Viewsheds from Space: The visibility of a geographic place to Sentinel-1

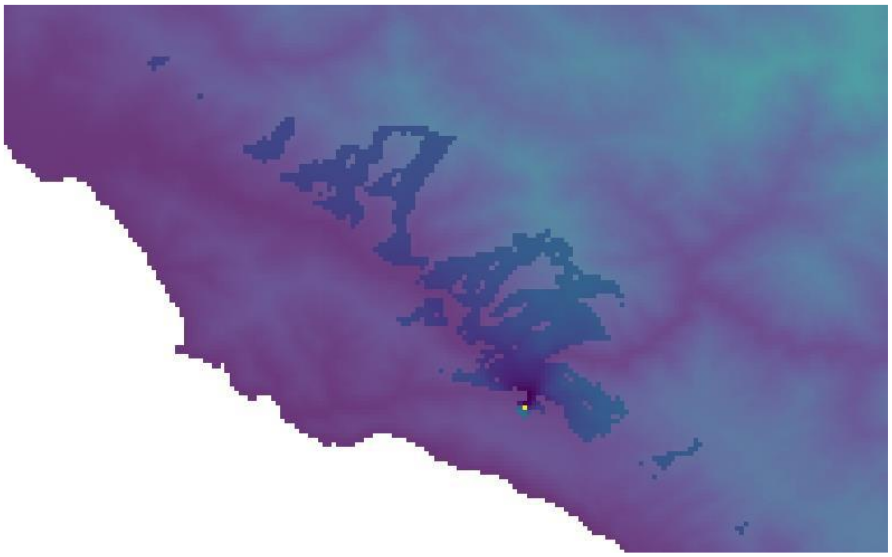
Problem: Many places and objects are not visible from satellite sensors because the line of sight is blocked by relief (mountains) or buildings, trees etc. However, the proposed idea would focus only on relief. There are many objects or places that can't be monitored by satellites because they are blocked from the satellite's view by mountains.
Goal: As data processing and analysis is time and resource consuming, it would be very useful to know before the analysis, if the object is visible to the satellite or not. The proposed software would be integrated into existing analysis components and it would optimise the expenses or the analysis.
Solution: Tool that enables to analyse the geographic location of the object, surrounding relief and the line of sight of the satellite and gives the answer if the object is visible or not.

Possible solution (preliminary):
1) Determine the geographic location of the object (geographic coordinates, WGS84)
2) Determine the images where the object can be found – orbits, ascending and descending passes
3) Depending on the ascending or descending pass, determine the looking angle of the satellite in relation to azimuth
4) Based on images, determine on which swaths the object is located on
5) Based on the determined swath, find out the incident angles respective to the swath
6) Analyse if the object is visible within these incident angles using DEM (SRTM). Can choose minimal angle from the range.
7) Give result if the object is visible or not.

Additional bonus features (if you can):
1. Could be API
2. Inputs and outputs could be integrated with other components
3. Source code 50% comments
4. Software should have installation guide and list of all the sub-components with version numbers
5. Software should be tested and have documentation.
6. Software could have analysis.
7. Should be based on 100% open source packages.
8. Component could have a GUI that enables to enter coordinate of the object and returns the height, location and visibility on the map.

Preferably developed in Java

Example:
Object location is marked in yellow (see the pic), DEM is as background and darker blue marks the areas where the object can be seen.



Test object: https://goo.gl/maps/5kxphhFGVUS2
Pfeiffer Canyon Bridge, CA-1, Big Sur, CA 93920, United States
Data:
The incidence and off-nadir angles for Interferometric Wide swath mode beams for Sentinel-1:
https://sentinel.esa.int/web/sentinel/user-guides/sentinel-1-sar/acquisition-modes/interferometric-wide-swath
Senitnel-1 azimuth angles:
ASCending– 76 degrees; DESCending – 256 degrees
STRM DEM:
http://www.cgiar-csi.org/data/srtm-90m-digital-elevation-database-v4-1
Example of algorithm:
https://grass.osgeo.org/grass73/manuals/r.viewshed.html
Object location query for the image and orbit depending on the swath:
https://scihub.copernicus.eu/userguide/5APIsAndBatchScripting