

VD-MAPS

NEANIAS Core Service

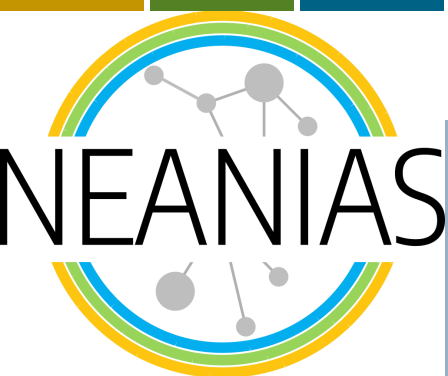
Ricard Campos (ricard.campos@coronis.es)

Josep Quintana (josep.quintana@coronis.es)

Rafael Garcia (rafael.garcia@udg.edu)



www.neanias.eu



Novel EOSC Services for Emerging
Atmosphere, Underwater & Space
Challenges

NEANIAS receives funding from
European Union under Horizon
2020 Research and Innovation
Programme under grant
agreement No. 863448



VD-MAPS: Purpose and Technology

› Purpose:

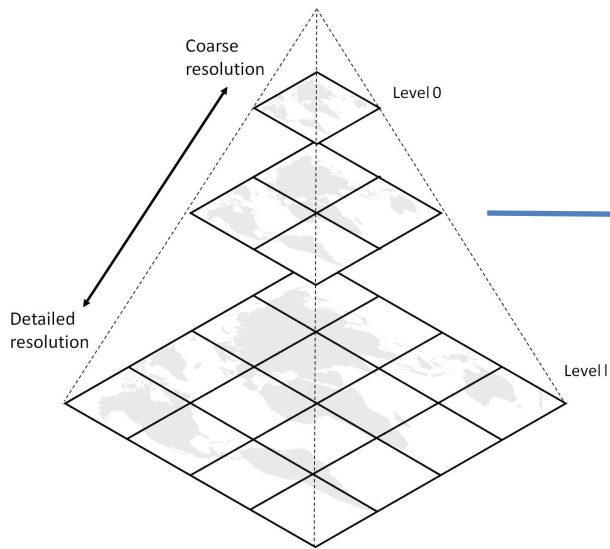
- Ease the creation of data structures allowing real-time visualization of large (world-scale) 2D and 3D maps on web browsers.
- The maps are converted to a multi-resolution tiled data structure.
- In this way, the viewer just requests and renders the tiles that fall within the user's frustum with a complexity that adapts to the distance from the viewer and the projected screen size.
- Compatible viewers:
 - › Several for 2D: leaflet, openlayers, CesiumJS, ...
 - › Not so many for 2.5D (terrains): CesiumJS.

› Technology:

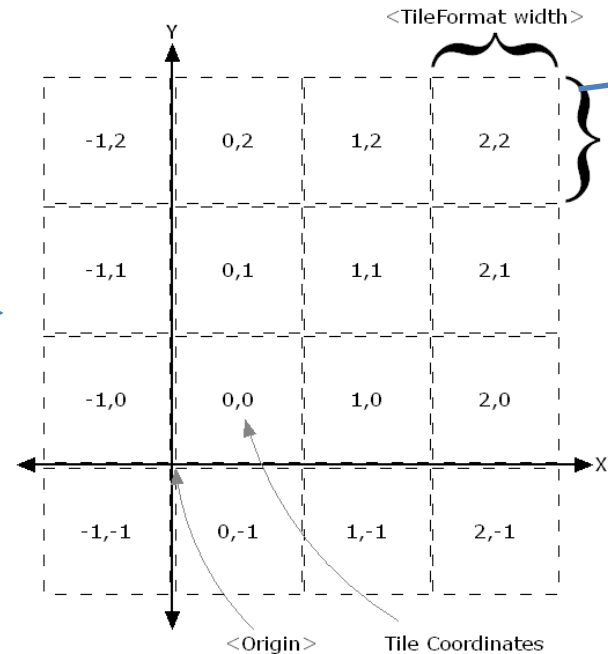
- Based on Coronis in-house solution:
 - › https://github.com/coronis-computing/emodnet_qmgc

VD-MAPS: Purpose and Technology

The full-resolution terrain is rendered at different zooms.

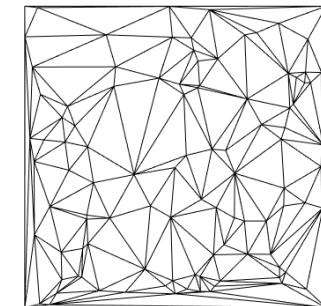
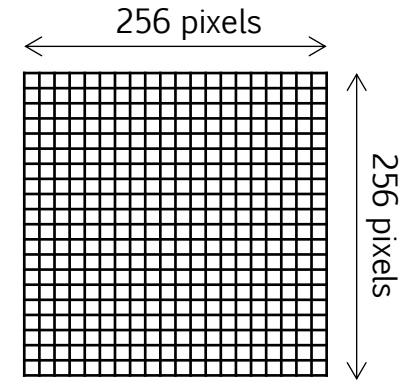


Each zoom is divided in square tiles.



(https://wiki.osgeo.org/wiki/Tile_Map_Service_Specification)

Each of these tiles covers 256x256 pixels of the zoom level (regular grid).



For terrains, these are further simplified to TINs.

VD-MAPS: Tasks

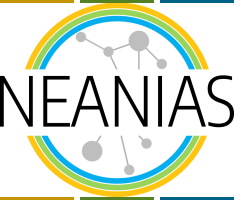
› Input:

- A map in any raster format accepted by the GDAL library:
<https://gdal.org/drivers/raster/index.html>
- For large maps, it is possible to upload multiple files along with a VRT file describing their spatial composition.

› Two tasks available:

- **2D tiling**: Computes a 2D tiled map following the [Tile Map Service \(TMS\)](#) specification using the global-geodetic profile. The input raster may contain one (elevation or greyscale data), three (RGB data) or four bands (RGBA data). For single-band rasters, if the data type is floating point, it is considered as an elevation map, and a hillshaded map will be created using [gdaldem](#) before tiling.
- **2.5D tiling**: Computes a 2.5D tiled map following again the TMS specification using the global-geodetic profile in [Cesium's Quantized Mesh format](#). It expects a single-band raster as input, containing the elevation data.

› The user can execute more than a task at the same time.



VD-MAPS: Landing page



🏠 Home

← Sign in

📄 Documentation

📄 API Documentation

📄 Terms and Conditions

📄 Privacy Policy

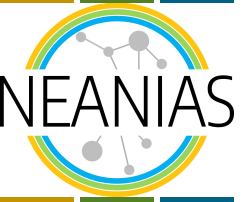


VD-Maps Sign in


Neanias VD-Maps Core Service

VD-Maps service deals with the creation of tiled web maps for visualization on Cesium JS of both 2D and 2.5D datasets.


Please, [log in](#) to use this service.



VD-MAPS: Landing page (logged in)



- Home
- My Tasks
- 2D tiling
- 2.5D tiling
- Viewer
- ricardcd@gmail.com
- Sign out
- Documentation
- API Documentation
- Terms and Conditions
- Privacy Policy



VD-Maps ricardcd@gmail.com

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VD-Maps service deals with the creation of tiled web maps for visualization on Cesium JS of both 2D and 2.5D datasets.

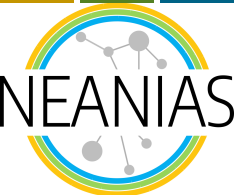
You can run one of the tasks below:

2D tiling
Create a 2D tiled web map

2.5D tiling
Create a 2.5D tiled web map

Or visualize your datasets:

Viewer
View your 2D/2.5D maps



VD-MAPS: Create a 2D tiled map



🏠 Home

📁 My Tasks

📄 2D tiling

📄 2.5D tiling

📄 Viewer

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VD-Maps ricardcd@gmail.com ▾

Create a 2D tiled map

Computes a 2D tiled map following the [Tile Map Service](#) using the [global-geodetic](#) profile.

The input raster may contain one (elevation or greyscale data), three (RGB data) or four bands (RGBA data).

For single-band rasters, if the data type is floating point, it is considered as an elevation map, and a hillshaded map will be created using [gdaldem](#) before tiling.

This service accepts any input accepted by the [GDAL library](#). If the input is composed of multiple files, a [VRT file](#) joining them is required as part of the input.

Input raster maps

Select the input type:

Upload images from local storage

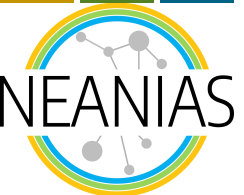
No files selected.

Use images from Nextcloud (includes demo data)

Optional information

Give a short **label** to this task, for later reference (50 chars):

You can also provide a longer **description** for this task, if you wish (500 chars):



VD-MAPS: Create a 2.5D tiled map task



🏠 Home

📁 My Tasks

📄 2D tiling

📄 2.5D tiling

📄 Viewer

👤 ricardcd@gmail.com

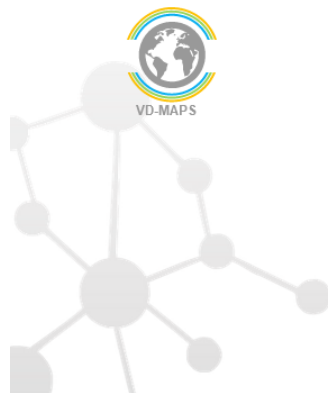
👉 Sign out

📄 Documentation

📄 API Documentation

📄 Terms and Conditions

📄 Privacy Policy



VD-Maps ricardcd@gmail.com ▾

Create a 2.5D tiled map

Computes a 2.5D tiled map following the [Tile Map Service](#) using the [global-geodetic](#) profile in Cesium's Quantized Mesh format.

The input raster must contain a single band containing the elevation data.

This service accepts any input accepted by the [GDAL library](#). If the input is composed of multiple files, a [VRT file](#) joining them is required as part of the input.

Input raster maps

Select the input type:

Upload images from local storage

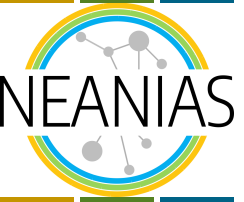
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VD-MAPS: Tasks list



VD-Maps ricardcd@gmail.com

Home

My Tasks

2D tiling

2.5D tiling

Viewer

ricardcd@gmail.com

Sign out

Documentation

API Documentation

Terms and Conditions

Privacy Policy

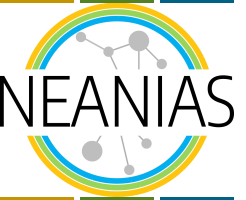


Your Tasks

Submission Date	Label	Type	Status	Actions
May 26, 2022 3:28 PM	crater lake	2D	Completed	
May 26, 2022 6:00 PM	Crater lake from API	2.5D	Completed	
May 30, 2022 3:10 PM	3D georef	2D	Completed	
June 3, 2022 12:38 PM	My task	2D	Completed	
July 1, 2022 3:39 PM	658_FPN	2D	Completed	
July 5, 2022 12:12 PM	662_666_A	2D	Completed	

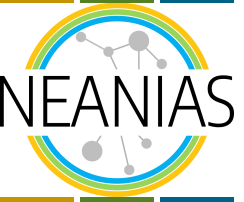
Update tasks status

Delete all tasks



VD-MAPS: Viewer

The screenshot displays the VD-MAPS Viewer interface. On the left is a navigation sidebar with the following items: Home, My Tasks, 2D tiling, 2.5D tiling, Viewer, ricardcd@gmail.com, Sign out, Documentation, API Documentation, Terms and Conditions, and Privacy Policy. The main area shows a 3D globe of Earth with a settings panel overlaid. The settings panel includes: Imagery provider (Sample - EMODnet Bathymetry), Terrain provider (Sample - Ellipsoid), Terrain Exaggeration (a slider set to 2), and buttons for Zoom to imagery and Zoom to terrain. The bottom of the interface features a Cesium Ion logo, a playback control interface showing 1x speed and a timestamp of Jul 5 2022 08:13:27 UTC, and a timeline with markers for Jul 5 2022 00:00:00 UTC, Jul 5 2022 12:00:00 UTC, Jul 5 2022 16:00:00 UTC, Jul 5 2022 20:00:00 UTC, Jul 6 2022 00:00:00 UTC, Jul 6 2022 04:00:00 UTC, and Jul 6 2022 08:00:00 UTC. The NEANIAS logo is also visible in the bottom left corner of the viewer area.

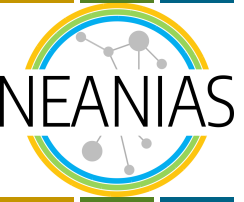


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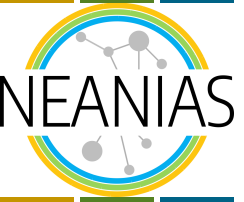
- Imagery provider: Sample - EMODnet Bathymetry
- Terrain provider: Sample - EMODnet Bathymetry
- Terrain Exaggeration: Sample - Open Street Map
- Zoom to imagery: User task 26 - crater lake
- User task 29 - Crater lake from API
- User task 32 - 3D georef
- User task 43 - My task
- User task 44 - 658_FPN
- User task 45 - test task from API
- User task 46 - test task from API
- User task 47 - test task from API
- User task 48 - test task from API
- User task 49 - test task from API
- User task 50 - test task from API
- User task 51 - test task from API
- User task 52 - test task from API
- User task 53 - test task from API
- User task 54 - test task from API
- User task 55 - test task from API
- User task 56 - test task from API

At the bottom, there is a playback control interface showing a play button, a speed indicator of 1x, and a timestamp of Jul 5 2022 08:13:27 UTC. A timeline below the playback shows dates from Jul 5 2022 00:00:00 UTC to Jul 6 2022 08:00:00 UTC.



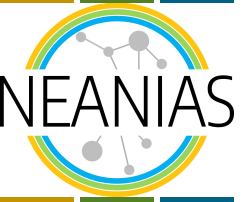
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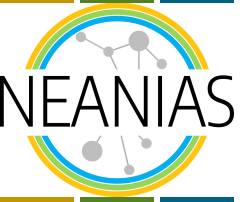
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The API

- › VD-Maps provides a REST API:
 - <https://vd-maps.neanias.eu/api/spec> (OpenAPI specification)
 - <https://vd-maps.neanias.eu/api/docs> (SwaggerUI interactive docs)

- › The pipeline is quite simple:
 - Call the endpoint to start a 2D or a 2.5D tiling task:
 - › https://vd-maps.neanias.eu/api/start_2d_tiling_task/{task_id}
 - › https://vd-maps.neanias.eu/api/start_25d_tiling_task/{task_id}
 - Check its status while it is processing:
 - › https://vd-maps.neanias.eu/api/task_status/{task_id}
 - Download the results (zip file):
 - › https://vd-maps.neanias.eu/api/get_tiles/{task_id}

VD-MAPS

NEANIAS Core Service

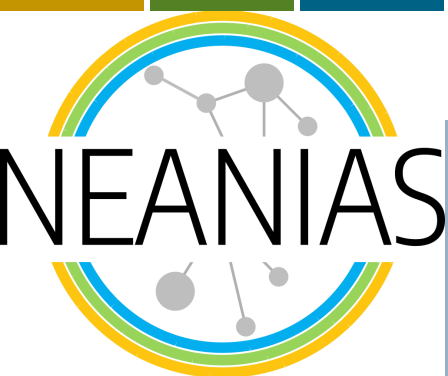
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