Al-Kitab University
College Of Engineering
Department Surveying Engineering

Extract Contour Lines And DEM From Google Earth

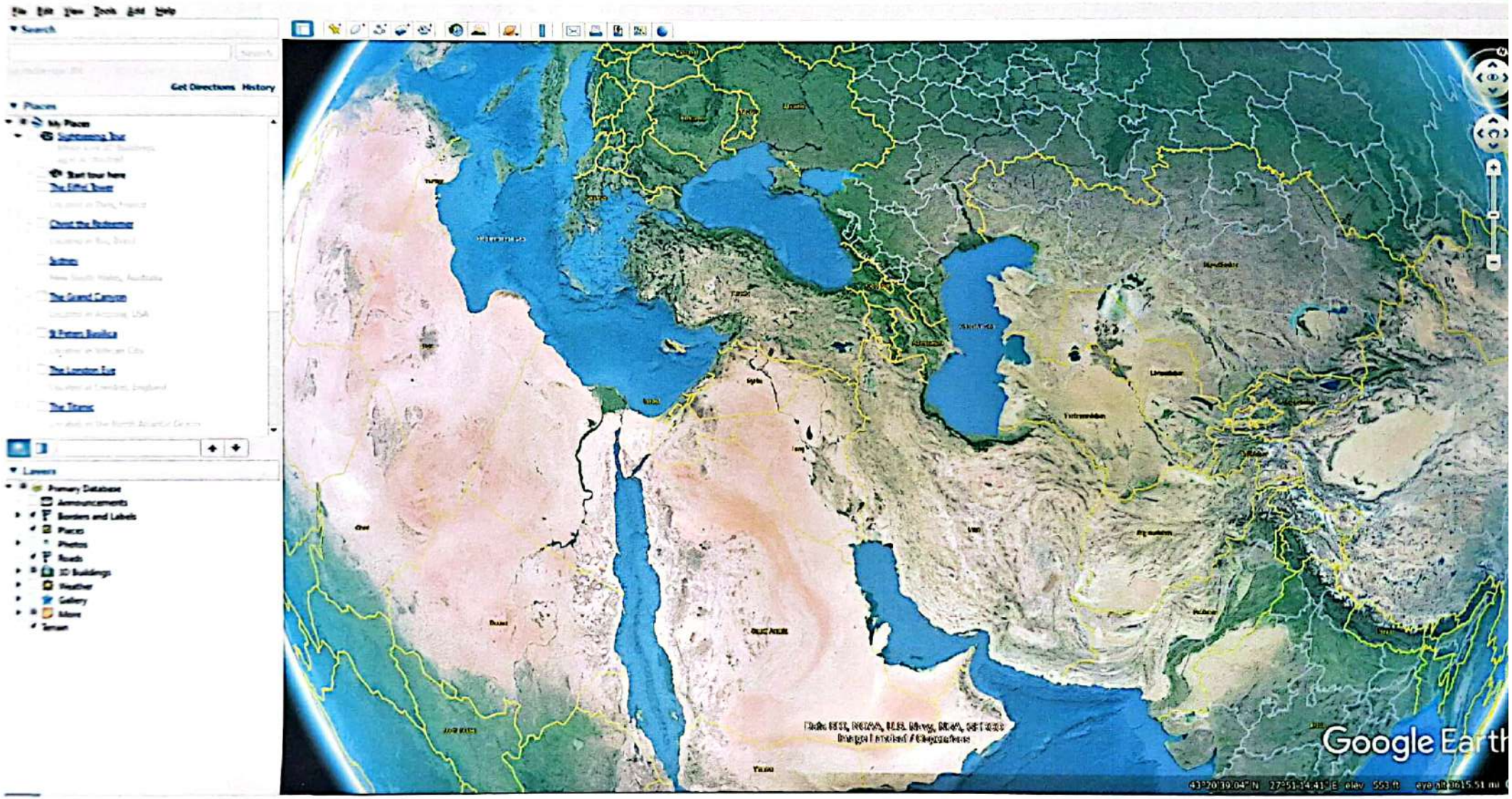
PREPARED BY:

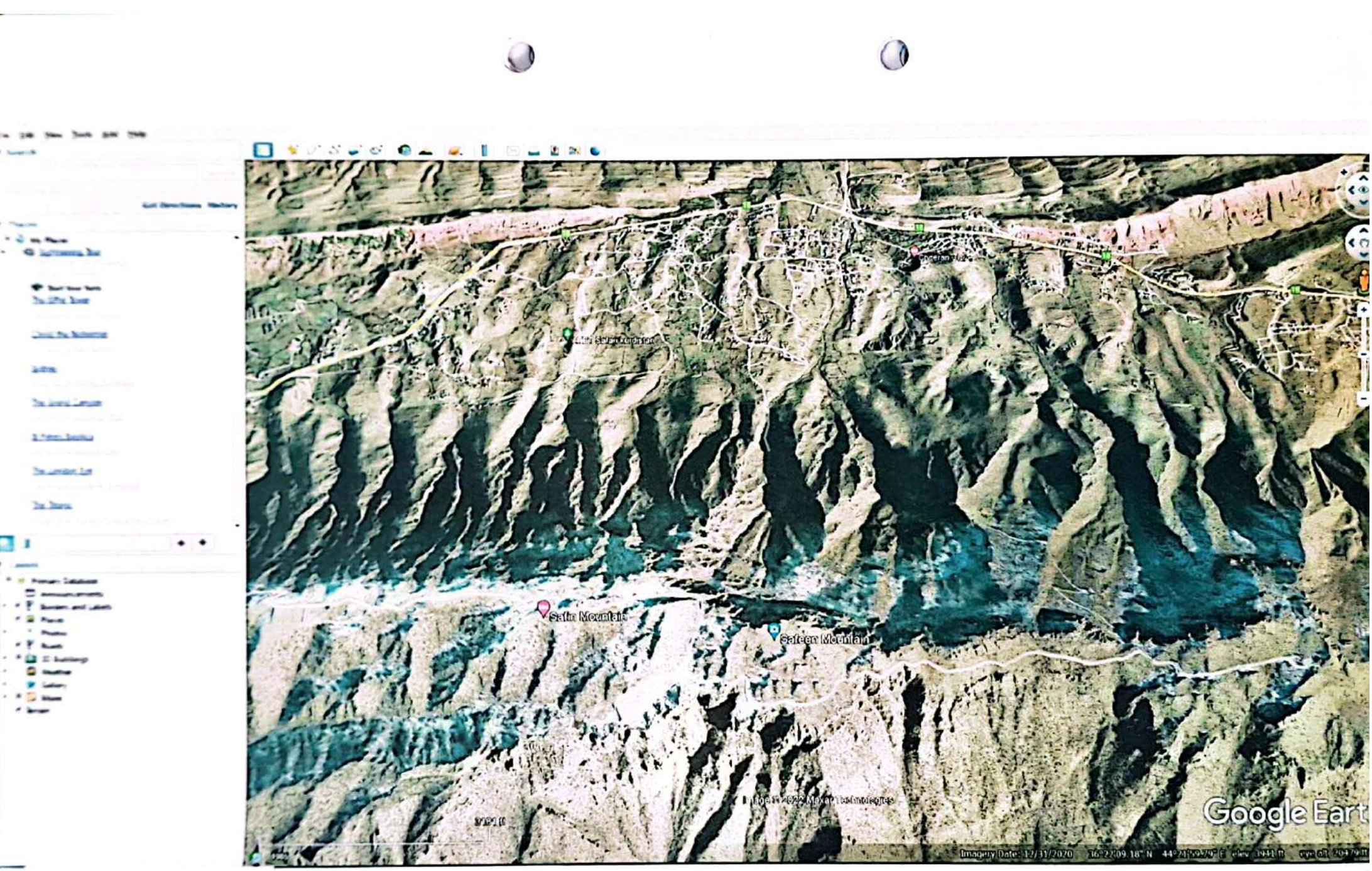
Shwan Ali Smail

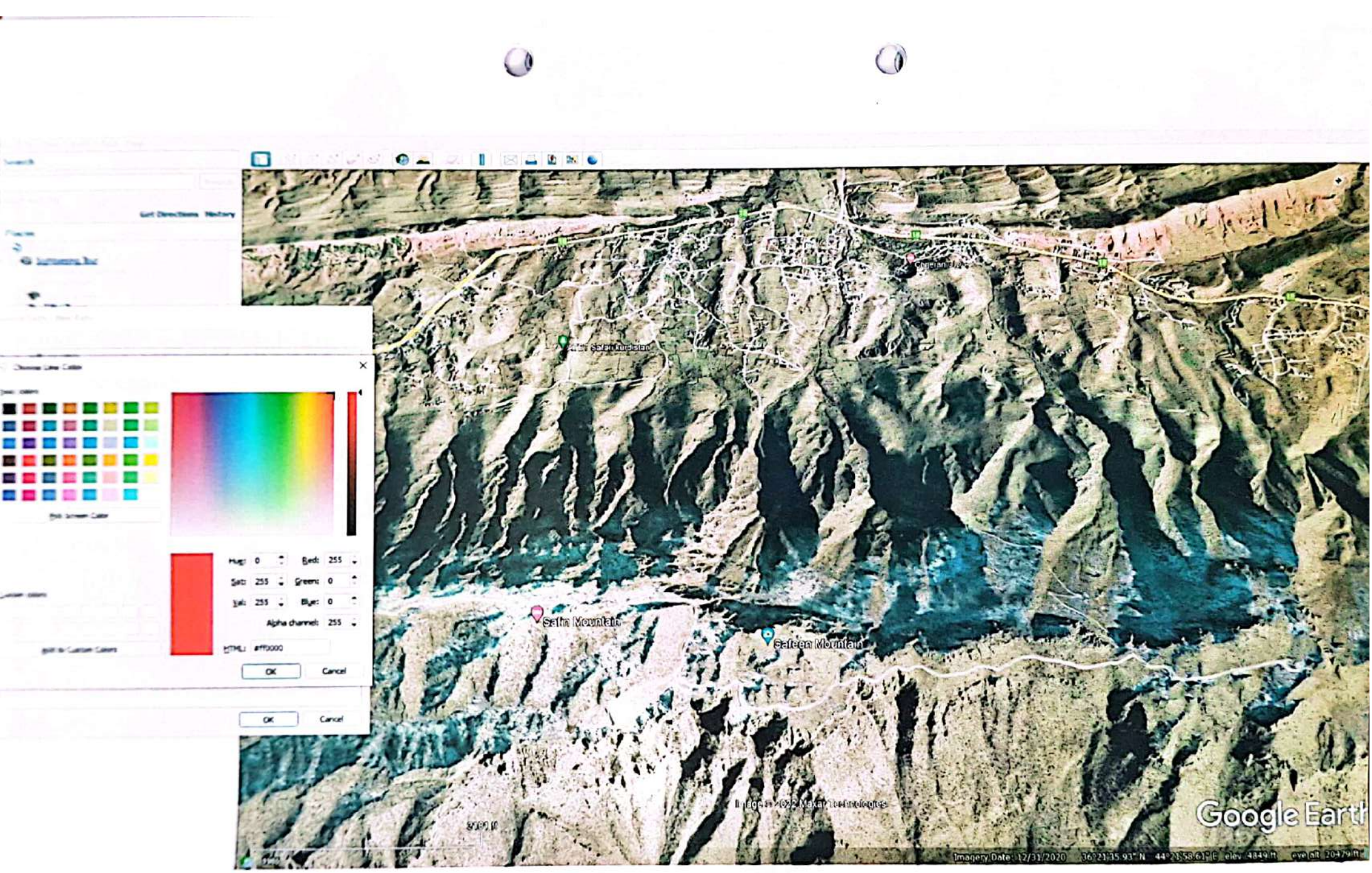
SUBMITTED TO

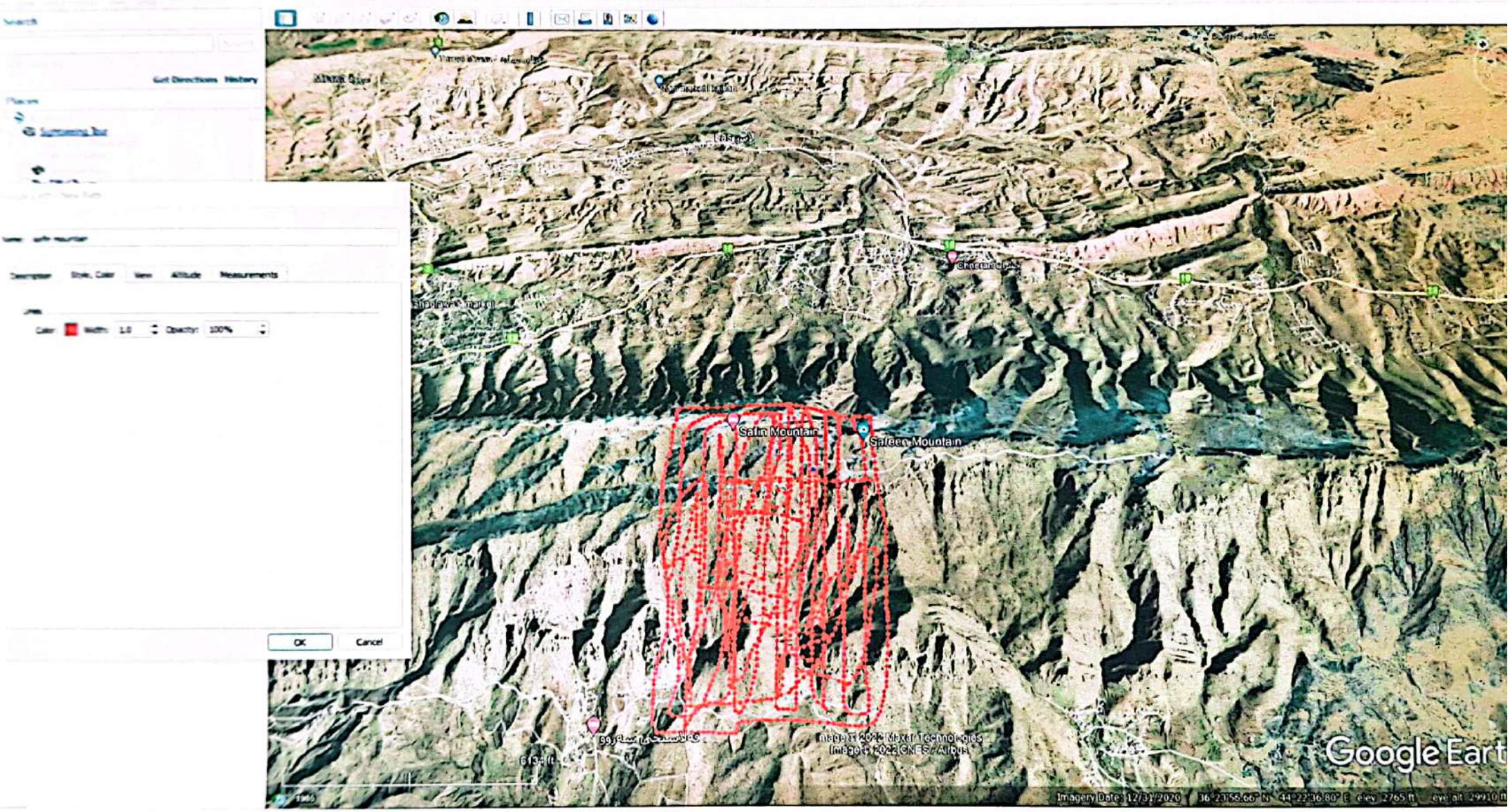
Dr. ADIL MUHAMEED

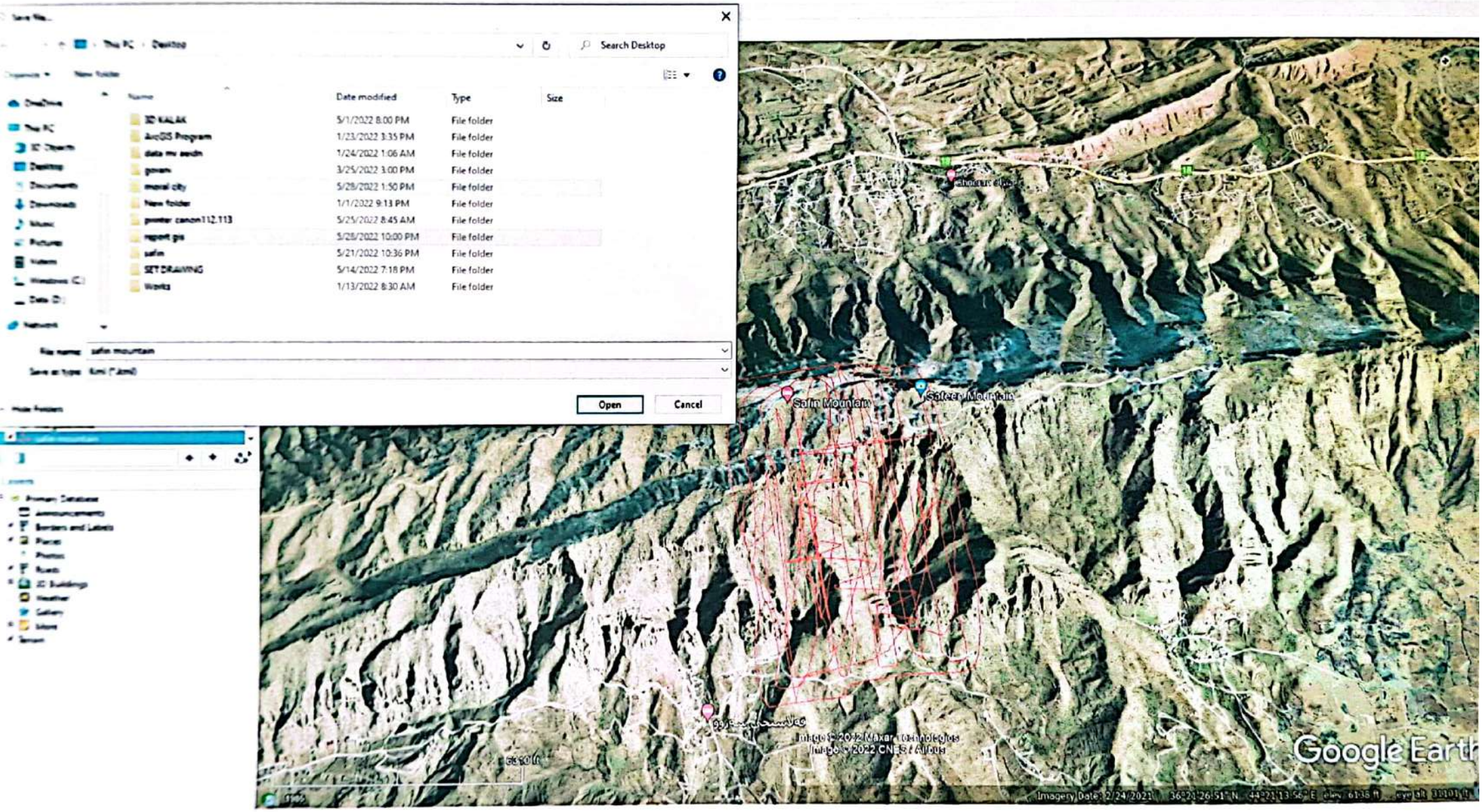
2021 – 2022











Find "Missing" Elevations with GPS Visualizer

The problem: Sometimes you have geographic data that consists only of latitudes and longitudes, but you want to know the altitudes as well — because, for example, you want to colorize points by height above sea level, or draw a profile of a track. Here are some common reasons why you might have "flat" or incomplete data:

- Your GPS device does not log altitude, or you had poor satellite reception when you recorded the track.
- Your GPS device *does* log altitude, but it's not very accurate.
- You drew a track using the drawing tools in Google Earth or a similar application, like GPS Visualizer's Sandbox.
- You have a KML file that came from Google Maps or Google Earth's "driving directions" feature.
- You created a route in Google Maps and have the URL of that route.
- You have an NMEA log file that contains only "GPRMC" sentences, not "GPGGA."

Solution #1: DEM database

GPS Visualizer's map, profile, and conversion programs have the ability to instantly add elevation data — from a DEM (digital elevation model) database — to any type of GPS file. If you just want to draw a profile, or convert a single data file to plain text or GPX while adding elevation, you can use the simple form right here:

Upload a file: [Choose File] No file chosen — [Convert & add elevation] -or- [Draw elevation profile]
Or provide a URL: ____ Output: [GPX file] Units: [Metric]

Or, look in GPS Visualizer's various input forms for the menu called "Add DEM elevation data," and choose one of the elevation databases (described in the table below). Complete copies of the SRTM3 and USGS NED databases, as well as a large number of SRTM1 and ASTER tiles, are stored on GPS Visualizer's server — that's more than 250GB of raw data.

Note that the elevation-adding feature will *erase* any existing altitude data (for example, from a GPS) that might already be in your file. Often, this is desirable; profiles made with DEM data are usually "smoother" looking than GPS, and typically contain fewer gaps or suspicious readings. (Speaking of gaps, there are a few in NASA's SRTM data, and that's unavoidable. If GPS Visualizer runs into one of these, it will *not* overwrite those elevations in your input data.)

(Click for more DEM coverage maps)

DEM data sources

NED (USGS)	The U.S. Geological Survey's excellent National Elevation Dataset covers the **United States, Canada, and Mexico.** 1 arc-second (~30-meter) horizontal resolution is available in most areas (NED1). For Alaska, 60-meter data is also available (NED2). USGS also produces 1/3-arc-second data (NED13), but because those files are nine times larger than NED1 files, only a few mountainous areas (Cascade Range, Sierra Nevada, southern Utah) are available on GPS Visualizer.
SRTM1 (NASA)	NASA's SRTM1 database (from the Space Shuttle Radar Topography Mission) has a resolution of about 30 meters. Previously, SRTM1 data was only available for the United States (and was not very useful because NED1 is generally better) but recently NASA has released SRTM1 tiles for the *entire world*. GPS Visualizer's server does not contain the *full* global dataset, but it does contain **all of Europe, Central America, Japan, South Korea, Taiwan, and New Zealand,** as well as most of **Australia** and parts of **South Africa.** Additional locations may be installed upon request.

u can support GPS Visualizer by making a donation with PayPal instead.

o know the altitudes as well — because, for example, you want to colorize points by height above sea level, or

Donate

Support GPS Visualizer

If you find the utilities on GPSVisualizer.com interesting, time-saving, or just plain fun, you can say "thanks" — and encourage further development — by clicking the button above and making a contribution via PayPal.

Solution #1: DEM database

GPS Visualizer's map, profile, and conversion programs have the ability to instantly add elevation data — from a DEM (digital elevation model) database — to any type of GPS file. If you just want to draw a profile, or convert a single data file to plain text or GPX while adding elevation, you can use the simple form right here:

Upload a file: Choose File No file chosen
Or provide a URL:
Convert & add elevation
Output: GPX file
-or-
Draw elevation profile
Units: Metric

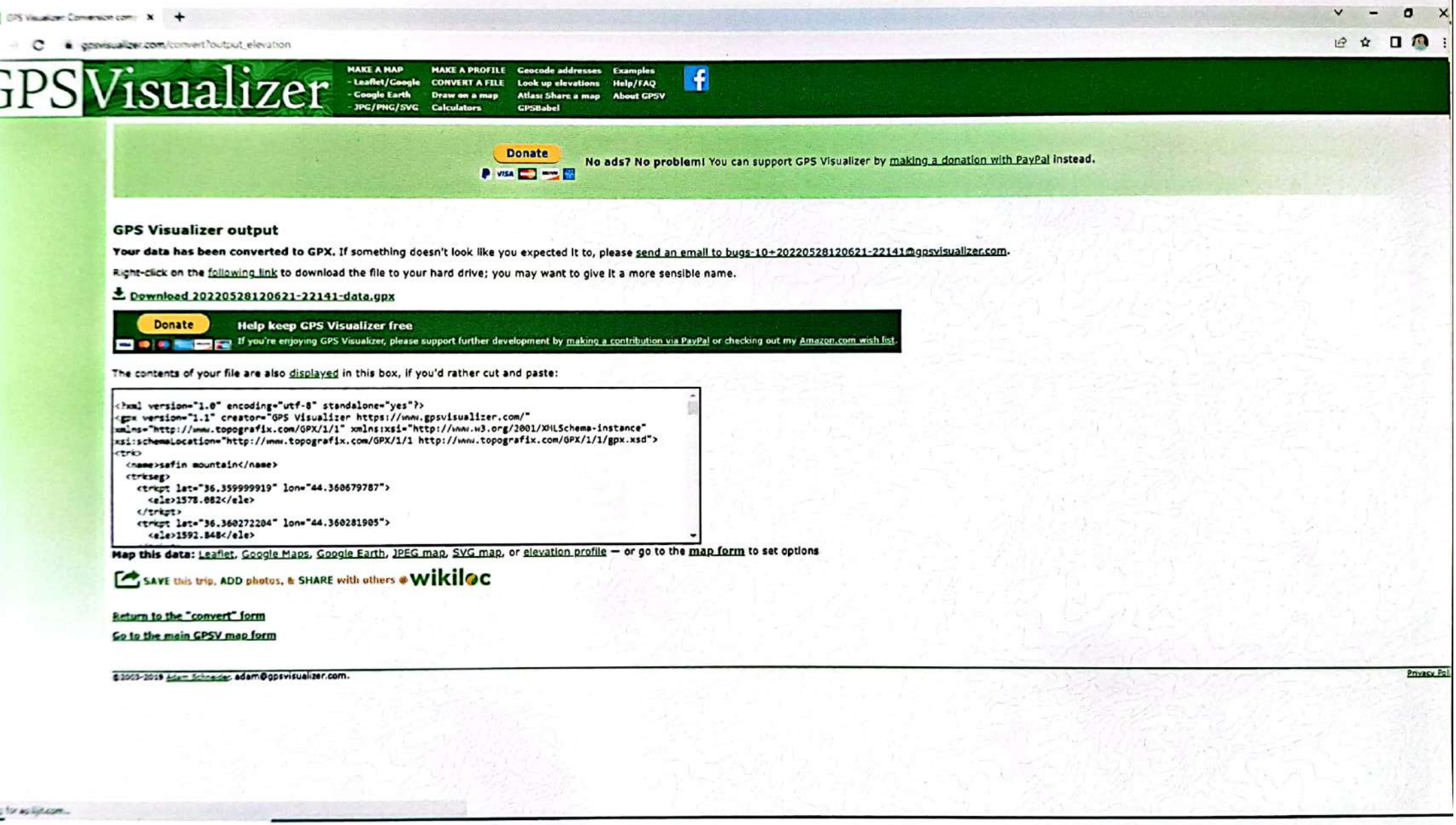
Or, look in GPS Visualizer's various input forms for the menu called "Add DEM elevation data," and choose one of the elevation databases (described in the table below). Complete copies of the SRTM3 and USGS NED databases, as well as a large number of SRTM1 and ASTER tiles, are stored on GPS Visualizer's server — that's more than 250GB of raw data.

Note that the elevation-adding feature will *erase* any existing altitude data (for example, from a GPS) that might already be in your file. Often, this is desirable; profiles made with DEM data are usually "smoother" looking than GPS, and typically contain fewer gaps or suspicious readings. (Speaking of gaps, there are a few in NASA's SRTM data, and that's unavoidable. If GPS Visualizer runs into one of these, it will not overwrite those elevations in your input data.)


(Click for more DEM coverage maps)

DEM data sources

NED (USGS)	The U.S. Geological Survey's excellent National Elevation Dataset covers the **United States, Canada, and Mexico**. 1 arc-second (~30-meter) horizontal resolution is available in most areas (NED1). For Alaska, 60-meter data is also available (NED2). USGS also produces 1/3-arc-second data (NED13), but because those files are nine times larger than NED1 files, only a few mountainous areas (Cascade Range, Sierra Nevada, southern Utah) are available on GPS Visualizer.
SRTM1 (NASA)	NASA's SRTM1 database (from the Space Shuttle Radar Topography Mission) has a resolution of about 30 meters. Previously, SRTM1 data was only available for the United States (and was not very useful because NED1 is generally better), but recently NASA has released SRTM1 tiles for the *entire world*. GPS Visualizer's server does not contain the *full* global dataset, but it does contain **all of Europe, Central America, Japan, South Korea, Taiwan, and New Zealand**, as well as most of **Australia** and parts of **South Africa**. Additional locations may be installed upon request.



GPS Visualizer

MAKE A MAP - Leaflet/Google - Google Earth - JPG/PNG/SVG | MAKE A PROFILE | CONVERT A FILE | Draw on a map | Calculators | Geocode addresses | Look up elevations | Atlas: Share a map | GPSBabel | Examples | Help/FAQ | About GPSV

Donate

No ads? No problem! You can support GPS Visualizer by making a donation with PayPal instead.

GPS Visualizer output

Your data has been converted to GPX. If something doesn't look like you expected it to, please send an email to bugs-10+20220528120621-22141@gpsvisualizer.com.

Right-click on the following link to download the file to your hard drive; you may want to give it a more sensible name.

Download 20220528120621-22141-data.gpx

Donate **Help keep GPS Visualizer free**

If you're enjoying GPS Visualizer, please support further development by making a contribution via PayPal or checking out my Amazon.com wish list.

The contents of your file are also displayed in this box, if you'd rather cut and paste:

```
<?xml version="1.0" encoding="utf-8" standalone="yes"?>
<gpx version="1.1" creator="GPS Visualizer https://www.gpsvisualizer.com/"
xmlns="http://www.topografix.com/GPX/1/1" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.topografix.com/GPX/1/1 http://www.topografix.com/GPX/1/1/gpx.xsd">
<trk>
  <name>safin mountain</name>
  <trkseg>
    <trkpt lat="36.359999919" lon="44.360679787">
      <ele>1578.082</ele>
    </trkpt>
    <trkpt lat="36.360272204" lon="44.360281905">
      <ele>1592.848</ele>
```

Map this data: Leaflet, Google Maps, Google Earth, JPEG map, SVG map, or elevation profile — or go to the map form to set options

SAVE this trip, ADD photos, & SHARE with others wikiloc

Return to the "convert" form

Go to the main GPSV map form