



PROYECTO
SATELITES SOCIALES



La Noticia: Volcán activo en el este de Sicilia, provincia de Catania

ERUPCIÓN VOLCÁN ETNA, FEBRERO 2021

Algoritmo para efectuar monitoreo de volcanes

Información en: [Información en: 1](#)

<https://www.bing.com/videos/search?q=volcan+etna+2021+youtube&docid=608006333794098739&mid=AF1C6AFF9DC23B5FC318AF1C6AFF9DC23B5FC318&view=detail&FORM=VIRE>

Manuel Dávila Sguerra



El sitio: Sicilia, provincia de Catania



Aquí vamos a comentar sobre la metodología para hacer un proceso de monitoreo de un volcán

ALGORITMO

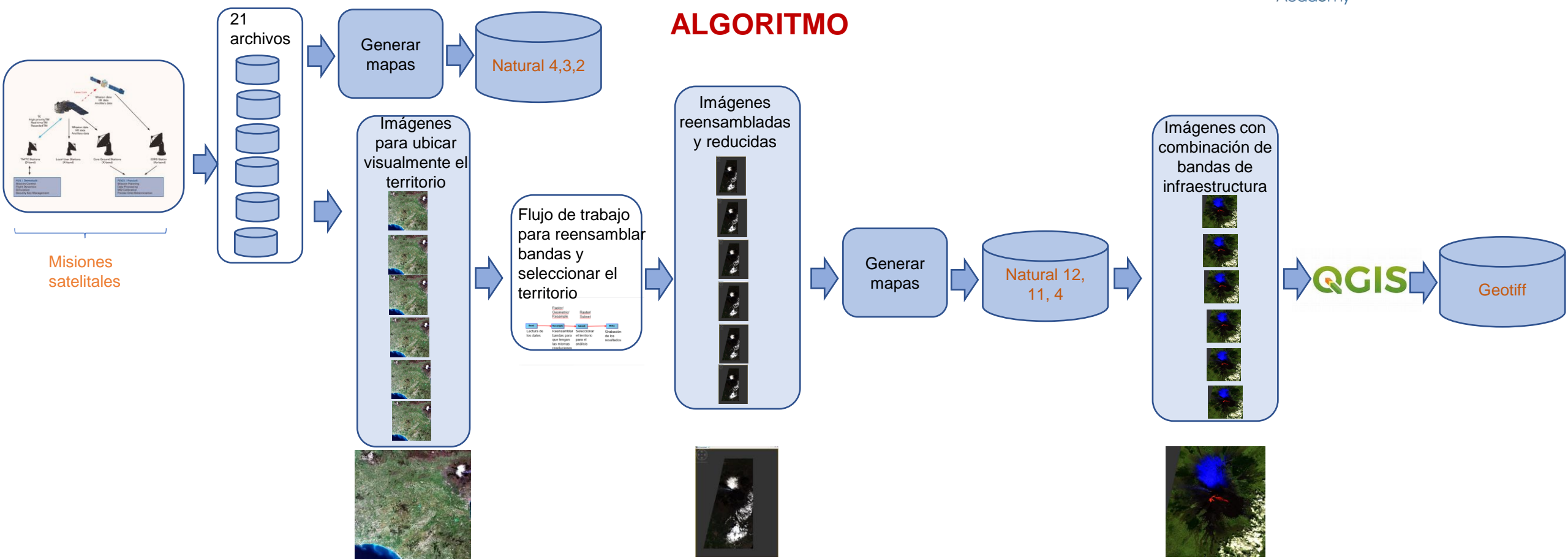
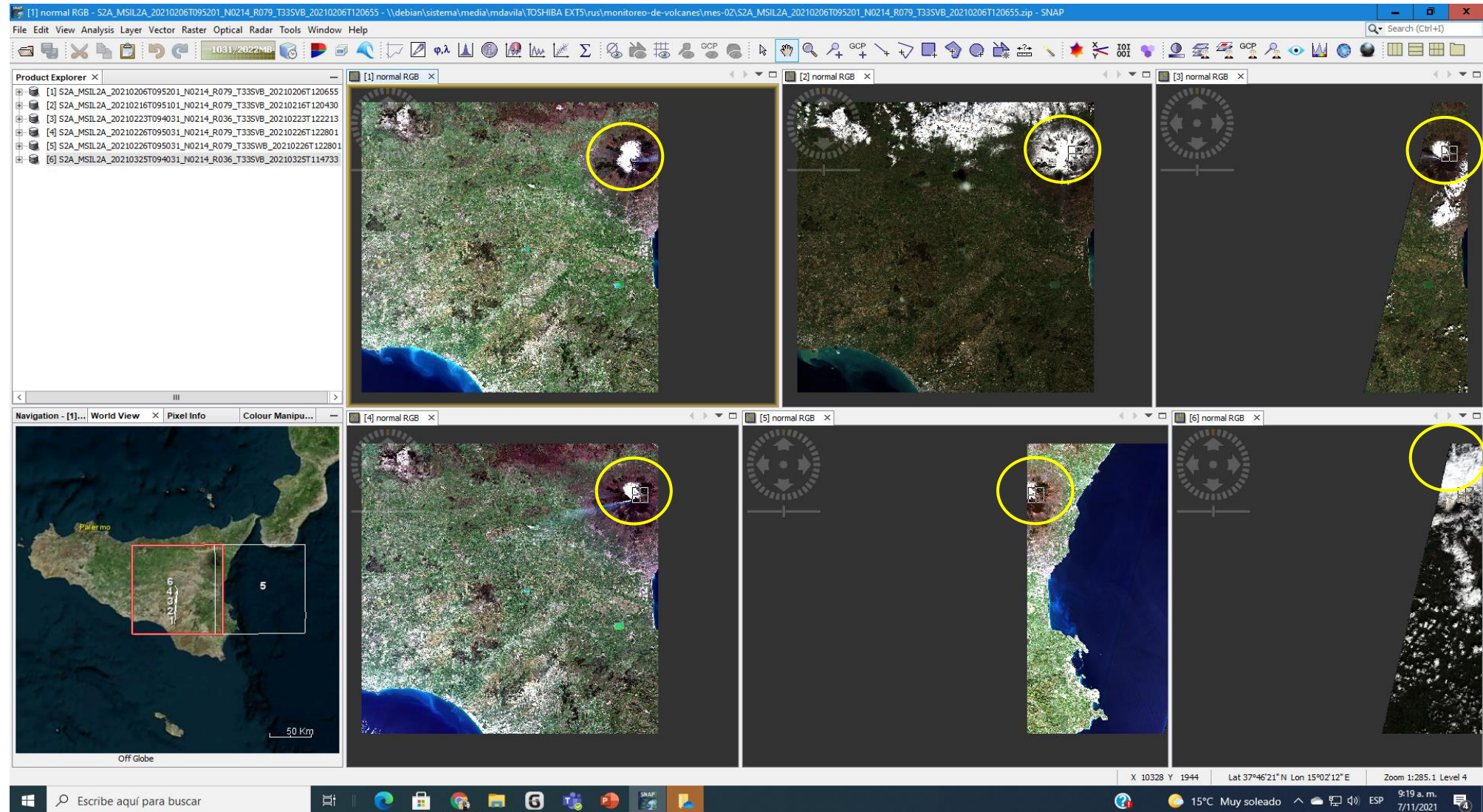


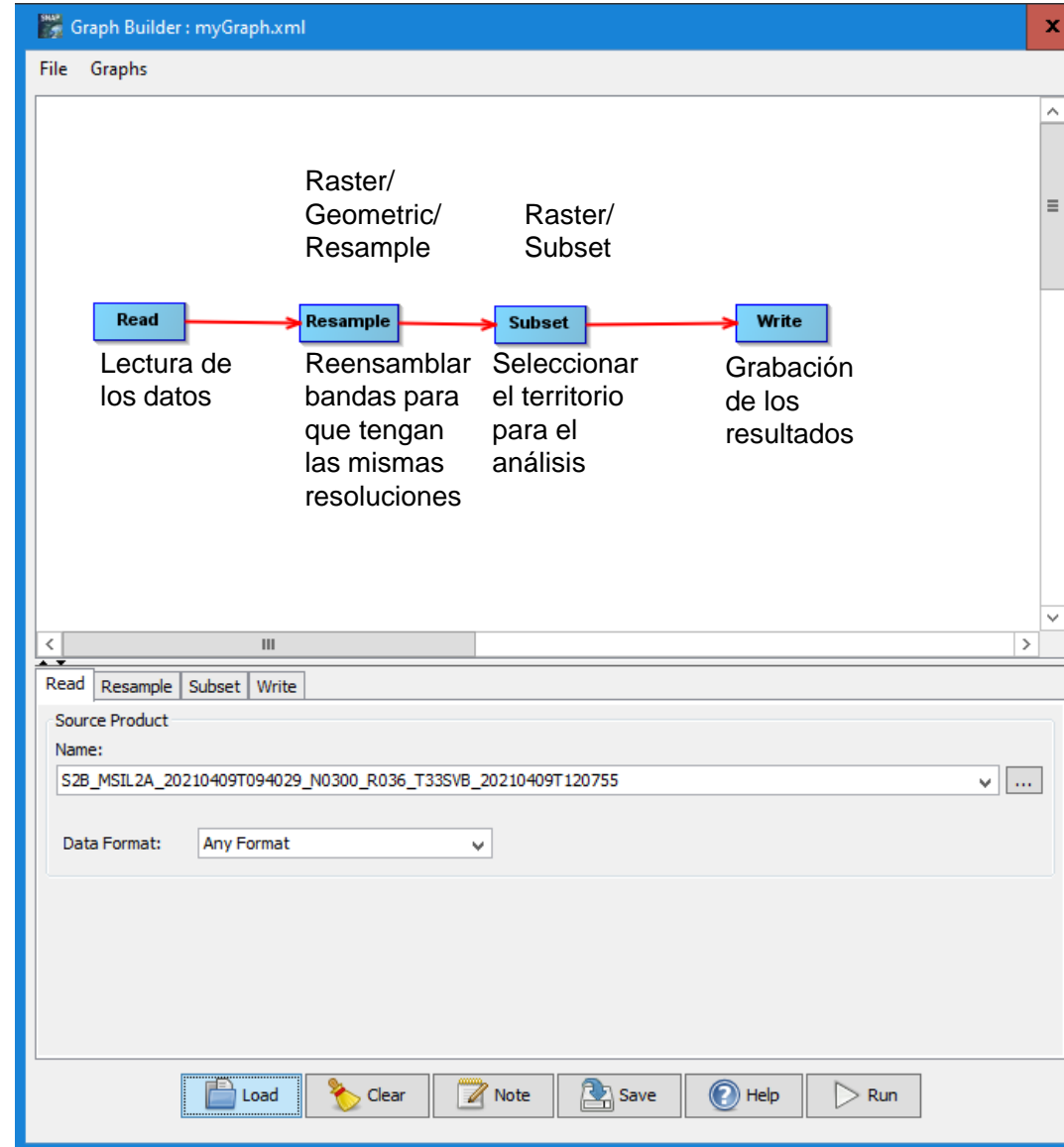
Imagen natural, bandas 4,3,2

The screenshot displays the QGIS desktop environment. The main window shows a satellite image of a landscape with a prominent crater circled in red. The text "El Crater" is written in yellow in the top right corner of the image. The Product Explorer on the left lists six data layers, all named "S2A_MSIL2A_20210206T095201_N0214_R079_T33SVB_20210206T120655". The Navigation window at the bottom left shows a map of the island of Sicily with a red rectangle indicating the area of the satellite image. The Windows taskbar at the bottom shows the search bar, taskbar icons, and system tray with the date 7/11/2021 and time 9:03 a.m.

Múltiples viajes del satélite sobre la zona del volcán



Flujo de trabajo para reensamble de bandas



Bandas 4,3,2

Bandas 12, 11, 4

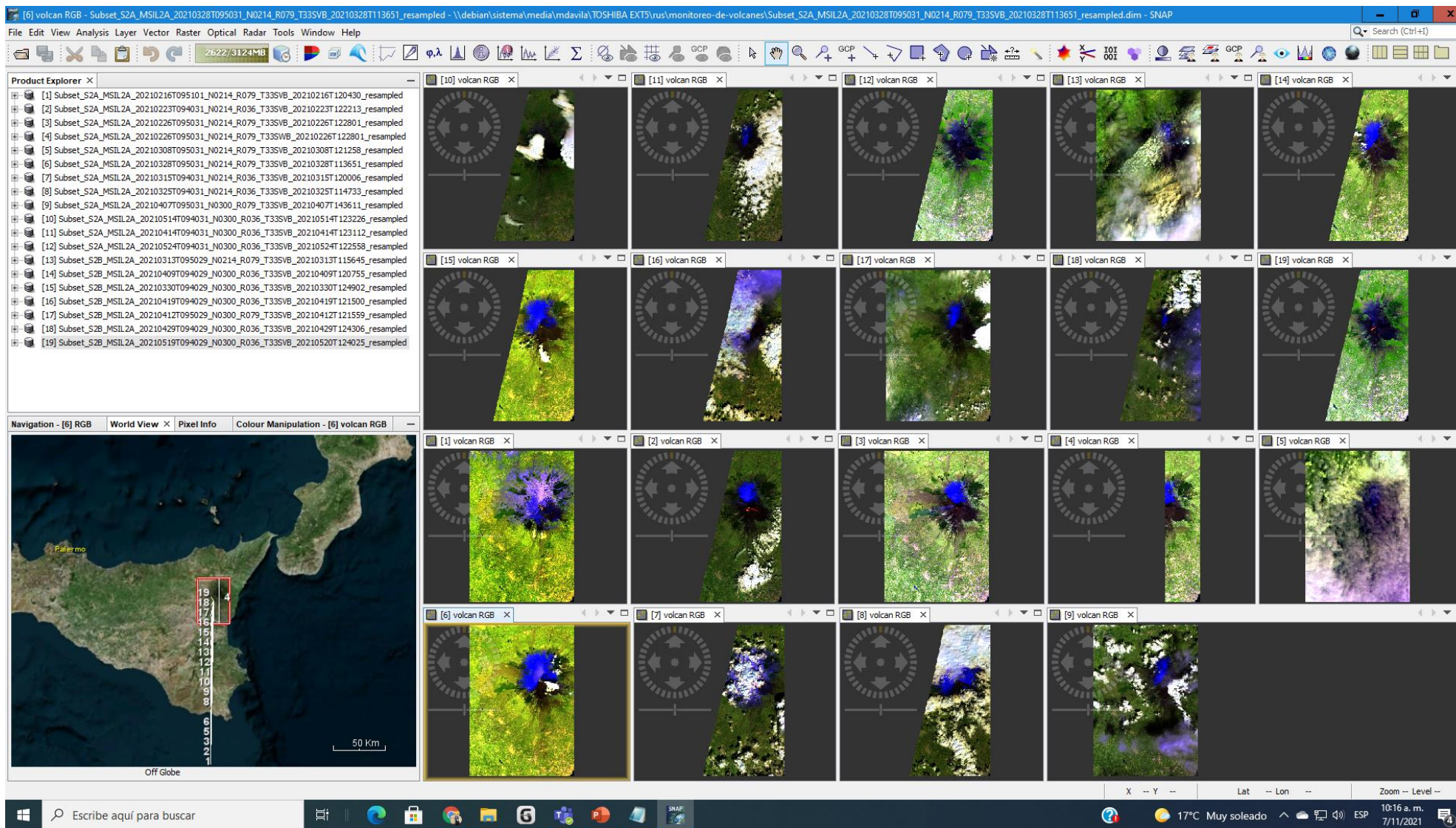
The screenshot displays the SNAP (Scientific Data Processing) software interface. The main workspace is split into two panels. The left panel, titled "[1] normal RGB", shows a grayscale satellite image of a forested area. The right panel, titled "[1] volcan RGB", shows the same area with a color composite where the forest is green, the sky is blue, and a volcanic feature is highlighted in red. Below the main workspace, the "Colour Manipulation" panel is active, showing a histogram for the "B4" band. The histogram has a red bar at the bottom, and a white line indicates a threshold at 0.67. The statistics for the B4 band are: Name: B4, Unit: dl, Min: 0.004, Max: 1.442. The software interface includes a menu bar (File, Edit, View, Analysis, Layer, Vector, Raster, Optical, Radar, Tools, Window, Help), a toolbar with various processing tools, and a Windows taskbar at the bottom showing the system tray with the date 17/11/2021 and time 1:12 p.m.

Zoom Bandas 12, 11, 4 Crater y Lava

The screenshot displays the SNAP (Scientific Data Processing) software interface. The main window shows a satellite image of a volcano, with a large blue crater and a red lava flow. The interface includes a menu bar (File, Edit, View, Analysis, Layer, Vector, Raster, Optical, Radar, Tools, Window, Help), a toolbar with various processing tools, and a Product Explorer panel on the left. The Product Explorer shows the loaded dataset: [1] Subset_S2A_MSIL2A_20210223T094031_N0214_R036_T33SVB_20210223T122213_resampled. The main image area has a navigation toolbar and a zoom level of 1:14.0. The bottom status bar shows the current coordinates: X 2051 Y 1549, Lat 37°45'21" N Lon 14°59'57" E, and the zoom level. The Windows taskbar at the bottom shows the system tray with the date 17/11/2021 and time 1:14 p. m.

Mapas del territorio reducido con las bandas 12, 11, 4 varias fechas

Resultado
del
reensamble
y selección
de territorio

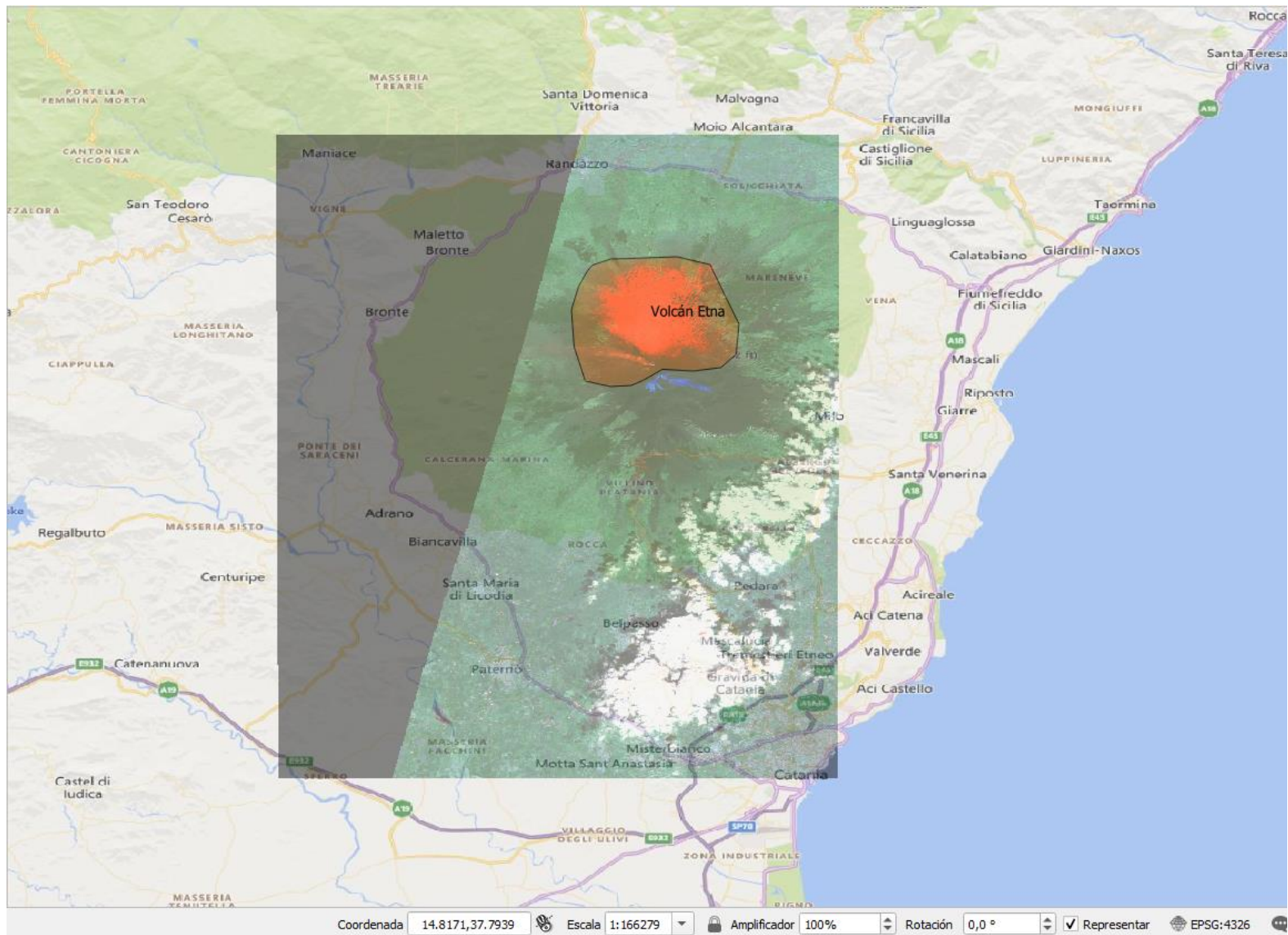


Mapas
reducidos
a la zona
del cráter
del volcán

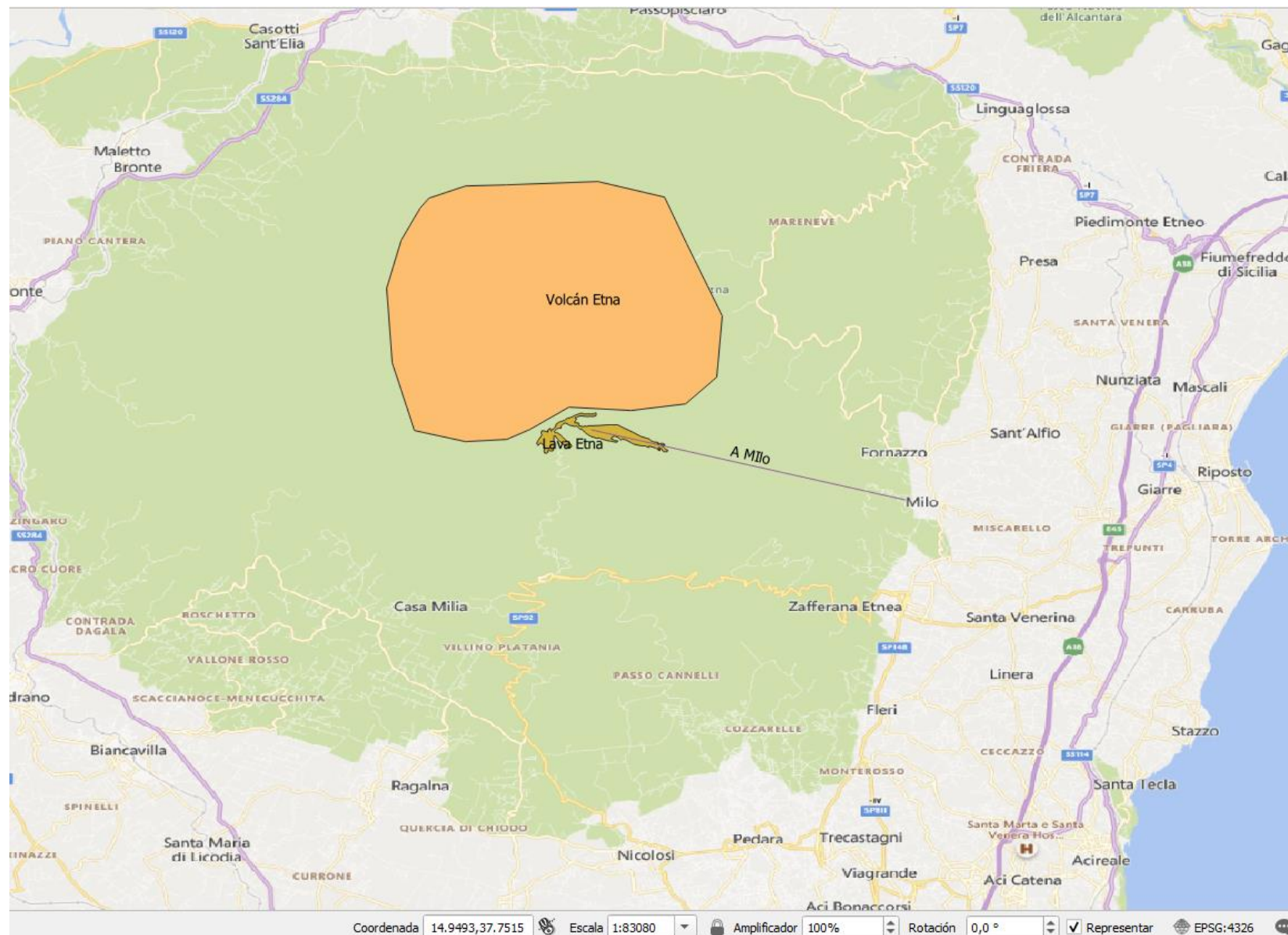
Archivos pasado a QGIS en formato Geotiff

The screenshot displays the QGIS desktop application. The main window shows a satellite image of a volcanic area. A large red area is overlaid on the image, representing a specific region of interest. A blue arrow points to a specific location within this red area. The left sidebar contains a 'Capas' (Layers) panel with a list of 20 layers, all named 'subset_Subset_S2A_MSIL2A_20210216T095101_N0214_R079_T33SVB_20210216T120430_resampled'. Below the layers panel is the 'Caja de herramientas de Procesos' (Processing Toolbox) with a search bar and a list of tools including 'Usado recientemente', 'Análisis de redes', 'Análisis de vector', 'Análisis del terreno ráster', 'Análisis ráster', and 'Base de datos'. The bottom status bar shows the coordinates '14.9213, 37.7773', scale '1:62272', and other settings. The Windows taskbar at the bottom shows the system clock as 10:19 a.m. on 7/11/2021.

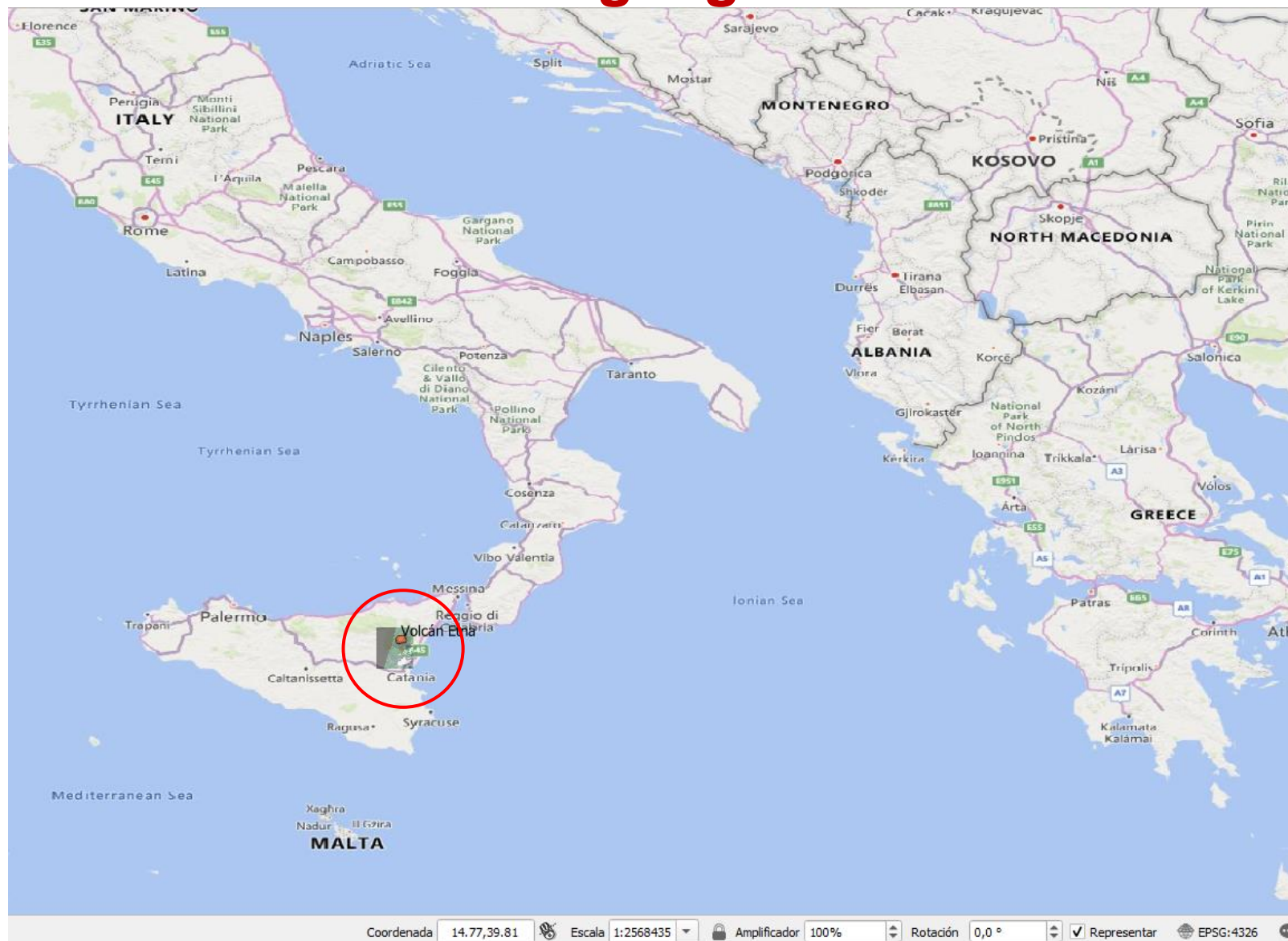
Vista del volcán en la zona geográfica



Alertas tempranas, cercanía de la Lava a las poblaciones



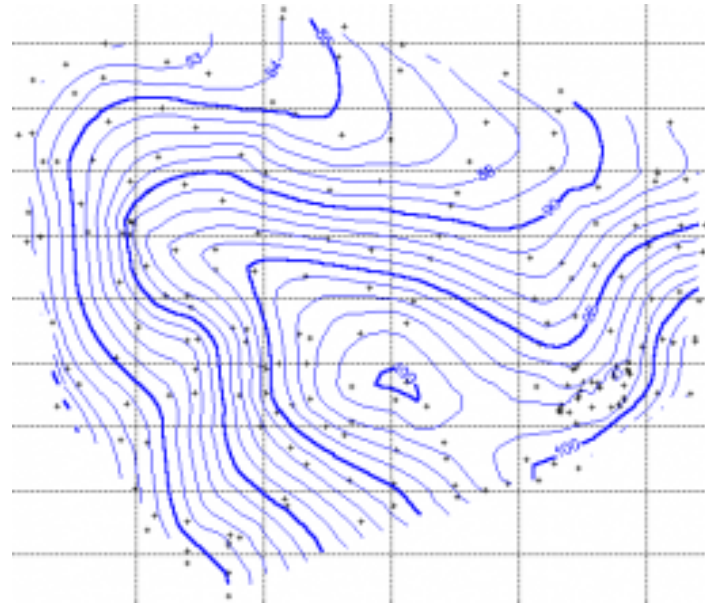
Ubicación geográfica del volcán



Curvas de nivel

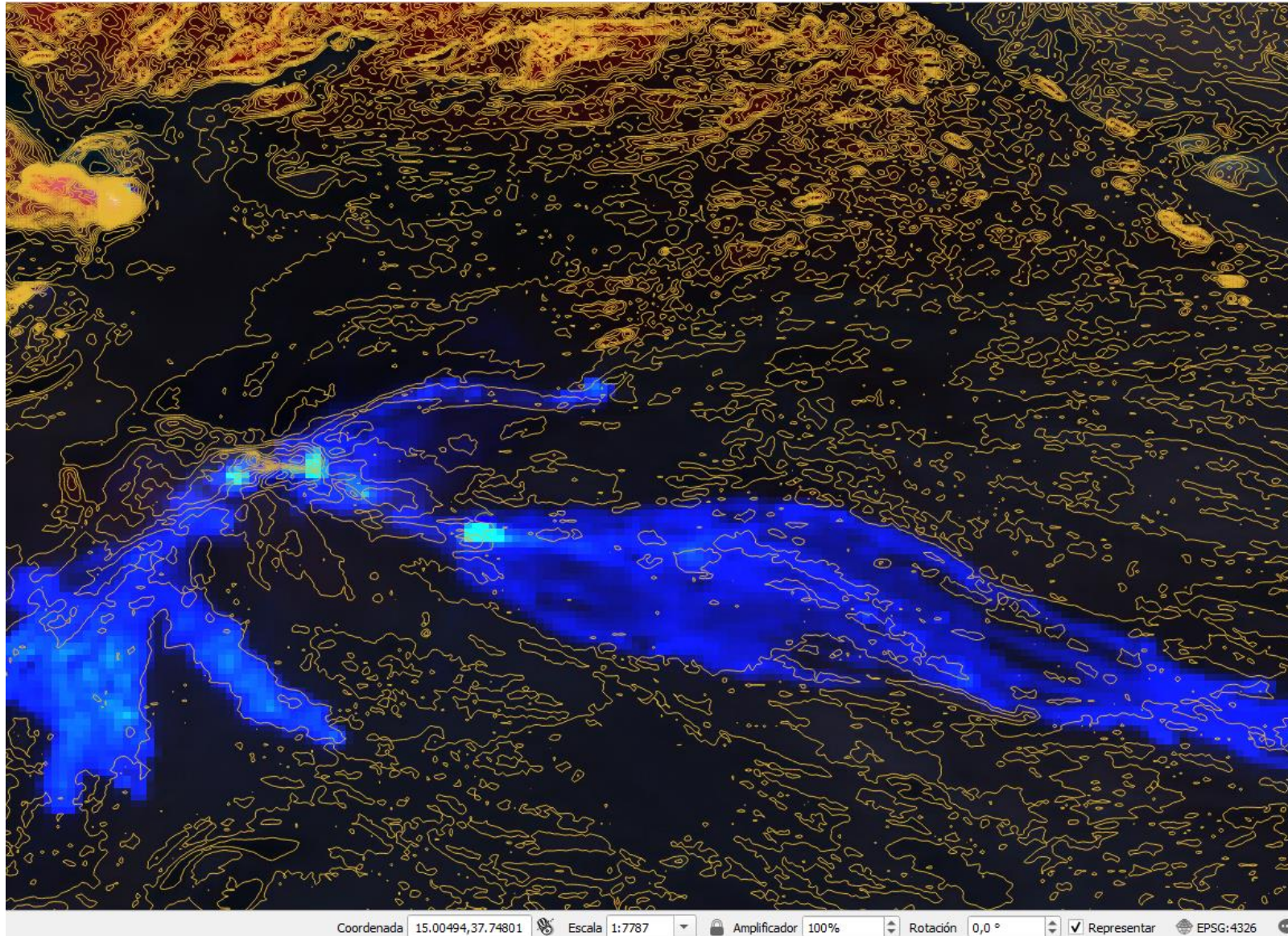
Una curva de nivel es aquella línea que en un mapa une todos los puntos que tienen igualdad de condiciones, normalmente altitud sobre el nivel del mar o profundidad. Las curvas de nivel suelen imprimirse en los mapas en color siena para el terreno y en azul para los glaciares y las profundidades marinas.

es.wikipedia.org/wiki/Curva_de_nivel

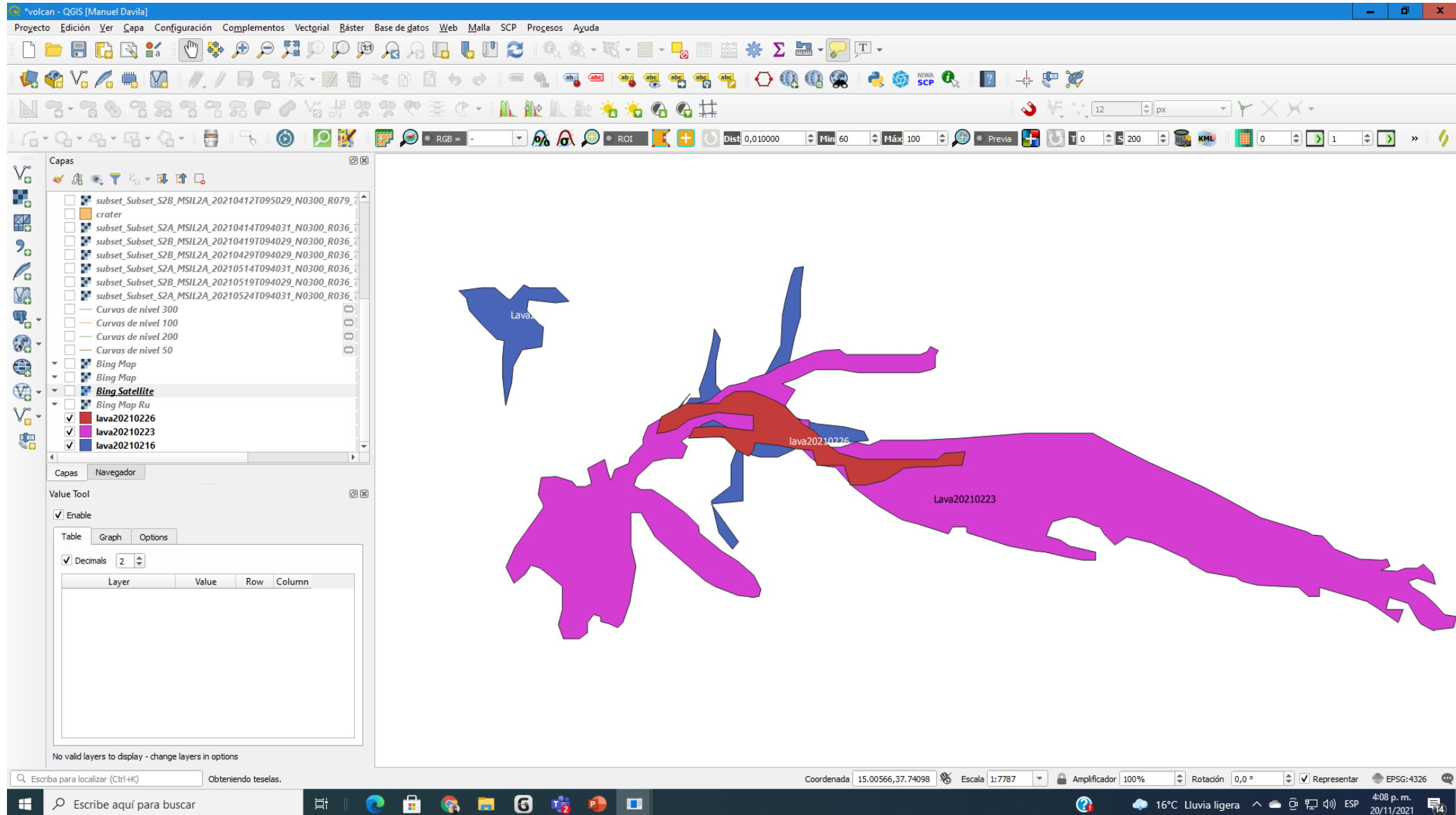


Línea imaginaria que, en la superficie de un terreno, uniera a todos los puntos que tengan igual elevación con respecto al plano de comparación.

Curvas de nivel y lava



Collage de distintos momentos de desplazamiento de la lava





FIN