**Sunset location finder**

**potential end products:**

**app:**

simple sunset azimuth finder

ioverlander for sunsets

**Web:**

Location map

Gameified somehow

**A map that recommends good places to see the sunset/rise from**

Step 1: a map that shows elevation

* Completed – <https://portal.opentopography.org/datasetMetadata?otCollectionID=OT.032025.3979.1>
* 30m rez
* Tif contains geodata:
  + Coordinate System:
    - Horizontal: Canada Atlas Lambert NAD83 (CSRS) [EPSG: 3979]
    - Elevation(?): CGVD2013 [EPSG: 6647]
* A map of a mountain range

  AI-generated content may be incorrect.

step 2: your location on the map

* Converted data to lat long and set fixed current location to Tofino for now

Step 3: sunrise and sunset azimuths

* Using pvlib, current date, time, and location, sun azimuth can be calculated
* Pvlib also has sunset and sunrise calc if passed a set of times to interpolate over
* Combine these 2 bits of data to get azimuth at set and rise
* A map of the north and south america

  AI-generated content may be incorrect.Use this azimuth and pyproj geod to draw a line on the curved earth surface pointing in direction of set and rise

Step 4: determine chance of sunset being good

Weather

* Clouds
* Dust
* Rain/snow

Geography

* Raytracing
* Viewshed

Astronomical conditions

Geography

Ray tracing requires sun location, observer location, terrain and terrain curvature drop off.

A graph of a graph

AI-generated content may be incorrect.A graph with blue lines

AI-generated content may be incorrect.using the azimuth, a vector of elevations along the line of the azimuth can be sampled and used for ray tracing.

Numerical analysis of last visible sun elevation. Bisectional analysis could be replaced with a faster method but works well enough for now

Roadmap update:

* Time of last visible sun
* Recommended viewing window
* Research best time for sunsets