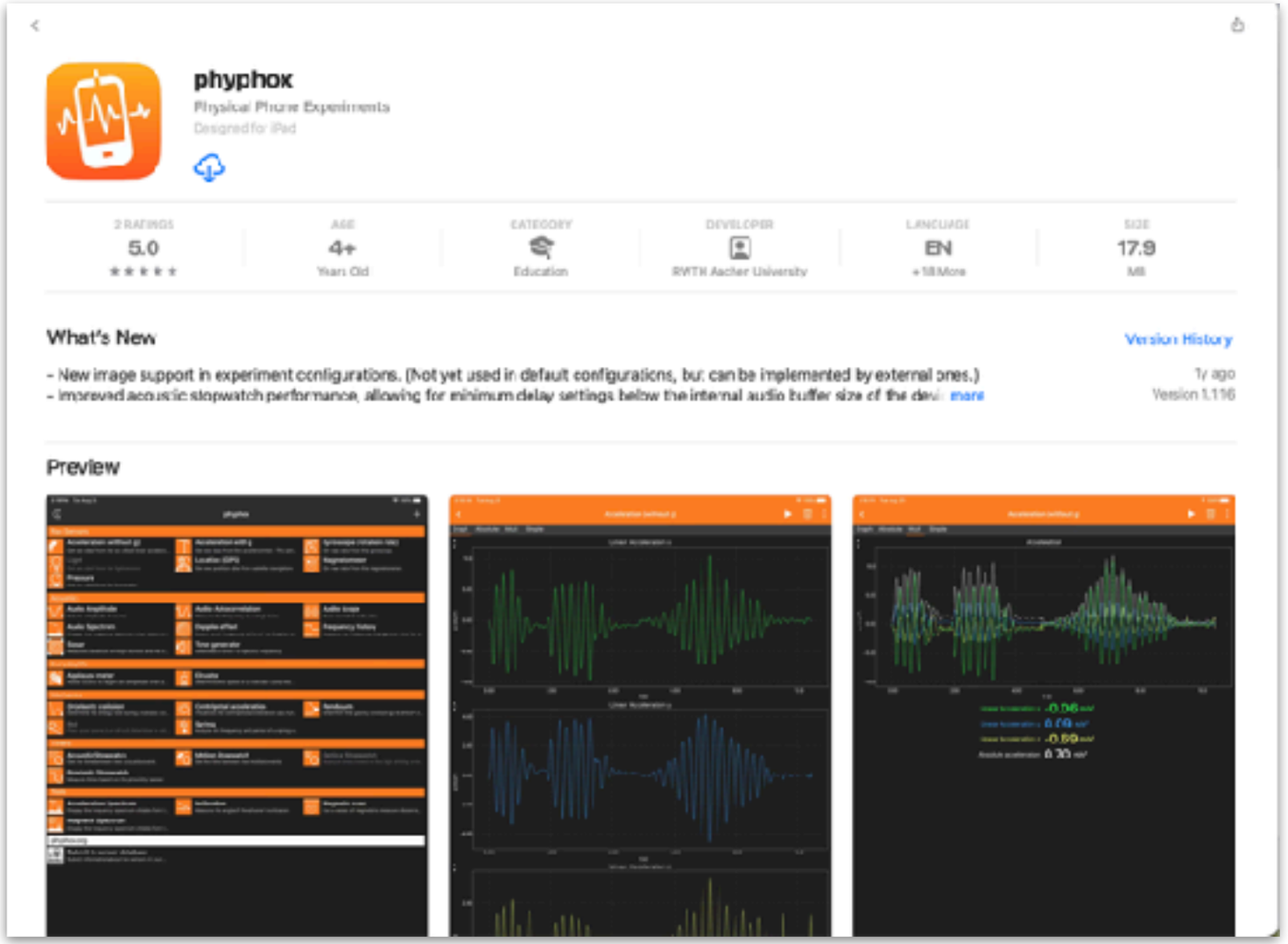
Density of Air

Joe Mancino
Oather Strawderman

PhyPhox App


phyphox
Physical Phone Experiments
Designed for iPad
2 RATINGS
5.0
AGE
4+
Years Old
CATEGORY
Education
DEVELOPER
RWTH Aachen University
LANGUAGE
EN
+18 More
SIZE
17.9
MB
What's New
Version History
- New image support in experiment configurations. (Not yet used in default configurations, but can be implemented by external ones.)
- Improved acoustic stopwatch performance, allowing for minimum delay settings below the internal audio buffer size of the dev
more
1y ago
Version 1.1.16
Preview

Density of Air Lab

- Use PhyPhox app on a smart phone or tablet
- Raise your phone as high as possible, and measure pressure at this h = 0
- Vary ‘depth’ from this highest point
- Plot Pressure vs Depth
- Slope is ρg

Density of Air Lab

Depth (m)	Pressure (Pa)
0.0	101,805
0.5	101,810
1.0	101,816
1.5	101,820
2.0	101,826
2.5	101,831

Density of Air Lab

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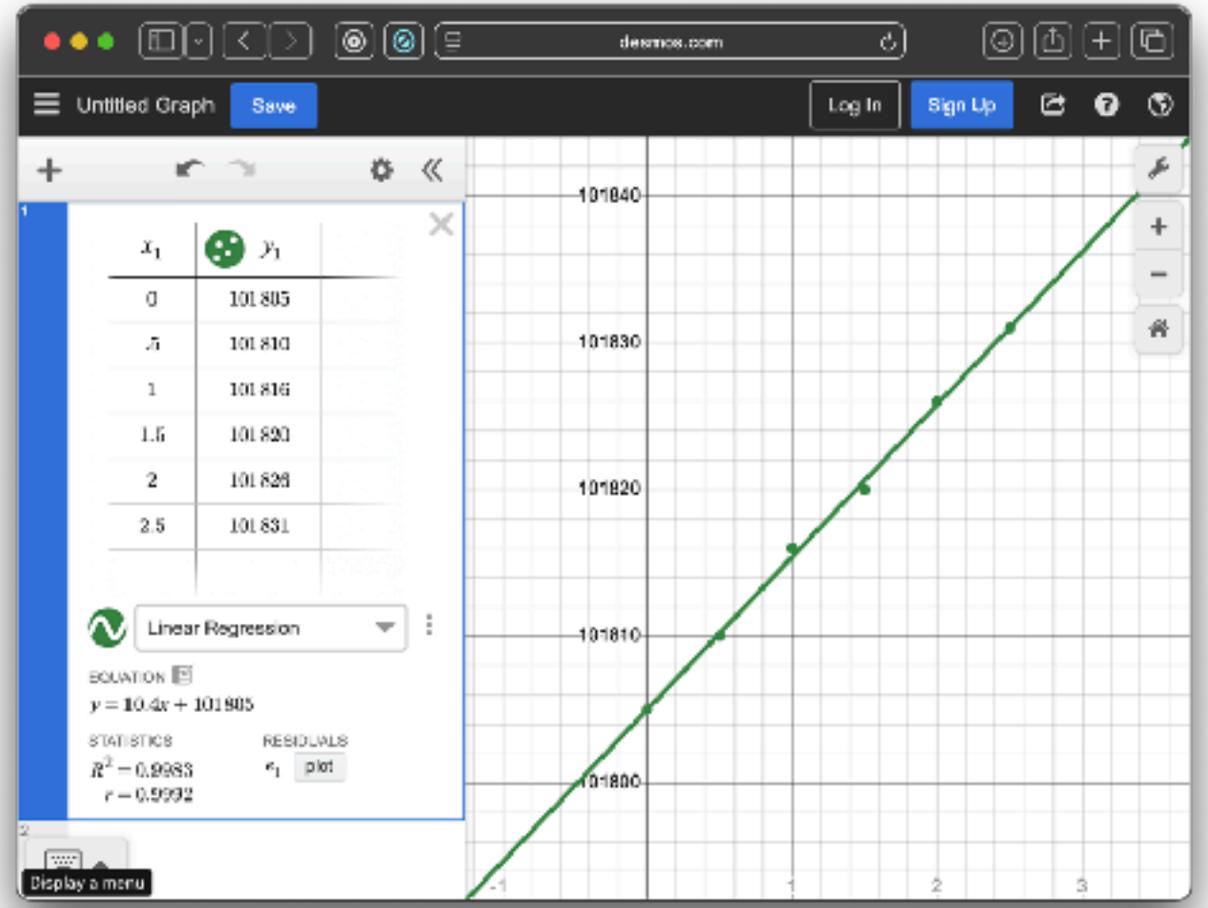
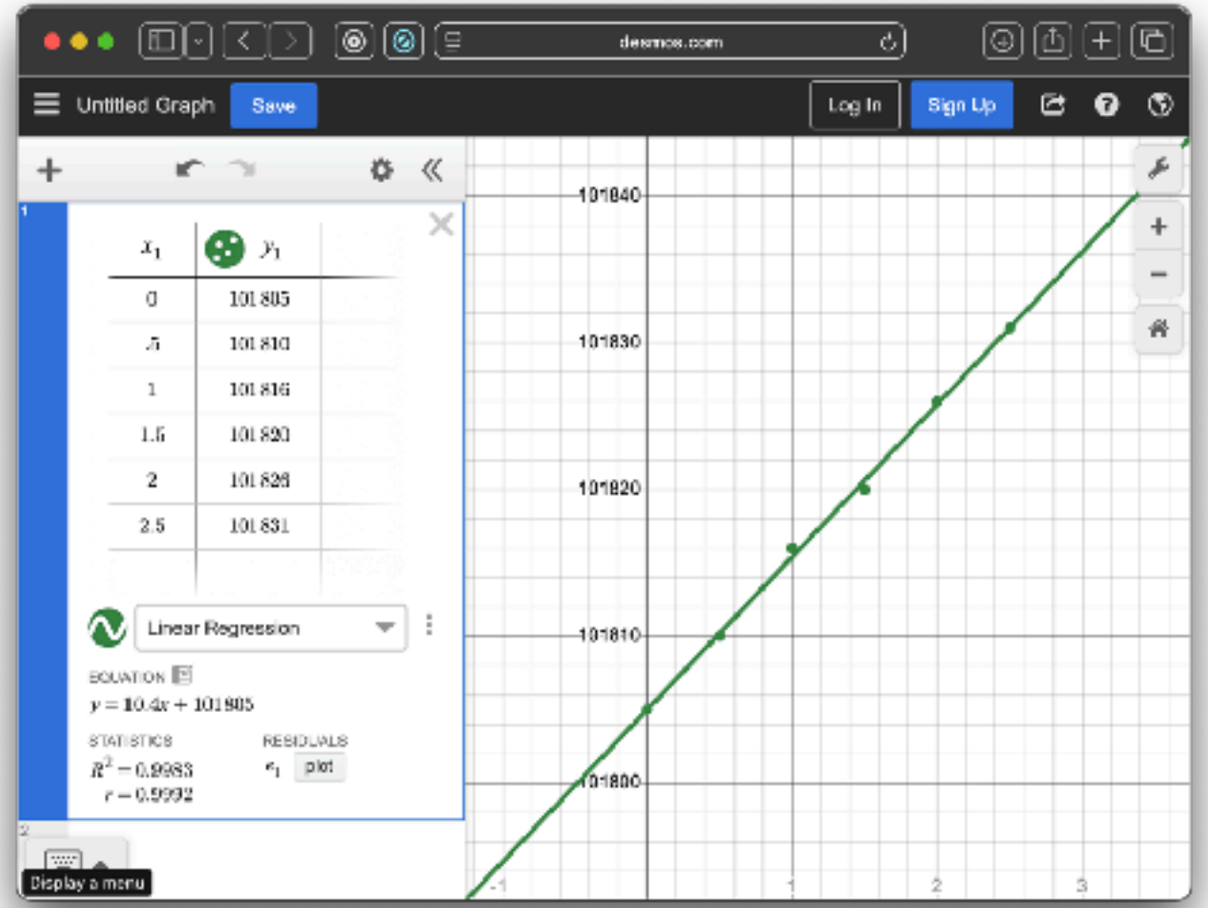


Density of Air Lab

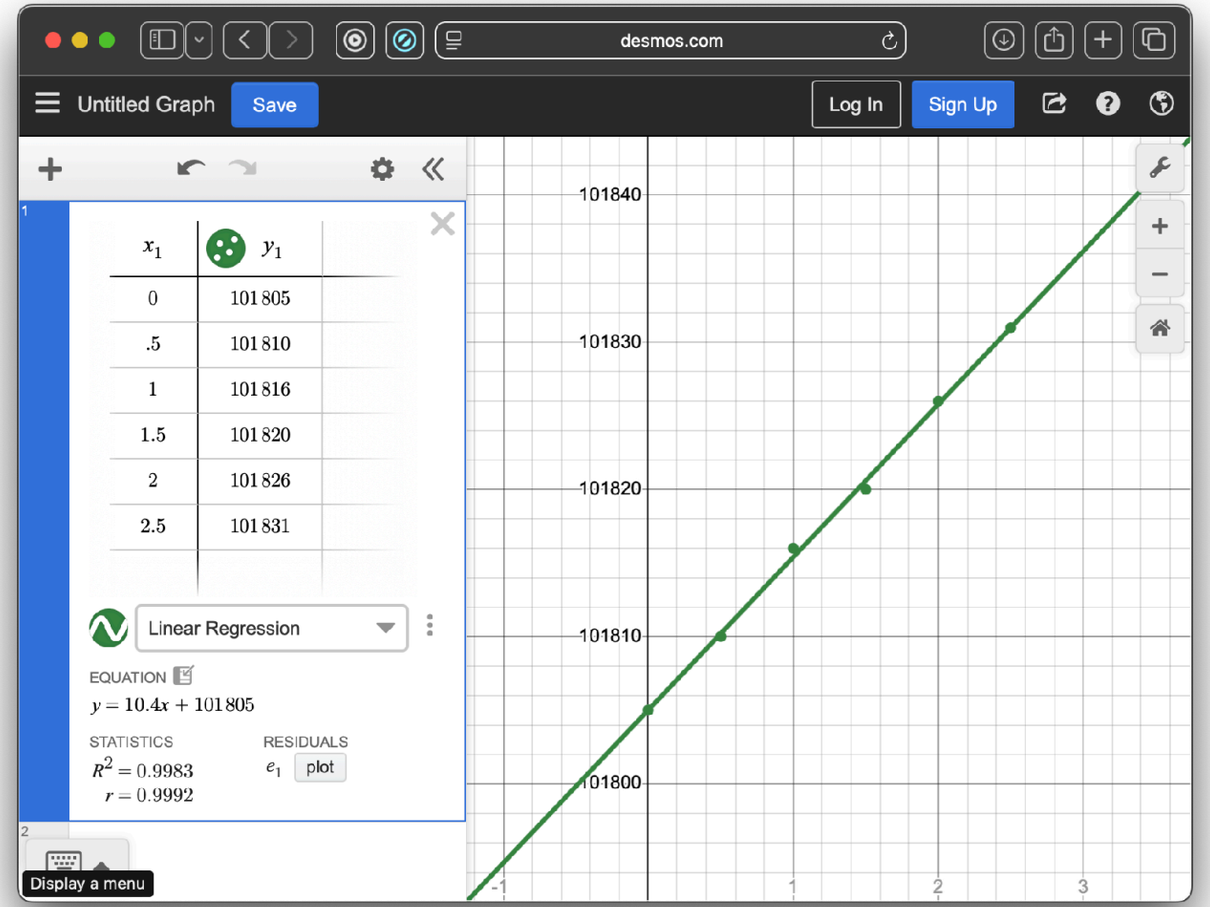
$P = \rho gh + P_0$



Density of Air Lab

$P = \rho gh + P_0$

$$y = 10.4x + 101805$$



Density of Air Lab

$$P = \rho g h + P_0$$

$$y = 10.4x + 101805$$

$$\rho_{AIR} \approx 1.06 \frac{kg}{m^3}$$