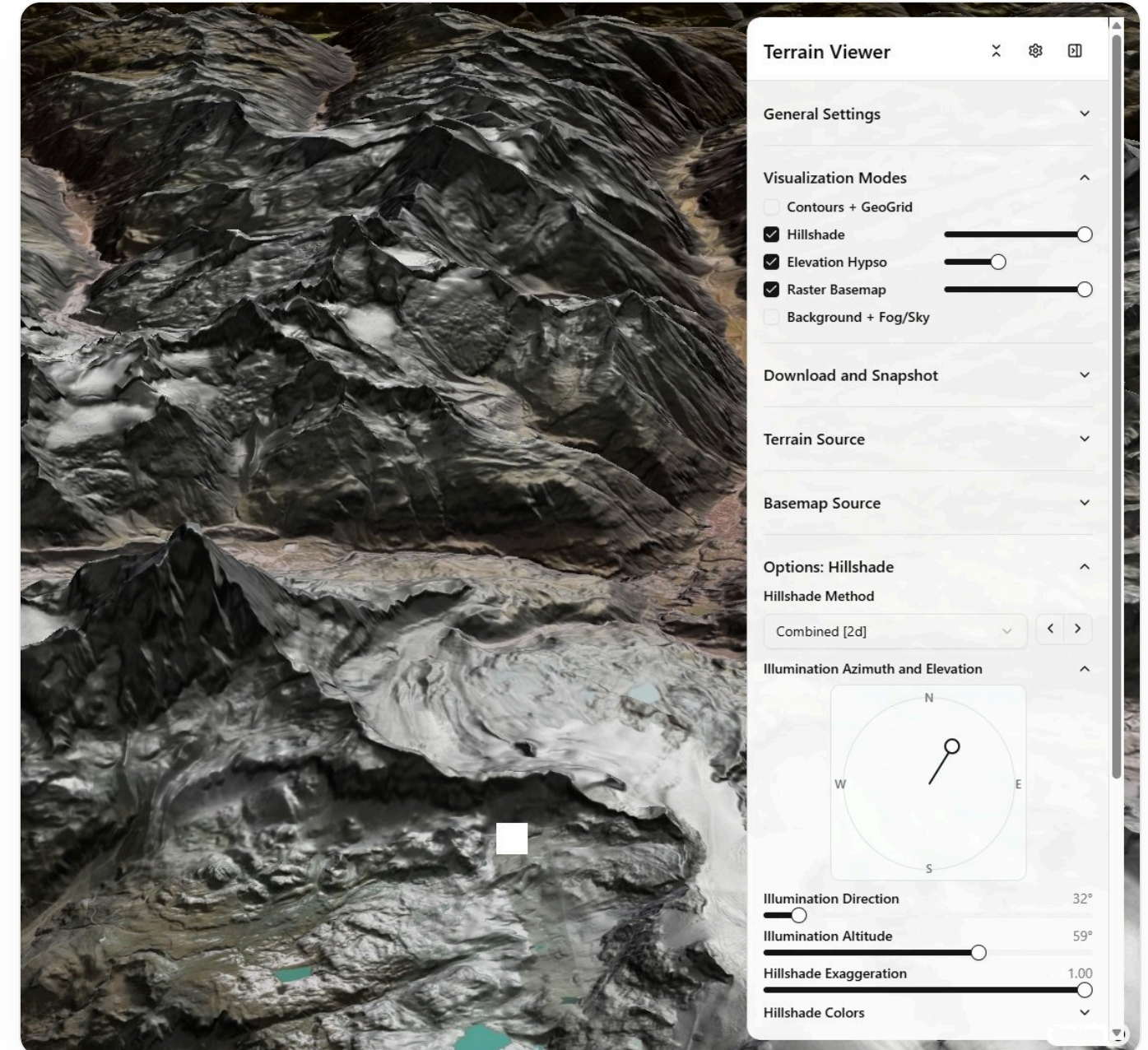


Terrain Viewer

Elevation and historical imagery, rendered in the browser. No backend, no install, every view a link.



■ What it is

A map app that computes, not a map server

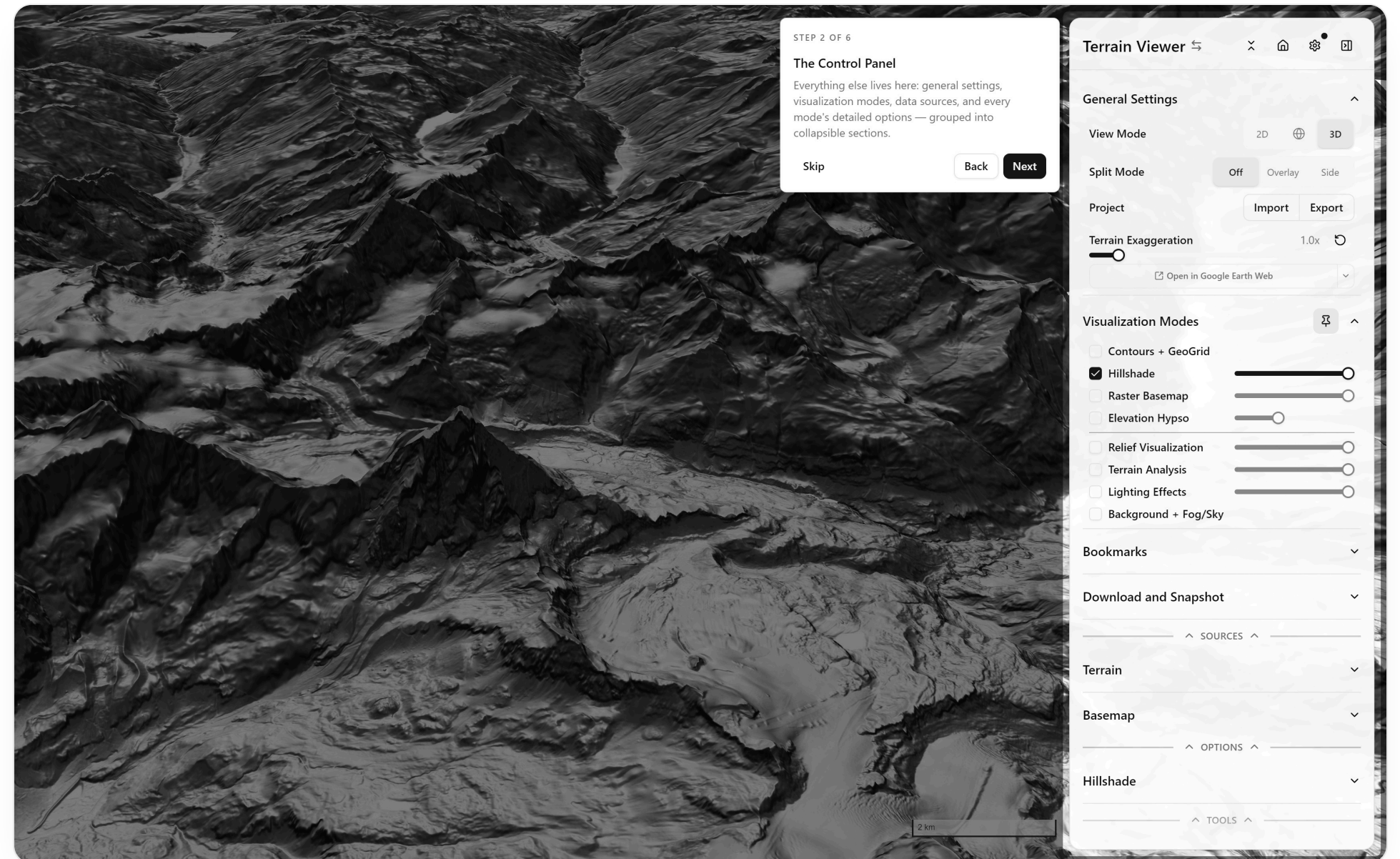
MapLibre GL React + TypeScript + Vite, react-map-gl.

Client-side only. Tiles are fetched, decoded and derived in the browser. Nothing runs on a server.

URL = state. Camera, sources, every mode: one query string, shareable as-is.

Two modes. Terrain (relief, analysis, light) and Historical Imagery (a dated timeline).

Open source. github.com/iconem/terrain-viewer, built by Iconem.



The sidebar: General, Compare and Blend, Visualization Modes, Bookmarks, Sources, Tools

Worldwide DEM tilesets, built in

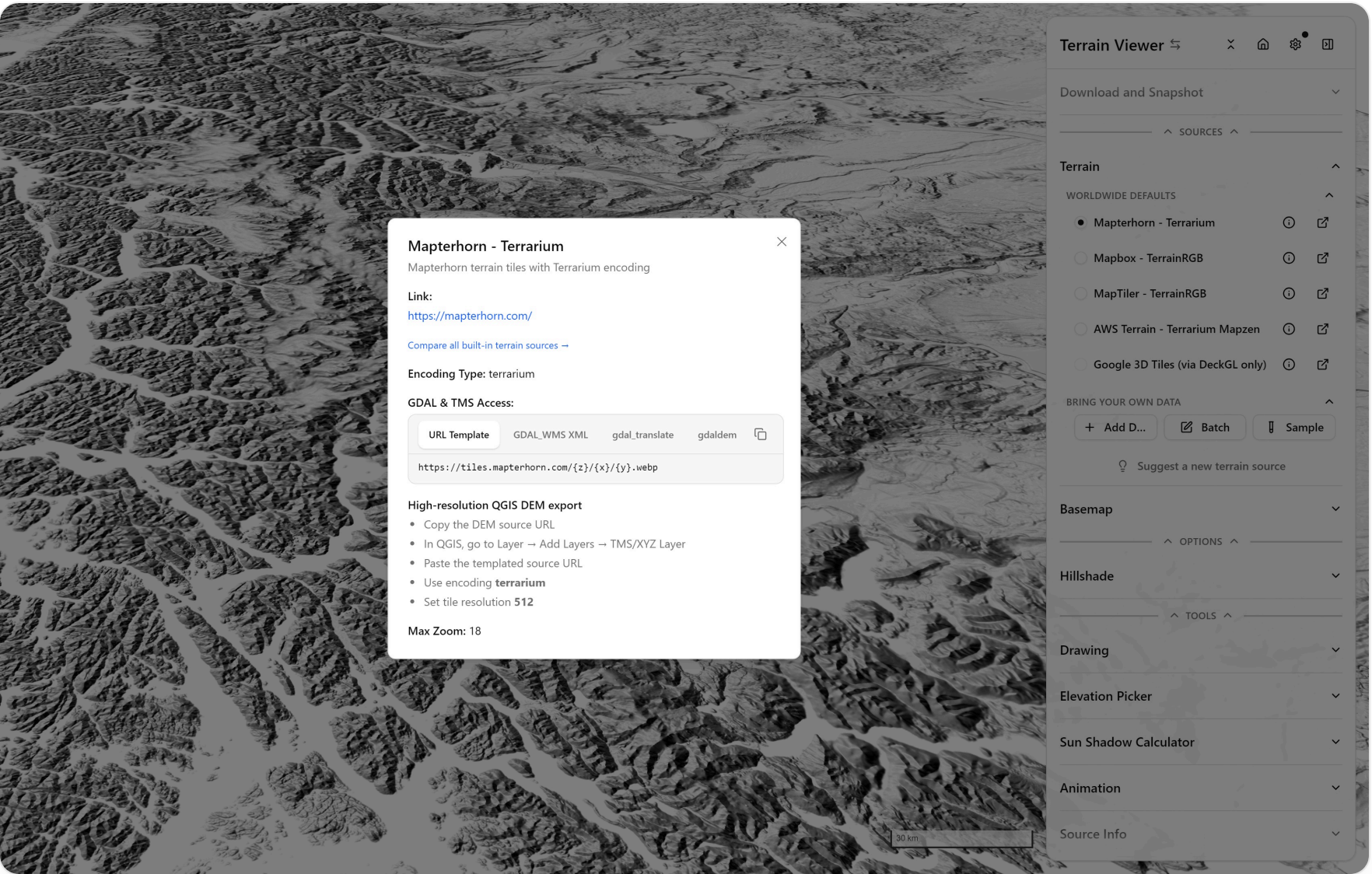
Mapperhorn Terrarium · z18 · 512 px. Copernicus GLO-30 base, national LiDAR swapped in. The default.

AWS Terrain Tiles Terrarium · z16. The Mapzen heritage, the one with ETOPO1 bathymetry.

Esri World Elevation LERC float tiles decoded in the browser, TopoBathy: land and seafloor in one surface.

Mapbox Terrain-DEM · **MapTiler Terrain-RGB** Terrain-RGB, API key required.

Encodings Terrarium $h = R \cdot 256 + G + B / 256 - 32768$ · Terrain-
RGB $h = -10000 + (R \cdot 256^2 + G \cdot 256 + B) \cdot 0.1$



Source info: link, encoding, licence, a ready-to-run GDAL export command

Agency LiDAR, streamed live at native resolution

IGN LiDAR HD France, 0.5 m DTM and DSM, WMS float32

AHN Netherlands, 0.5 m DTM and DSM

swisstopo swissALTI3D one national COG, pinned to titiler

Kartverket Norway, 0.25 m resampled on demand

Environment Agency · USGS 3DEP England and USA, 1 m ImageServer

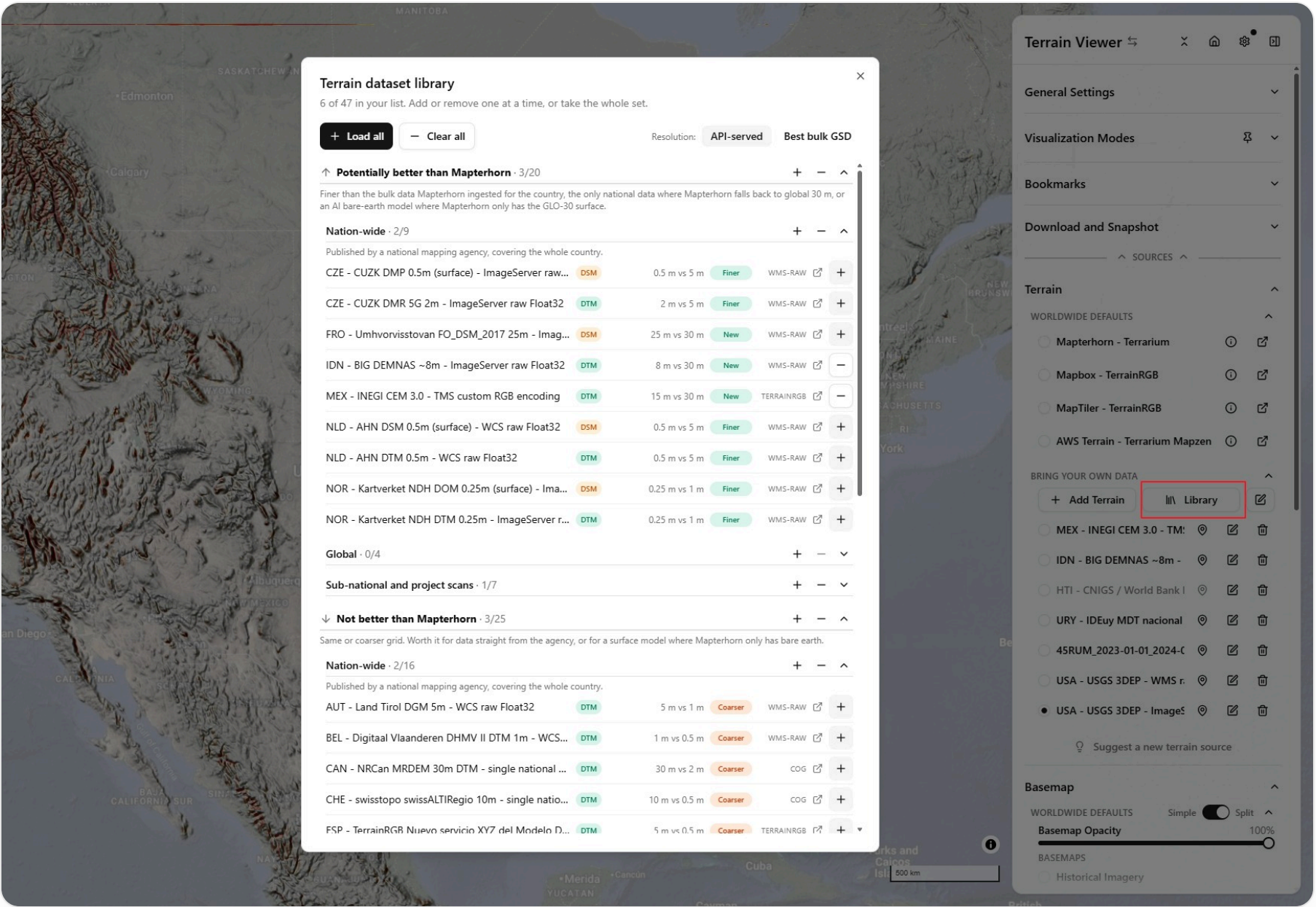
Plus Spain, Italy, Japan, Mexico, New Zealand, ArcticDEM, REMA, GEDTM30, Digital Earth Africa...

■ 153 sources

Mapperhorn catalog, 32 countries, ~690,000 bulk files ingested

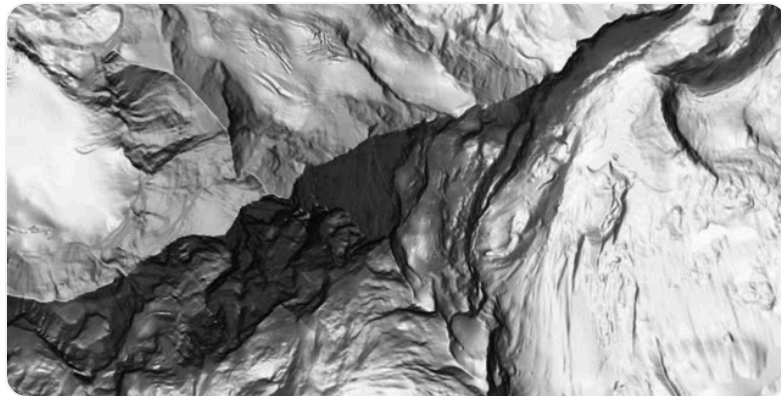
■ One click

Library picker, graded against Mapperhorn, coverage footprints on the map

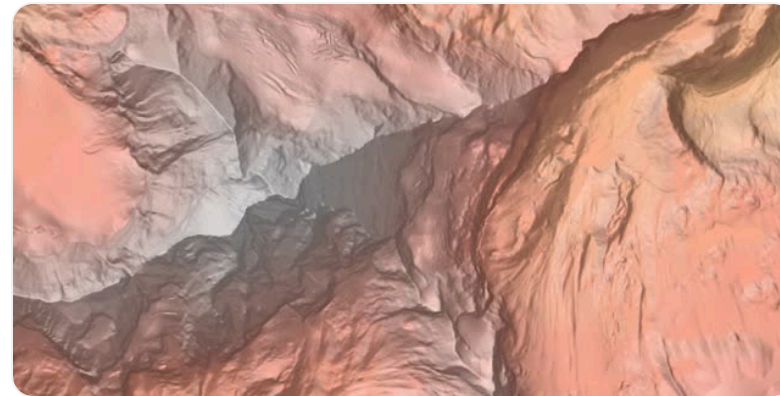


Sources → Terrain → Library

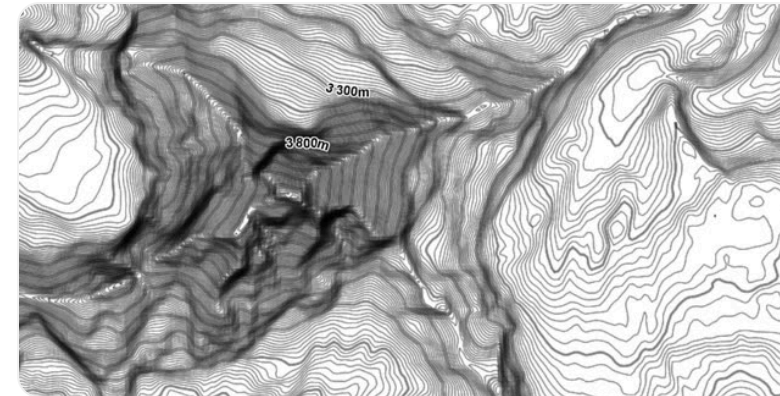
Same Matterhorn, twelve ways



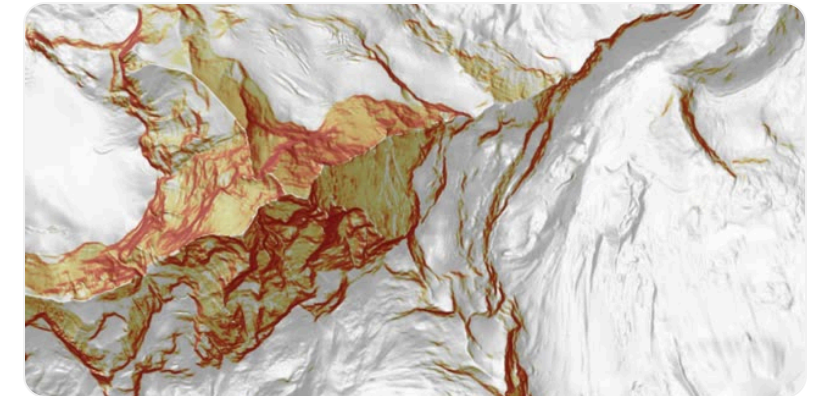
Hillshade 7 methods



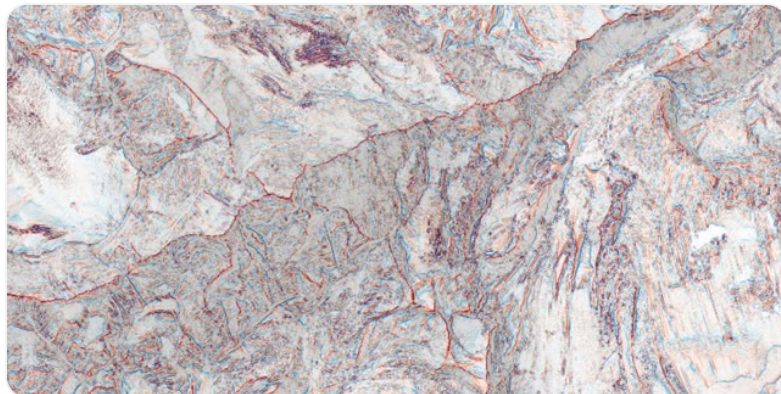
Elevation hypso cpt-city ramps



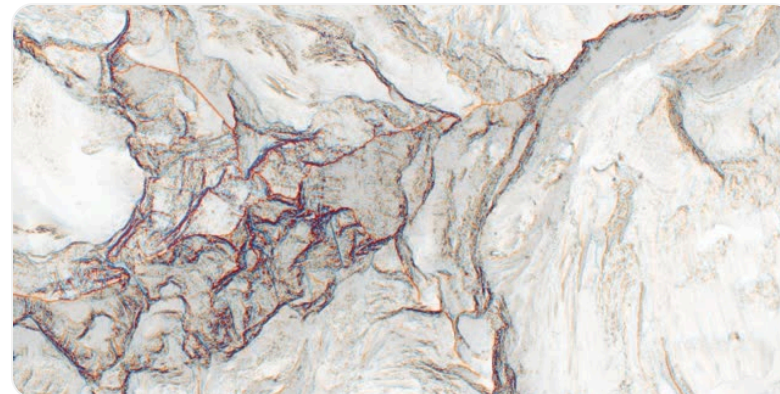
Contours + grid + iso-line



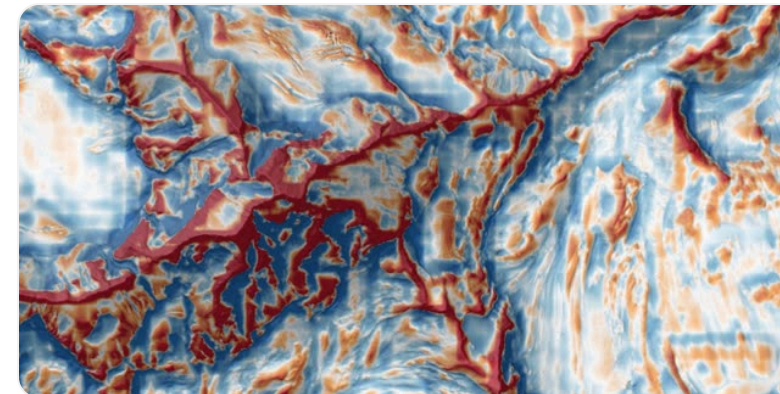
Slope Horn 3×3



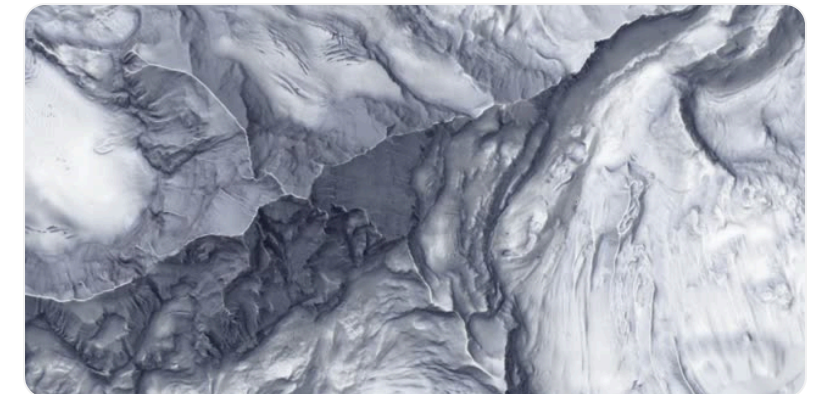
Curvature 5 kinds



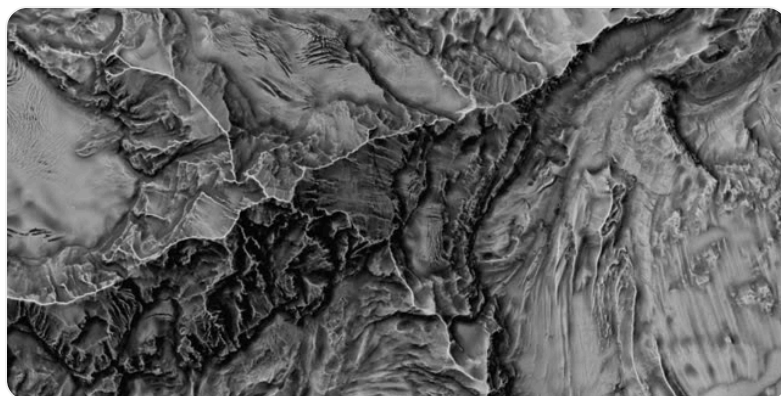
TPI TRI, roughness



LRM local relief



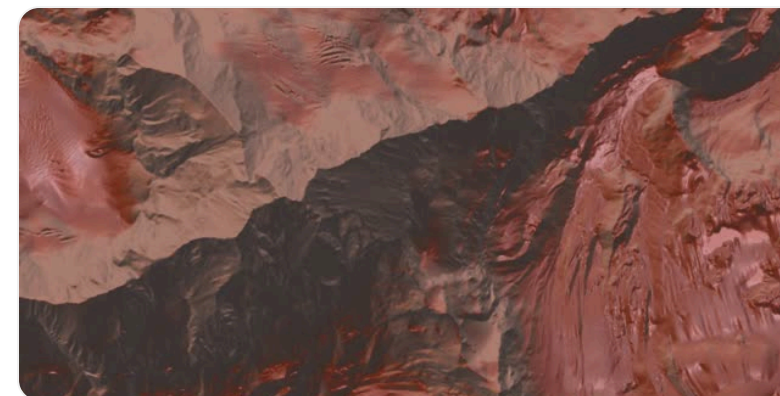
Sky-view factor



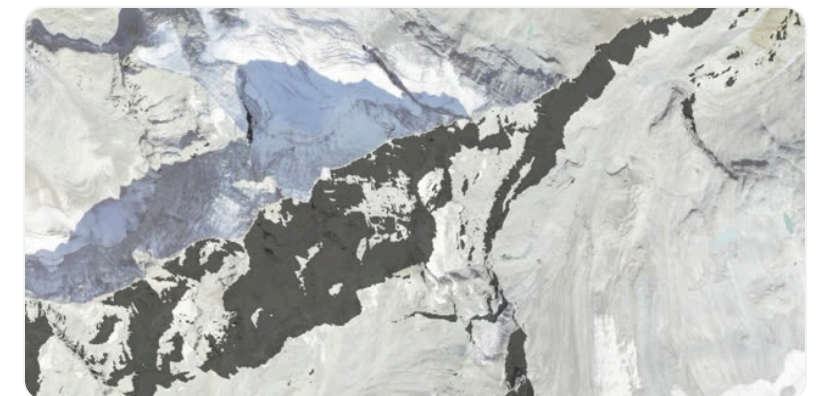
Openness + / -



Phong 3 lights, fresnel



Matcap



Hard shadows + OSM buildings

Every mode stacks, each with its own opacity

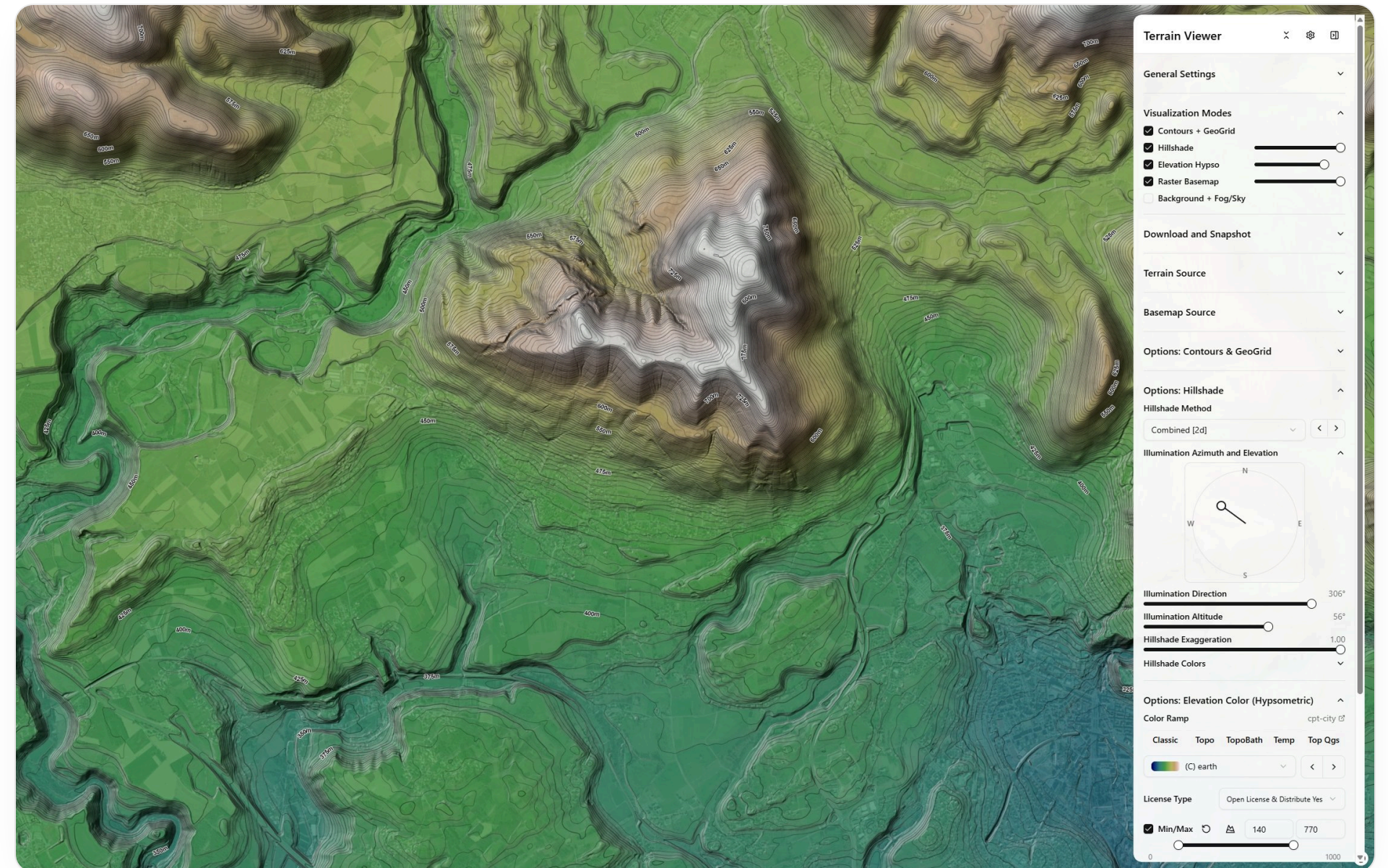
Base Hillshade (standard, combined, Igor, multidirectional, aspect-tinted, duotone NW/NE), hypsometric tint, contours.

Terrain analysis slope, aspect, curvature, TRI, TPI, roughness, structure-tensor blobness and orientation.

Relief LRM, sky-view factor, openness, local dominance: the RVT toolbox, in the browser.

Light matcap, Phong, cast shadows from a real sun position, OSM building shadows on the GPU.

gdaldem and **RVT** are the references; each mode links its paper.



Contours + hillshade + hypso + raster basemap, Karakoram

■ View modes

2D, 3D and globe, one camera

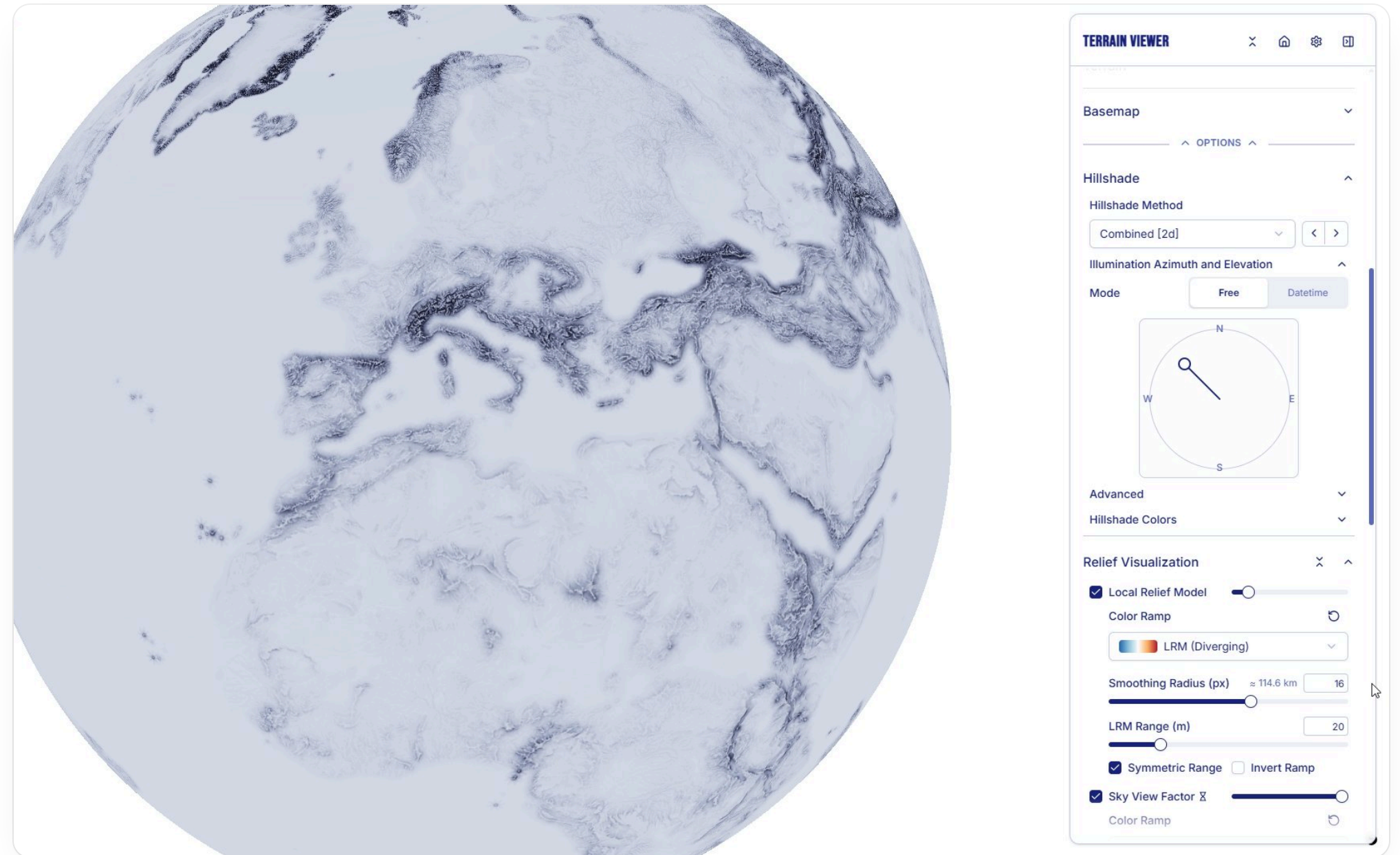
2D north-up plan view; snapshots come with a world file.

3D MapLibre terrain mesh, pitch and bearing, exaggeration slider.

Globe the same layers draped on the sphere.

Camera sync across every split view: six parameters, elevation included.

Light hold L and drag on the map, or drive it from a date and time.



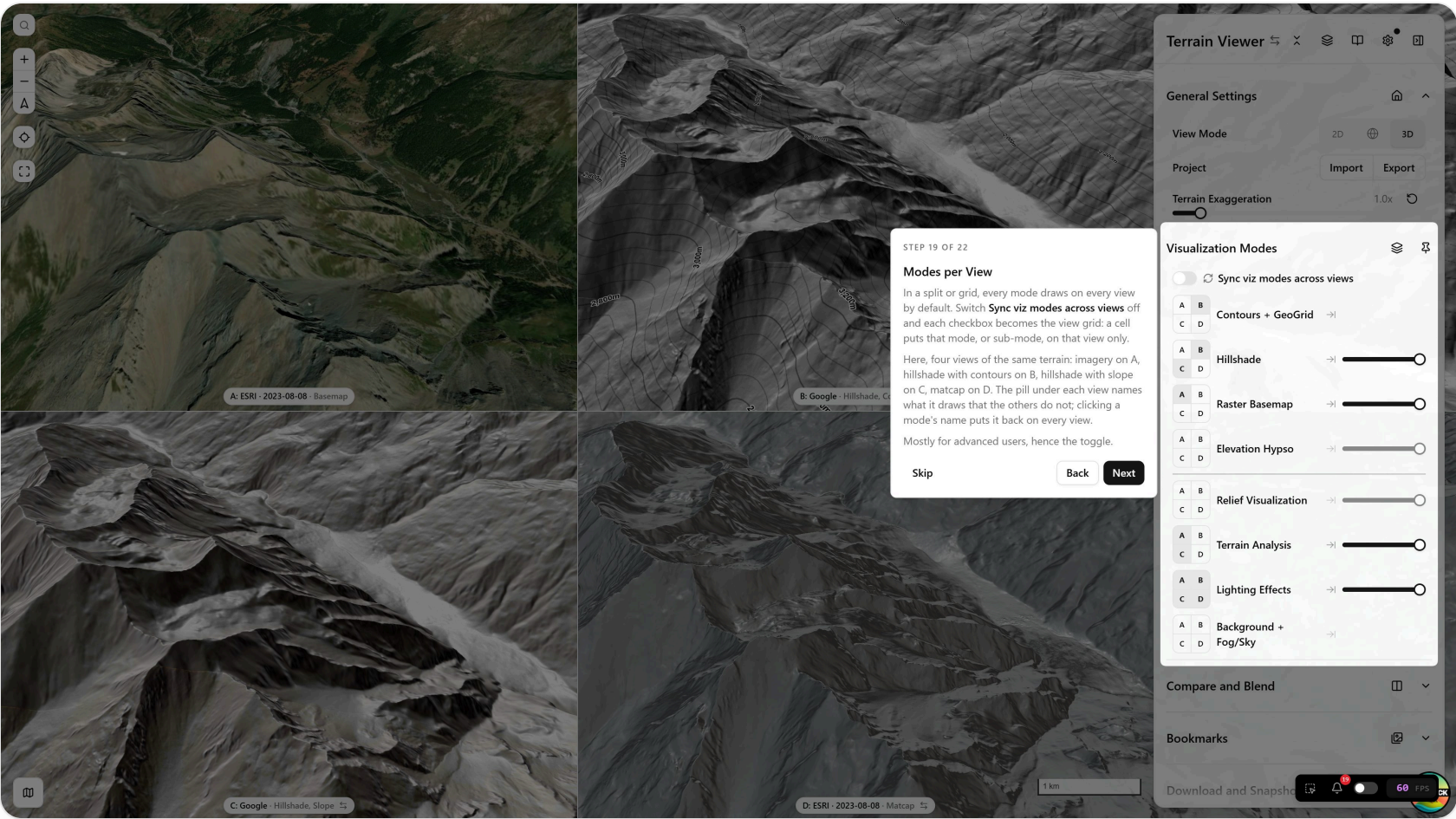
Globe view

■ Compare

Split, overlay, grid: up to 8 views



Side-by-side, Mapperhorn vs AWS



Modes per view: slope on A, hillshade on B...

■ Off

One view.

■ Overlay

A over B, wipe gutter, opacity, blend: normal, multiply, difference.

■ Side

2x1 to 4x2, views A to H, a source and a date per view.

■ Match colors

Histogram-match every view to A: RGB live, or LAB / LCH.

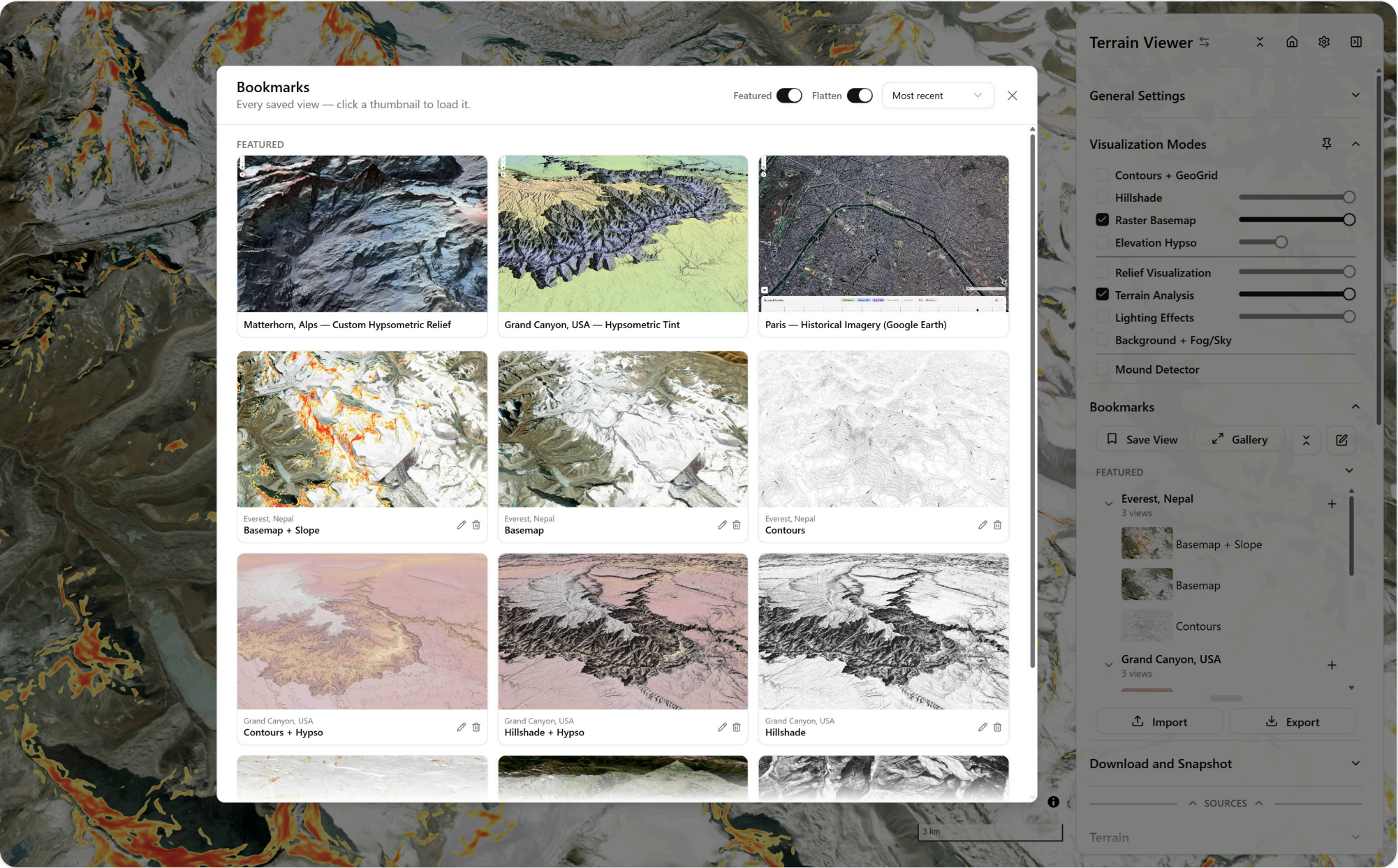
A name, a thumbnail, a query string

Projects a viewport, with child views: same place, different modes.

Gallery every bookmark as a card, sortable, plus a Featured strip.

Import / export JSON, merged by id.

By link ?bookmarksUrl=... hands a curated list to a visitor.



Bookmarks gallery

The link is the whole view

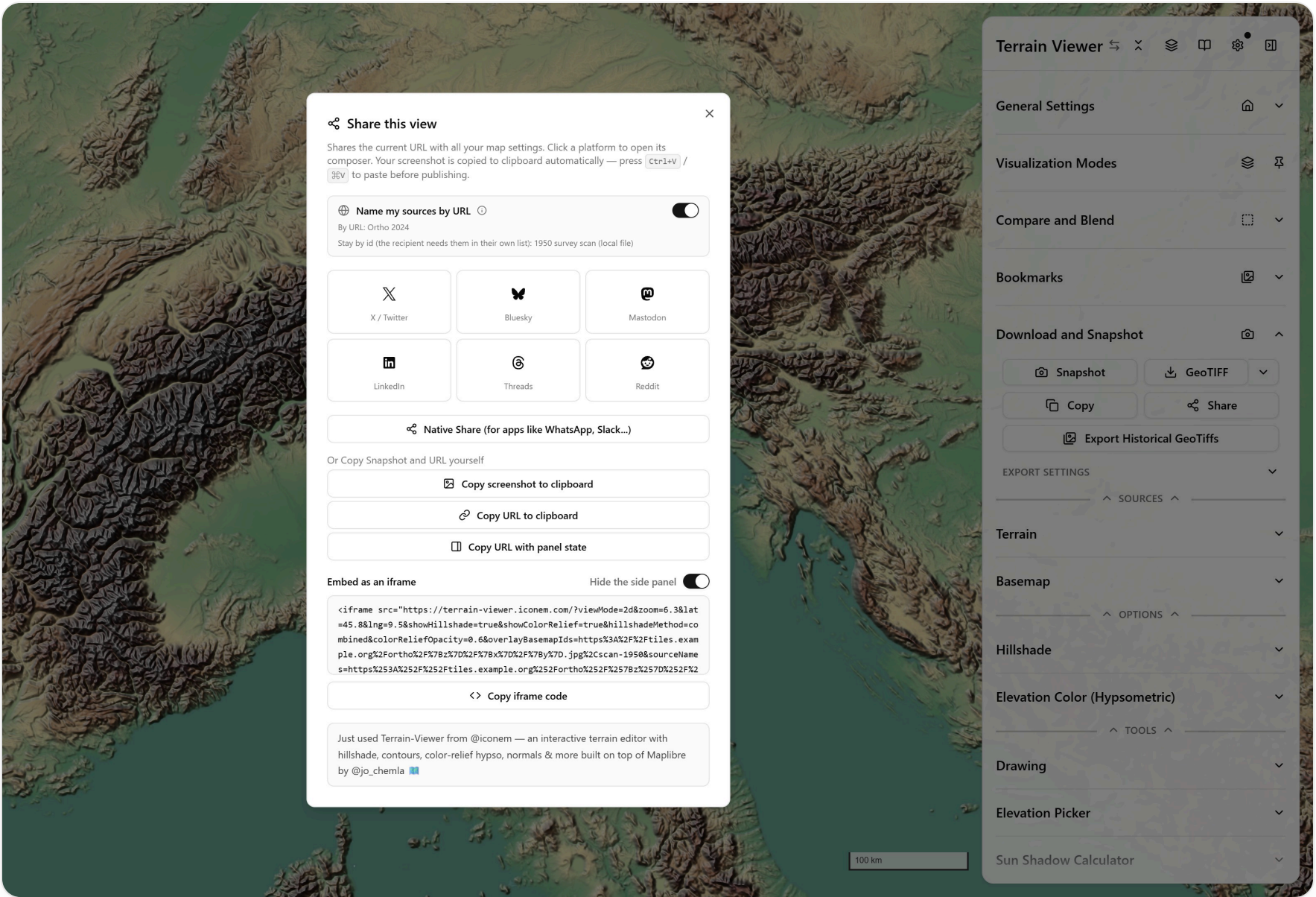
Share modal X, Bluesky, Mastodon, LinkedIn, Threads, Reddit; a screenshot copied along.

Your sources travel a remote COG or tile URL is written into the link by URL, so the recipient loads it too.

Embed an iframe is the same link in a src; sidebarCollapsed=true hides the panel.

Snapshot JPEG of the map area, with a .jgw world file in 2D.

```
?terrainSourceA=https://host/dem.tif&viewMode=3d
&showHillshade=true&showSvf=true&lat=45.97&lng=7.65&zoom=1
2.6
```



Share modal

Docs, a skill, llms.txt, an OpenAPI

`/docs` features, dev deep dives, equations, 130+ research references.

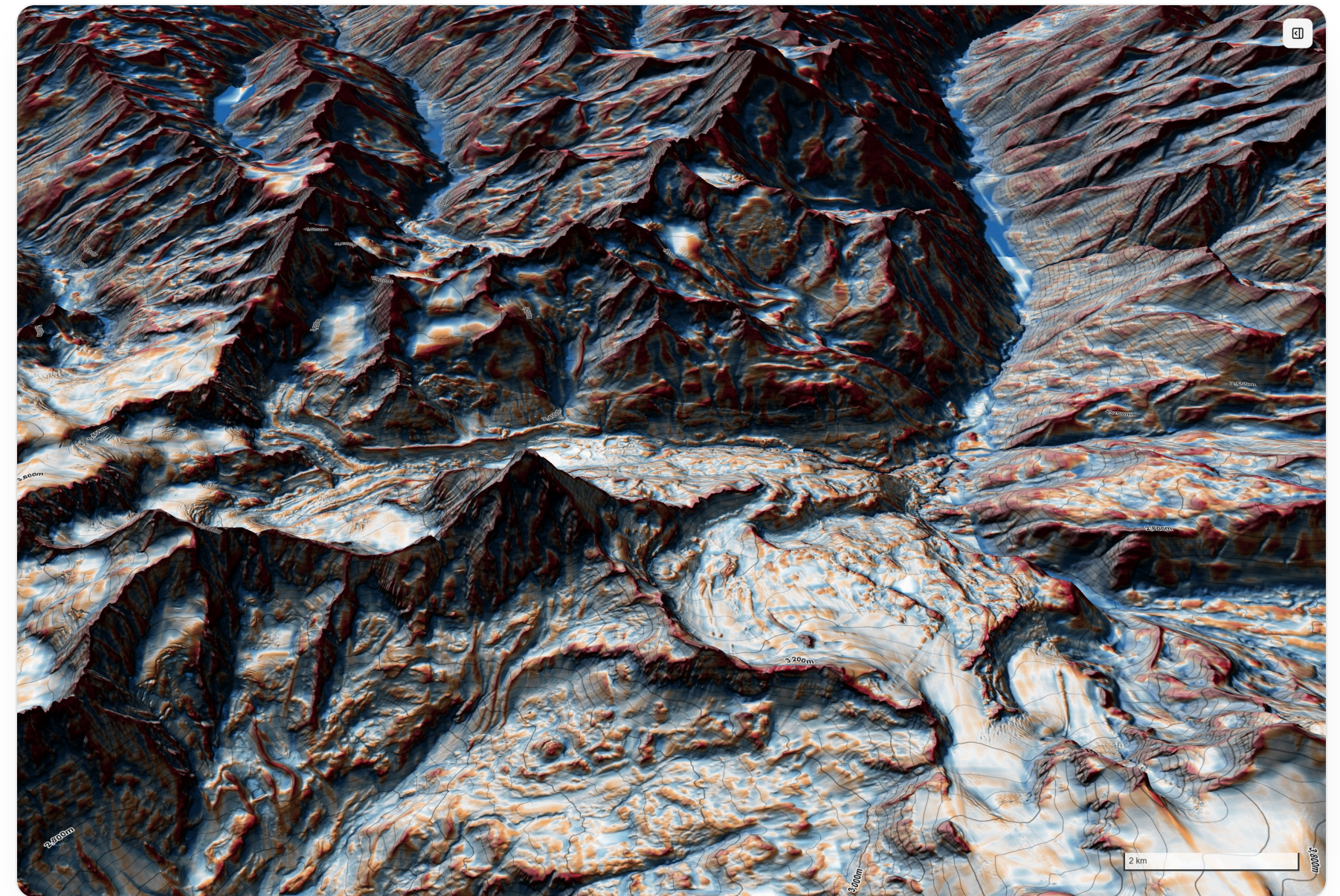
Skill one file that teaches an agent to build a link for any place and mode.

`/llms.txt` the same for assistants that read the web.

`openapi.json` every URL parameter, typed, with defaults.

STAC every source the app knows, as a static catalog with web-map-links.

```
npx skills add Iconem/terrain-viewer  
"Open the Matterhorn in sky-view factor with  
contours, tilted 3D"
```



What the skill answered

Open it. Pan somewhere.

01 `terrain-viewer.iconem.com`

02 `terrain-viewer.iconem.com/docs`

03 `github.com/Iconem/terrain-viewer`

04 `historical-satellite.iconem.com` → the historical deck
