- How do we build **trust** in geospatial data and what attributes make it trustworthy?
  - Geospatial data is generally trusted.
  - We have a *skills* and a *product* problem.

- What is the role of AI?
  - Faster, better and cheaper. And much more.
  - To remove barriers of operational use.
  - To stop considering geospatial as a separate ecosystem.

Many geoAI Foundational models, small benchmark differences

Model	BurnSr*	MADOS*	PASTIS	Sen1Fl11	FBP*	DEN*	CTM-SS	SN7*	AI4Farms*	Avg. mIoU	Avg. Rank
CROMA	82.42	67.55	32.32	90.89	51.83	38.29	49.38	59.28	25.65	55.29	6.61
DOFA	80.63	59.58	30.02	89.37	43.18	39.29	51.33	61.84	27.07	53.59	8.22
GFM-Swin	76.90	64.71	21.24	72.60	67.18	34.09	46.98	60.89	27.19	52.42	10.00
Prithvi 1.0 100M	83.62	49.98	33.93	90.37	46.81	27.86	43.07	56.54	26.86	51.00	11.00
RemoteCLIP	76.59	60.00	18.23	74.26	**69.19**	31.78	52.05	57.76	25.12	51.66	11.22
SatlasNet	79.96	55.86	17.51	90.30	50.97	36.31	46.97	61.88	25.13	51.65	10.67
Scale-MAE	76.68	57.32	24.55	74.13	67.19	35.11	25.42	**62.96**	21.47	49.43	11.44
SpectralGPT	80.47	57.99	35.44	89.07	33.42	37.85	46.95	58.86	26.75	51.87	10.11
S.-S12-MoCo	81.58	51.76	34.49	89.26	53.02	35.44	48.58	57.64	25.38	53.02	10.06
S.-S12-DINO	81.72	49.37	36.18	88.61	51.15	34.81	48.66	56.47	25.62	52.51	10.89
S.-S12-MAE	81.91	49.90	32.03	87.79	51.92	34.08	45.80	57.13	24.69	51.69	12.39
S.-S12-Data2Vec	81.91	44.36	34.32	88.15	48.82	35.90	54.03	58.23	24.23	52.22	10.72
UNet Baseline	**84.51**	54.79	31.60	**91.42**	60.47	**39.46**	47.57	62.09	**46.34**	57.58	4.89
ViT Baseline	81.58	48.19	38.53	87.66	59.32	36.83	44.08	52.57	38.37	54.13	10.28
TerraMindv1-B-single	84.00	65.01	40.80	90.32	–	–	52.66	59.71	27.71	–	–
TerraMindv1-B	82.42	69.52	40.51	90.62	59.72	37.87	**55.80**	60.61	**28.12**	58.35	3.94
TerraMindv1-L	82.93	**75.57**	**43.13**	90.78	63.38	37.89	55.04	59.98	27.47	**59.57**	**3.44**

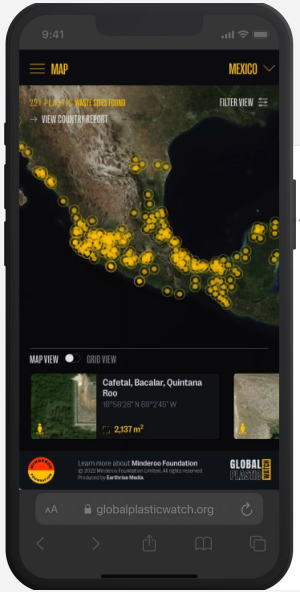
Table 11. Performance evaluation of TerraMind across seven benchmark datasets using the PANGAEA evaluation protocol. Higher mIoU values (↑) and lower rank values (↓) are reported. The best model per column is highlighted in bold and the second best is underscored. We indicate unimodal datasets with *, demonstrating that TerraMind outperforms other benchmarks in both unimodal and multimodal settings.

TRACKING COST REDUCTION OVER TIME

Over the past 15 years, the cost of building with satellite imagery has **declined by 100x**.

2009
$10M/5 years

GLOBAL FOREST WATCH



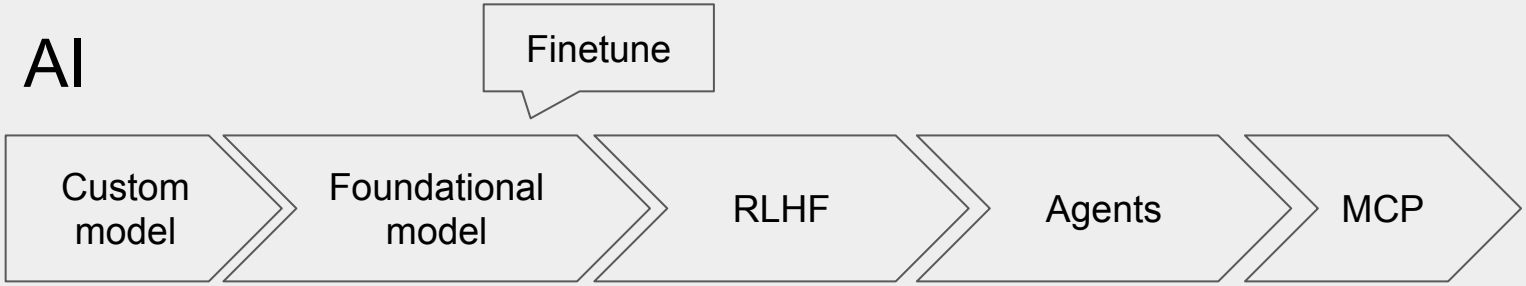
2019
$1M/1 year

GLOBAL PLASTIC WATCH

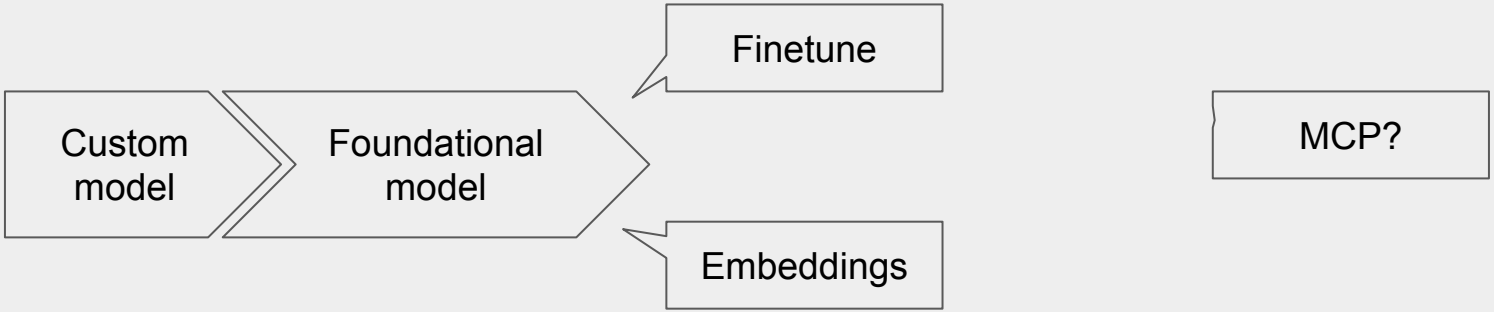
2022
$100k/1 mo.

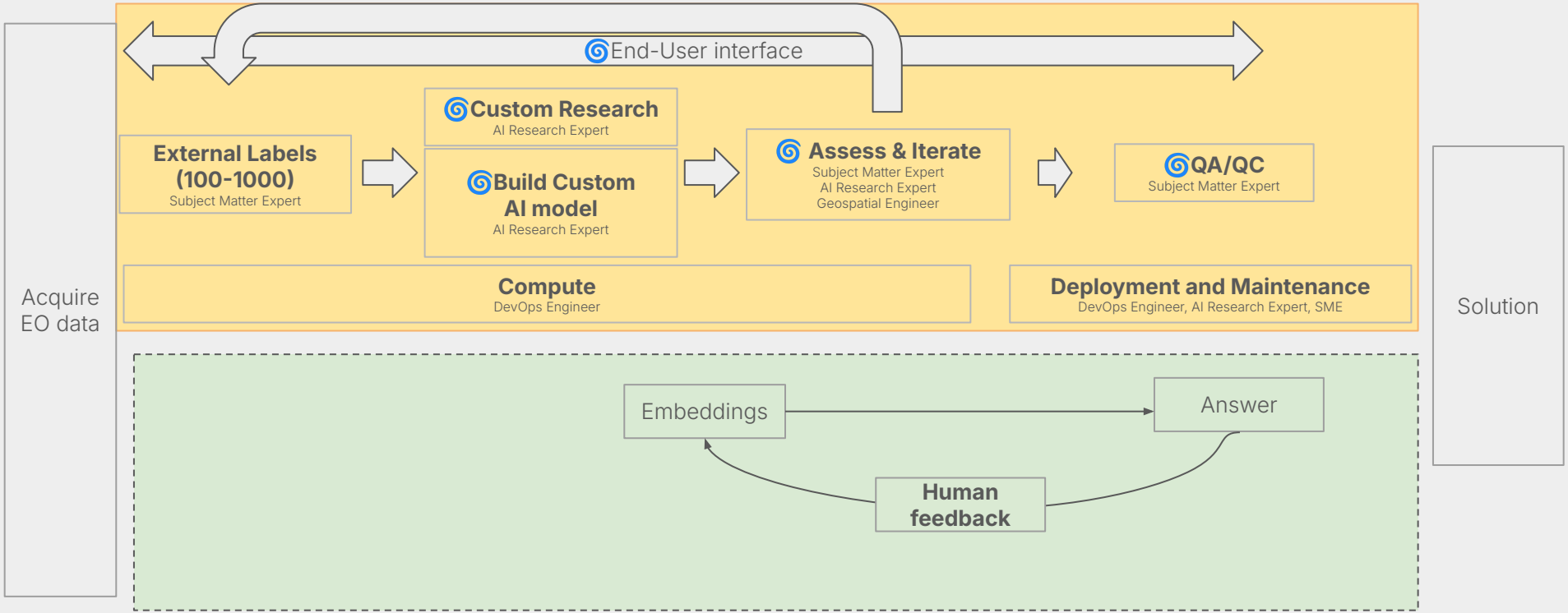
AMAZON MINING WATCH
BETA

AI


Finetune
Custom model
Foundational model
RLHF
Agents
MCP

GeoAI


Finetune
Custom model
Foundational model
Embeddings
MCP?

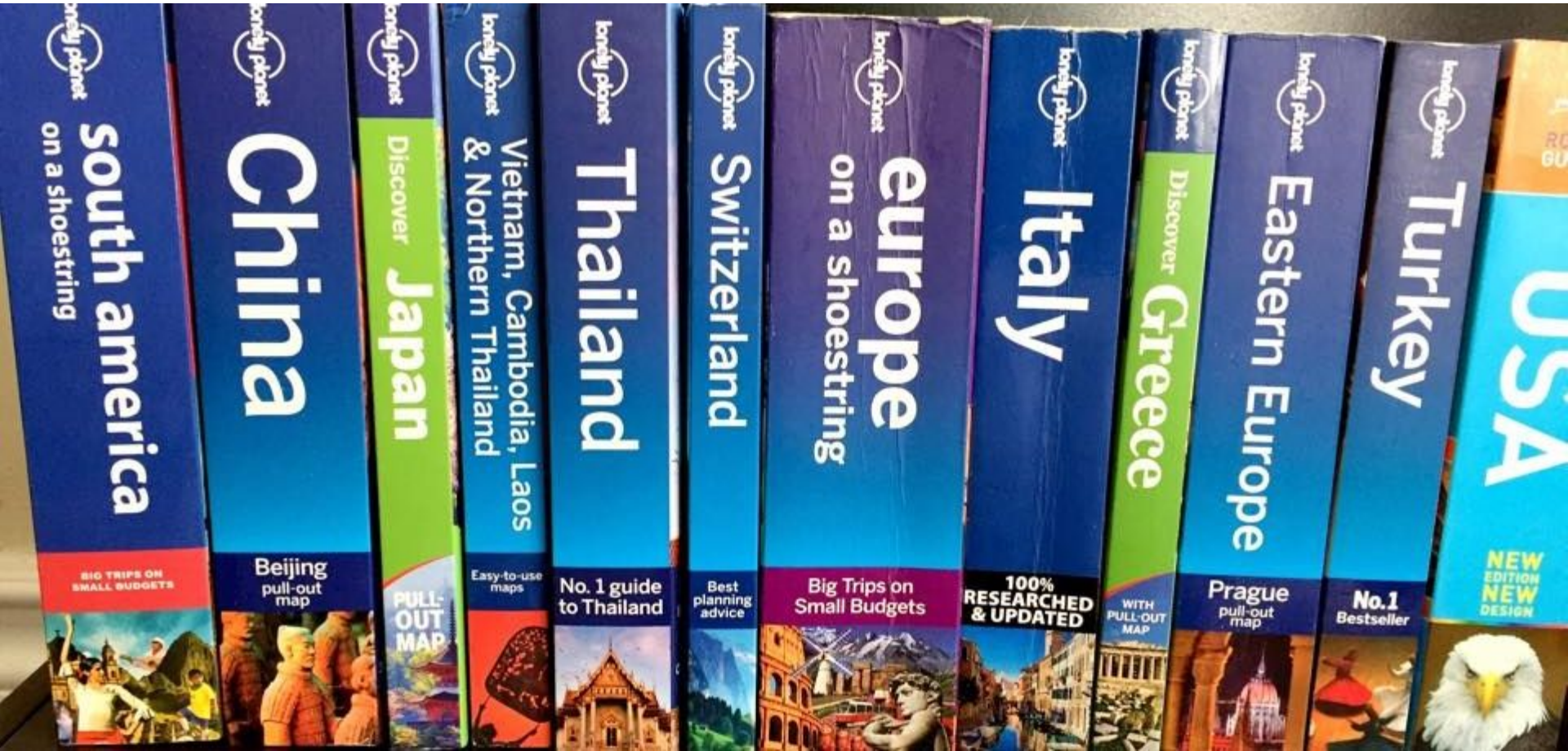

Acquire EO data
End-User interface
Custom Research
AI Research Expert
External Labels (100-1000)
Subject Matter Expert
Build Custom AI model
AI Research Expert
Assess & Iterate
Subject Matter Expert
AI Research Expert
Geospatial Engineer
QA/QC
Subject Matter Expert
Compute
DevOps Engineer
Deployment and Maintenance
DevOps Engineer, AI Research Expert, SME
Solution
Embeddings
Answer
Human feedback

Where has illegal deforestation happened in the Amazon in the past 2 months?

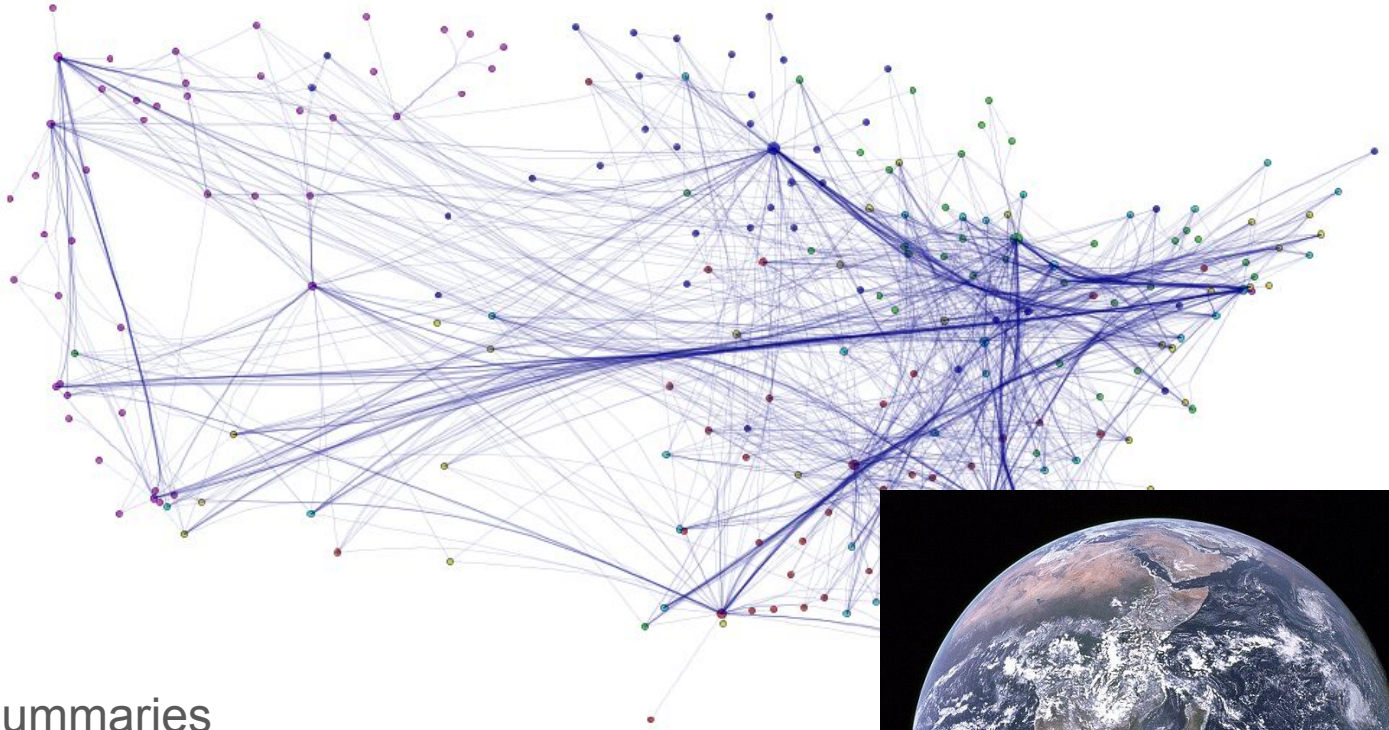
Searched 2 sites

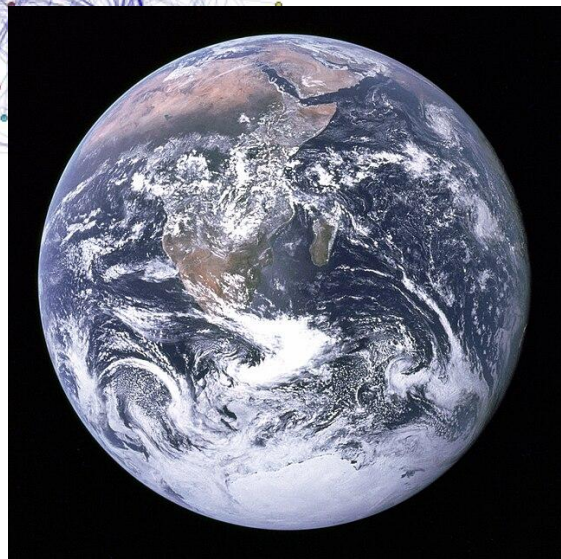
In the past two months, illegal deforestation in the Amazon has been concentrated in several regions, with a significant increase in fires linked to human activities such as cattle ranching and land clearing. The areas most affected include parts of Amazonas state, particularly in regions like Lábrea. Fires in these areas are often intentionally set by ranchers, despite being illegal, to clear land for agriculture. Brazilian authorities have been investigating these incidents, and some arrests have been made in connection with the fires(TBIJ).

- Reading about a place is NOT knowing a place



Embeddings





They are summaries

They are imperfect summaries

They are imperfect but detailed summaries

They are imperfect but detailed mathematical summaries


clay
LEGEND