



Seaglass Globe™

A WGS-84 Ellipsoid, in Double Precision, All the Way Down

Twenty thousand kilometres to a rooftop, in one move — no cut, no dissolve, no swapping one scene for another — the same globe the whole way down. A precision virtual globe rendered on the GPU through Rust and wgpu, with real elevation above and below the waterline, real imagery, and geodesy that names its algorithm beside every number. Your own data on the stack, live feeds, and the Forge suite's GPU compute running where you are looking. The suite's optional 3D view — and the surface the agent draws on.

20 000_{km}

to a rooftop, in one continuous move

no cut, no scene swap; precision is held relative to the camera, so the ground stops shimmering exactly where a single-precision engine starts to

f64

all the way down

*relative-to-centre split-float — world space stays double until the subtraction; reverse-Z
Depth32Float, infinite far plane*

WGS-84

ellipsoid, semi-major axis printed

*a = 6 378 137 m · geodetic ↔ ECEF in f64 ·
Vincenty inverse and Karney area, named beside every measurement*

What it is

Seaglass Globe is a precision virtual globe: a WGS-84 ellipsoid held in double precision and rendered on the GPU, with real elevation, real imagery, and geodesy that names its algorithm. It reads GeoJSON, KML and shapefiles, any XYZ, WMS, WMTS or MVT service you can name, 3D Tiles and glTF — and it is the Forge suite's optional 3D view: install it with the Seaglass Control Center™ and it starts alongside the engines.

Why it matters

The engines are headless, and ForgeGIS Studio™ is where a person operates them on a flat map — but some answers want the Earth. When the Globe is running it is the agent's presentation surface: ForgeMind™'s visual answers — contours, elevation profiles, draped rasters, scene entities — are drawn on the globe instead of only described. It has its own chat panel too, talking to the same agent.

How it's built differently

The numbers on screen are the render's own: precision held relative to the camera so a rooftop does not shimmer, a measurement that prints its method, a spec sheet with a semi-major axis on it. Screen-space-error LOD over a quadtree descent to a 256 px target; analytic ray- $\cap$ -ellipsoid picking; globe plus five flat projections switched live. It runs ForgeGIS™ from a node-graph editor docked under the map — a scrub re-runs only downstream — and can be flown by software over MCP.

WHO SEAGLASS GLOBE IS FOR

Forge suite evaluators and operators

Run the whole suite on one Windows x64 workstation with a real GPU and watch the agent draw its answers on the globe. Draw a site by hand and it is the same kind of scene entity the agent places — name it, and refer to it in the next question.

Programs that need a real coordinate system, not a picture of one

New York to Los Angeles bows north, because on an ellipsoid that is the short way. Two clicks on open water return distance, forward and back azimuth — and the name of the algorithm that computed them, because a number without its method is not a measurement. The same point reads as DD, DMS, UTM and MGRS. Nine measure modes, in metric, US or nautical units, and a measurement saves as GeoJSON with its algorithm recorded in the file.

Analysts with their own data and their own services

A map is a stack, and the stack is yours: drag one layer over another, pull the opacity down, hide it and it is still there — a project is a folder, written as it changes. Bring GeoJSON, KML and three-file shapefiles, read as one layer with their attributes intact. Point it at a standards server and it asks what that server has, then draws the layer you pick straight over the base imagery.

WHAT'S ON SCREEN

~70 ms

per hillshade re-run — one machine, a small extract; the shading re-computes and re-drapes while you are still holding the slider

5 + globe

flat projections and the globe, switched live, plus map-view windows with their own cameras

250 m

a typed contour interval against real elevation, and the labels are the elevations, not decoration

New in 1.2.4 — the Forge suite's opt-in 3D view. Installed by the Seaglass Control Center™ alongside the engines, the Globe serves its MCP endpoint on port 7900 (loopback, bearer-token protected) and runs its own copy of the GIS engines. Start suite launches it first, so the agent adopts it as its drawing surface. The suite wants 8 GB of RAM with the Globe installed, 4 GB without; it needs a real GPU — an RDP session usually can't drive it.

THE WORLD, LIVE — AND THE TWO THAT ARE NOT

Earthquakes as USGS reports them. Severe-weather warnings as the Weather Service issued them, over the radar that produced them. Ships under way, reporting themselves over AIS. Each shows whatever its feed says the day you run it. Kept apart under their own cards: a satellite catalogue **propagated by SGP4 from cached elements** — propagated, not live — and a **modelled flood** streamed from a ForgeGIS digital twin — zero-copy on a shared GPU: a hydraulic model, not a real event.

WHAT IT READS

XYZ · WMS · WMTS · MVT · 3D Tiles · glTF/GLB · GeoJSON · KML/KMZ · Shapefile (three-file) · Mapzen Terrarium elevation. Live feeds — USGS earthquakes, NWS alerts over NEXRAD, AIS — are showcase crates run from a repository checkout; satellites are CelesTrak elements propagated by SGP4; the digital twin arrives over ForgeGIS's published wire contract, or in shared VRAM when engine and globe share a GPU.

Evaluate the Forge suite — with the Earth in the room

The Technical Brief covers geodesy and precision, rendering, data and feeds, the MCP surface, the compute and twin bridges, and deployment. Seaglass Globe is an opt-in component of the Forge suite, installed by the Seaglass Control Center, and is not sold separately; the suite's license is not yet finalized and nothing here is a grant of rights. Contact us about evaluation access.

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