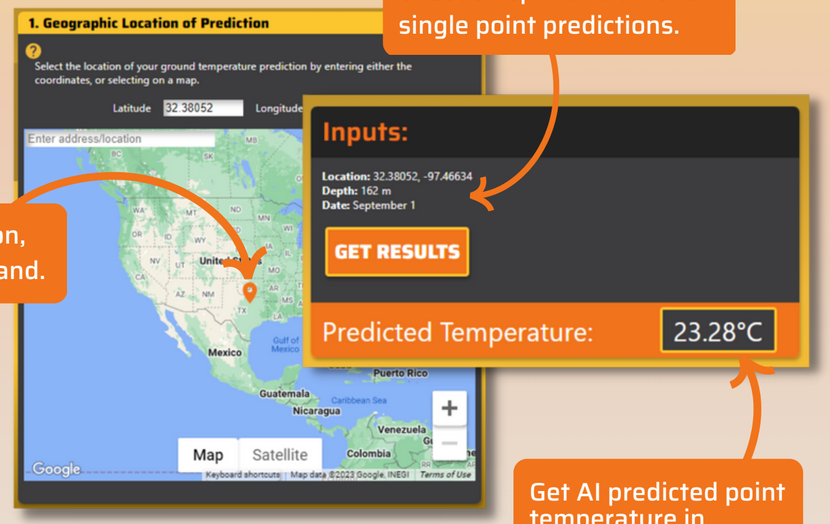
Ground Temperature Predictor

groundtemperatures.com

DEMO



Choose depth and date for single point predictions.

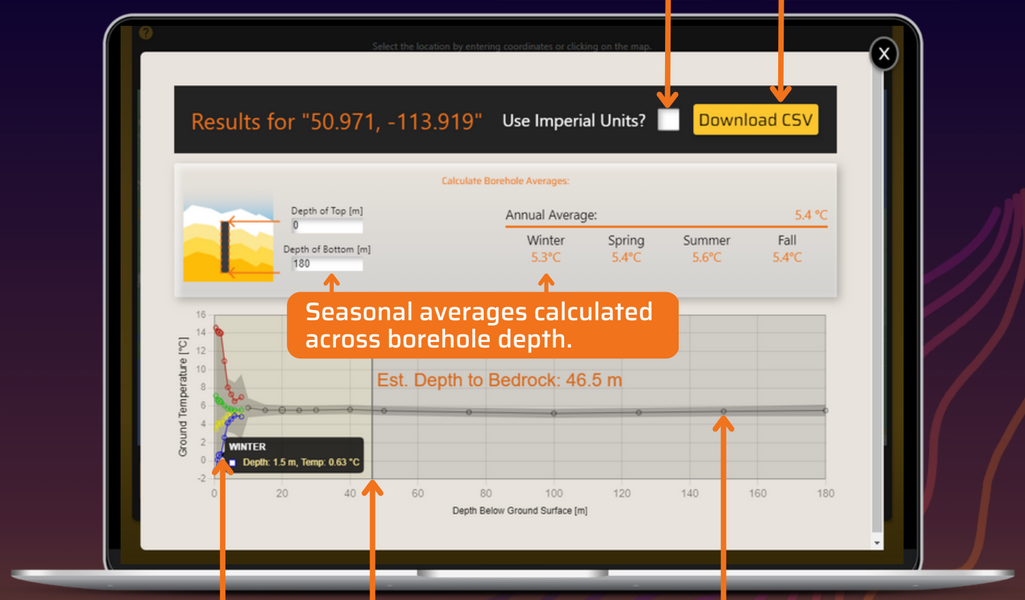
Select a location, anywhere on land.

Get AI predicted point temperature in seconds.

NEW FEATURE

Borehole Mode:

Get AI predicted vertical temperature profiles in minutes, just by selecting a location.



Automatic unit conversions.

Download all result data.

Seasonal averages calculated across borehole depth.

Temperature profiles from over 70 predicted points.

Includes AI predicted depth to bedrock from SoilGrids.

Upper and lower bounds with standard error by depth.

Soil Thermal Conductivity & Geotech Predictor

soilconductivity.com

Input or predict geotechnical details with AI.

Automatic integration of ground temperature predictor (GTP).

Get AI predicted thermal conductivity in seconds.

DEMO

Accurate, fast, & easy-to-use apps for:

- Pre-drilling info for better costing, planning, and sizing of equipment
- Finding new resources, such as low-temperature geothermal sites
- Validating physical measurements with accurate AI predictions
- Understanding ground freezing depth and melting risks, especially in permafrost
- Quantifying human/technology impacts on ground temperature (ie. from cities)
- And much more!

Interested?

Try it out free or subscribe:

PRICING

Ground Temperature Predictor

PRICING

Soil Thermal Conductivity App

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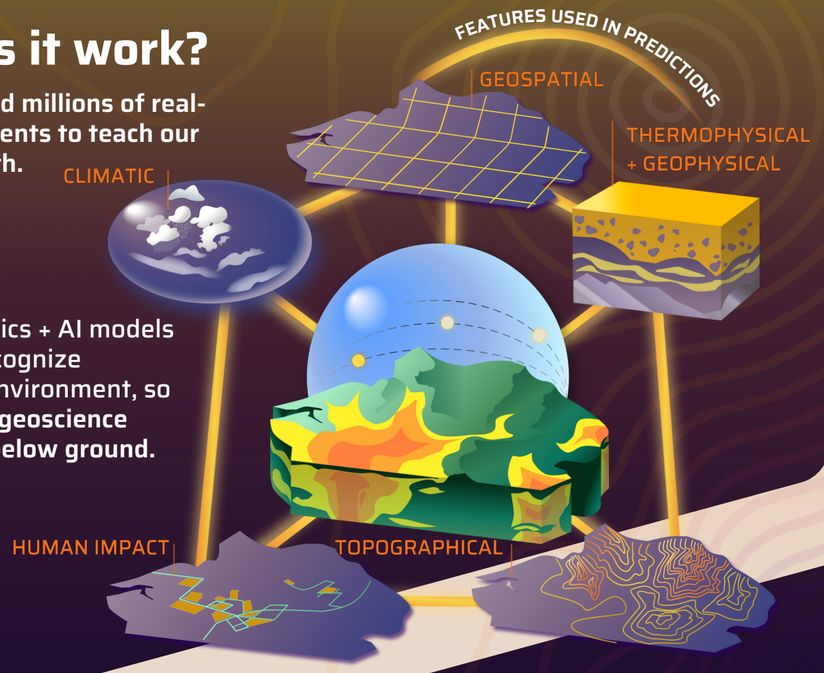
How does it work?

We have collected millions of real-world measurements to teach our AI about the earth.

WATCH

Our custom physics + AI models are trained to recognize patterns in the environment, so they can **predict geoscience info, anywhere below ground.**



Who are we?

We are specialized to model the complicated physics of the ground.

22 Years Experience

Working in engineering (research & consulting) for geothermal, computer programming, construction, and soil science for regenerative agriculture.

Master's and PhD in Computational Fluid Dynamics (CFD).

Contact us about custom pricing, and to hear about our next version release with even more ground properties.

Umny.ca/Contact/

UMNY.CA

Speaking: English, French, Spanish, Arabic

UMNY
(oom-knee)

Software to explore the earth.

How well does it work?

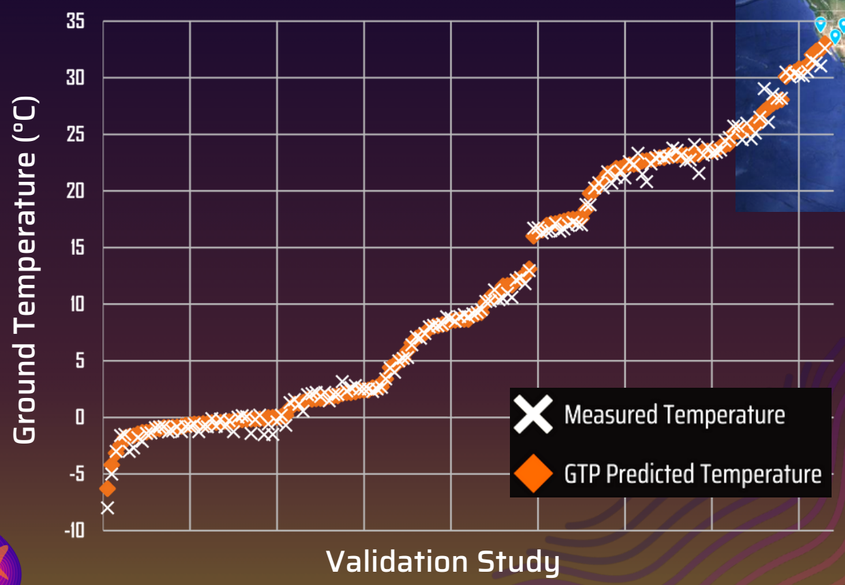
We validate our AI models with high quality real-world measurements from scientists around the earth.

Ground Temperature Predictor (GTP) Validation

Version 1.0 was tested against over 300 measurements.

Average Error of +/- 0.5°C in most areas.

READ



On average SoK predictions are 32% more accurate than other methods.

READ

Soil Thermal Conductivity (SoK) Validation

Version 1.0 was tested against best calculation methods.

Comparison of SoK prediction RMSE values with analytical models from [1], for two bulk density groups and varying saturations.

	Saturation %	COTE & KONRAD.	LU ET AL.	BALLAND & ARP	SOK
FINE-GRAINED SOIL	SAT. < 10%	0.081	**0.057**	0.071	0.058
	10% < SAT. < 20%	0.106	0.080	0.078	**0.051**
	SAT. < 20%	0.133	0.128	0.147	**0.089**
	0% < SAT. < 100% (ALL DATA)	0.122	0.113	0.130	**0.081**
COARSE-GRAINED SOIL	SAT. < 10%	0.157	0.172	0.213	**0.114**
	10% < SAT. < 20%	0.167	0.189	**0.122**	0.129
	SAT. < 20%	0.205	0.195	0.164	**0.107**
	0% < SAT. < 100% (ALL DATA)	0.172	0.182	0.186	**0.114**

MAX. ERROR — MIN. ERROR

[1] READ ORIGINAL PAPER WITH COMPARISON METHODS

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