

A CONCEPTUAL MAP
OF EDINBURGH

SKETCHBOOK

Experience the Digital City
Coursework Phase I - IMD07108
Timon Holzer | 40501399

Theme / Background

Theme

My Theme for the conceptual map is based on the volcanic history of Edinburgh.

What extinct volcanos are located in Edinburgh?

Castle Hill and Arthurs Hill. Apparently both were active around ~340 Million years ago. (*Arthur's Seat, 2021*)

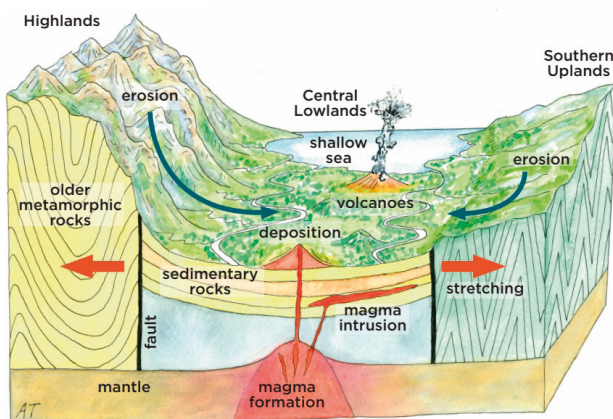
Why Vulcanos?

The way Edinburgh developed as a city, its culture and history is largely defined by its unique landscape.

Formed by natural forces over millions of years.

HOW EDINBURGH'S ROCKS WERE FORMED

Central Scotland 350 million years ago



(Alison Tymon, 2019)

In the past, Castle Hill offered a great protection to the people of Edinburgh from any kind of enemy attack. Later, when the city expanded beyond royal mile, the surrounding environment needed a fast connection to the City Center. Southbridge and Northbridge are still connecting the tail of Castle Hill (see picture below) to its surroundings.



(Alberto, 2020)

Also the natural environment of Edinburgh shows volcanic past. The probably most iconic example for this is Holyrood Park and its majestic landscape (Arthur's Seat and Salisbury Crags.) Arthur's Seat is the highest point of the city with about 250 meters and offers a view like no other spot does. (*Arthur's Seat, 2021*)



Arthur's Seat (*Monniaux D., 2005*)

Target Group

The map is targeting at people that are interested in geology, as a hobby, educational or any other way. It should compare Edinburgh now to then, illustrate differences and provide insight in what changed.

Note

This theme is a bit abstract and speculative since there is no exact information on the Volcanos. No pictures and data like height, area etc.

I will use all available information to construct a map of how it **might** looked like 350 million Years ago.

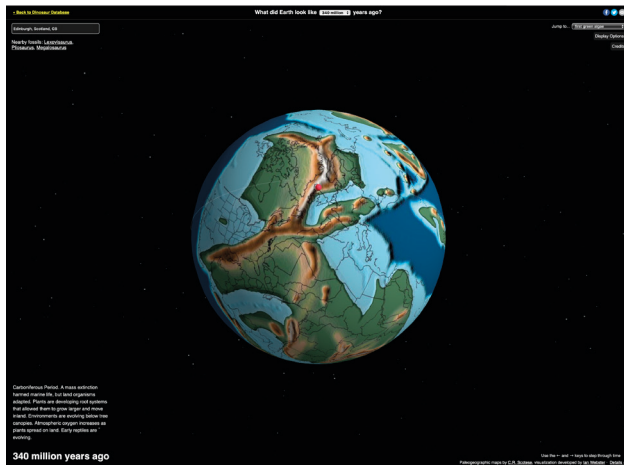
Influenz

There are several aspects that need to be considered when creating the map. These aspects will influence the creative process of finding a good idea for my map, but also the right style, for the visual finalisation.

Time

The probably most influential aspect for my map will be time:

The two volcanoes were active around ~340 million years ago. Earth was a different place back then and Scotland was located near to the equator. (dinosaurpictures.org)



(dinosaurpictures.org)

Red Dot = Scotland

White line = Equator

At this period of time, the so called Carboniferous, the whole planet had an average temperature of ~20° Celsius and life was different. (*Carboniferous*, 2021)

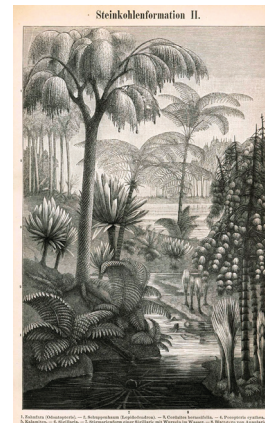
Flora and Species

Flora on land began to develop roots and allowed trees to grow larger and stronger. Even though some plants we know today already existed, the flora was very different back then. The land was mainly rainforest which only changed at the end of Carboniferous with the so called 'Carboniferous rainforest collapse' (*Carboniferous*, 2021)

The two following pictures are showing how the flora probably has looked like:



(Charlie Brenner, 2009)

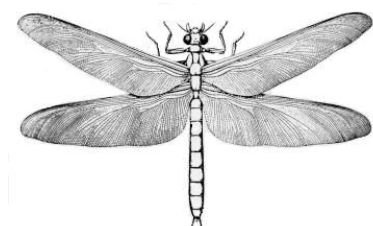


(Bibliographisches Institut- Meyers Konversationslexikon)

While life in water was already good developed and sharks and other predators were ruling over the seas, life above the water surface only 'started' to develop.

„The period is sometimes called the Age of Amphibians, during which amphibians became dominant land animals and diversified into many forms including lizard-like, snakelike and crocodile-like. (*Carboniferous*, 2021)

Amphibians, arthropods and insects started to discover land as an opportunity to hunt and life without the competition underwater. Maybe a shortage of food in the harsh world in the sea could have been a trigger for evolution on land. (*Carboniferous*, 2021)



(Dodoni)

Dragonfly-like insect 'Meganeura', wingspans of 75 cm (*Carboniferous*, 2021)

Influenz



(Nobu Tamura, 2007)
"Hylonomus, the earliest sauropsid reptile"

Geology

Also a mature topic when looking at pre-historic time, especially when it comes to vulcanos, are Rocks.

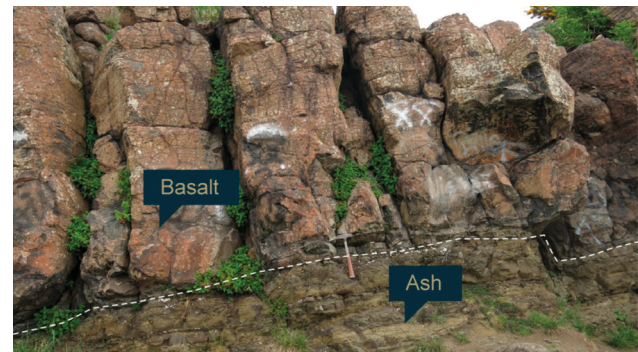
"Carboniferous rocks in Europe and eastern North America largely consist of a repeated sequence of limestone, sandstone, shale and coal beds." (Carboniferous, 2021)

However, at Arthure's Seat aren't a lot of 'classic' carboniferous rock layers:
"After volcanic activity stopped, millions of years of slow erosion stripped away hundreds of metres of rock, removing most of the volcanic cone that would have crowned the volcano. Over the past two million years, glacial erosion has played a significant part in scouring the landscape. During the last major glaciation of Scotland [...] ice removed the softer country rocks and shaped the hard, igneous rocks from the volcanoes core into the landscape we see today."
(Dr. Palamakumbura R.)



(Revolv 3D, 2015)
3D Model of Arthur's Seat today

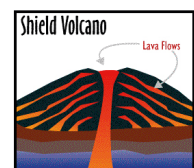
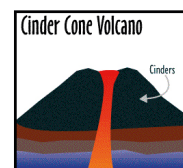
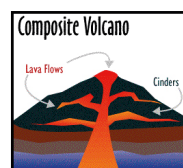
The following pictures show different rock that you can find in Holyrood Park.



(Dr. Palamakumbura R., BGS.ac.uk)
[all 3 pictures]

Types of Vulcanos

Apparently Edinburghs Vulcanos had two phases: One Phases in Devonian (420-400 mil. years ago) and one in Carboniferous. In Carboniferous the vulcanos were a "red" shield vulcano. 'Red' means that the vulcano is visible active on the surface with lavaflows etc. The usual rock in red vulcanos is basalt (see pictures above)
(Agnus Miller, 2020)



(Mihai Andrei, 2021)
Three main types of vulcanos

Types of Maps

Regarding to Wikipedia (Kartographie, 2021) there are two main types of maps:

Topographic Maps: Maps that provide Information in a geographical way (classic maps)

Thematic Maps: Maps that provid information to a specific theme (Climate, politics, Rain, etc.)

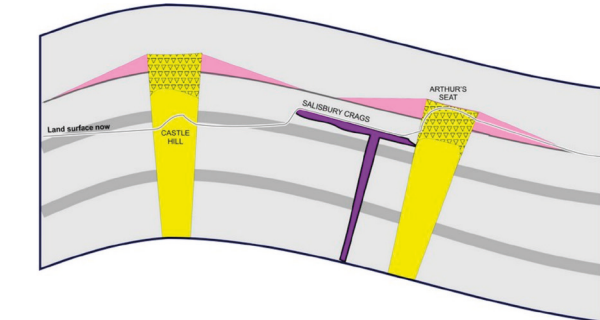
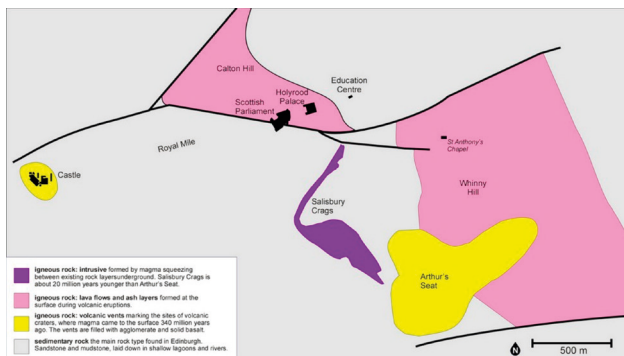
Influenz

Other Maps/Illustrations of the vulcanos

There are several other maps that show the mountain in different ways. They will help me do get information and influence my final map. The next page shows those images/maps, what I like about the them and how they possibly inspire my map.

The first example is from Agnus Miller's presentation "The Volcanoes that shaped Edinburgh" for a Edinburgh University Online Summer Sessions. (Agnus Miller, 2020)

This map is very simple and shows the landscape of Carbiniferous and how it looks today. The different colour sections show different rocks and whats left of them today. It provides a good view of how the shield volcano probably would have looked like. I also feel like this map is the most trustworthy source and I will use it as my main reference



1st Example (Agnus Miller, 2020)

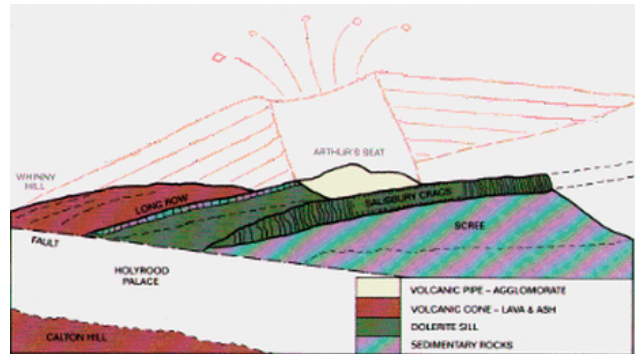
The next example is from Albert on vulcanocafe.org. (Albert, 2021)

What I like about this picture is that it isn't about any technical geology stuff. It just show how it would look like if Arthur's Seat would still be a active volcano.



2nd Example (Albert, 2020)

The last example is from Tom Perings Vulcano Blog (originally from another page but the link on the webpage doesn't work anymore) This example is also comparing the past to present but lays more focus on all the different rock types.



(Tom Pering)

Other Influnzes

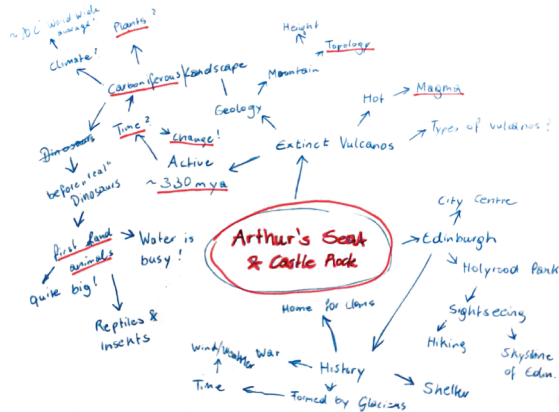
One work that was really interesting and will definately influence my work is "MAPS: CONTOURS, PROFILES, AND GRADIENT" by D. Leveson and C.E. Nehru (<http://academic.brooklyn.cuny.edu/geology/grocha/mapcontour/>)

This work provides amazing information about topography. It looks amazing and I feel like it can be very beneficial for my map.

My Ideas

Mindmap

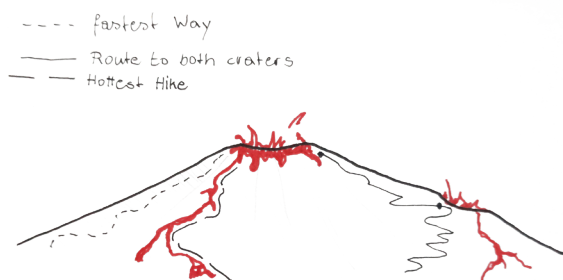
Before starting to develop any ideas, I created a mindmap to gather all my thoughts:



1st Idea

Hiking Map: A Map that shows the best places and routes for hikers if they could hike the prehistoric shield volcano.

Problem for this idea is, that I need to improvise all routes. Except for rock that provide information where lava could have been flowing, there are no other aspects that are really helpful to construct truthful routes.



Sketch for the first Idea

2nd Idea

Comparing the past landscape to the present. This idea has two concepts/ approaches:

Concept 1:

Topographic map comparison: This map

would be very technical, provide all the information available and end up as a very classic form of map.

Concept 2:

Thematic map comparison: This map should focus more on how different those times are. Volcano and City should be presented in a more illustrative way.

(Sketch for the second idea is on the next page)

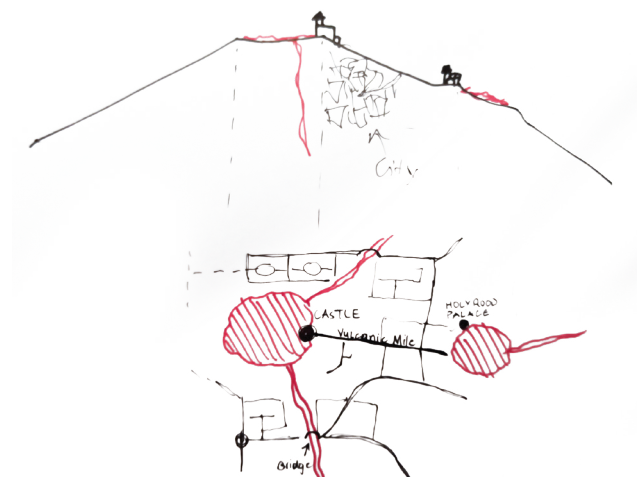
3rd Idea

My last Idea is to, rather than comparing past and present, blend those two times and create a new map that shows how Edinburgh might have looked like if the Volcanos never stopped being active.

This Idea is very far-fetched since there is absolutely no reason to build a city on top of a active volcano.

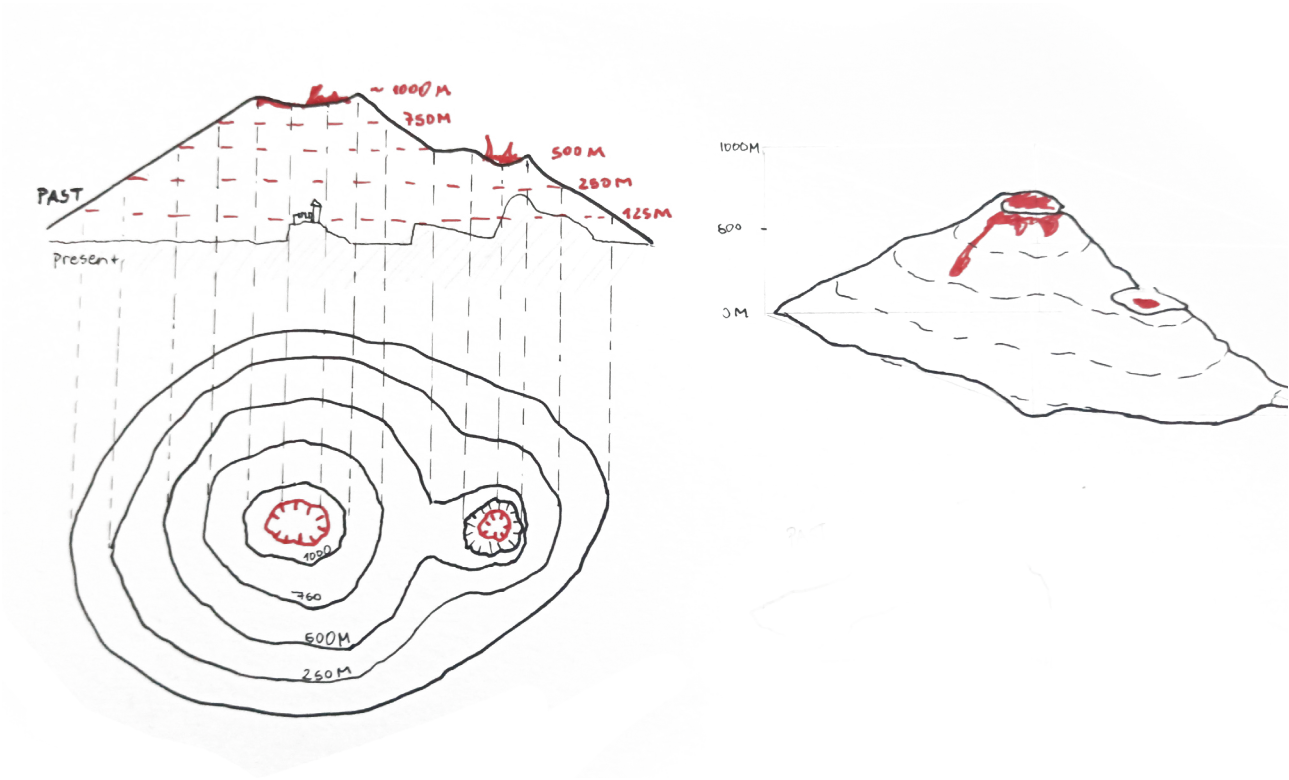
Additionally, a little bit more fiction could be added to the idea by including the scenario that animals of Carboniferous didn't go extinct.

I like the fictual aspect and potential of this idea, but I feel like it is too abstract to be actually used to create an interesting and useful map for this coursework.



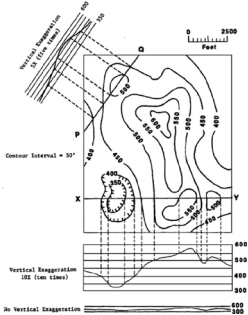
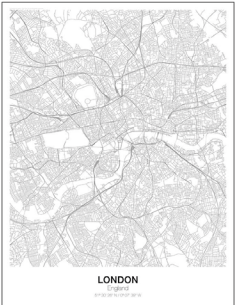
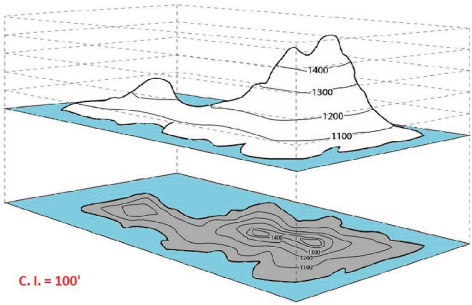
Sketch for the 3rd Idea

My Ideas



Sketch 2nd Idea: Topographic approach

Moodboard



sources in reference section below

My chosen Idea & Why?

For my final map I have chosen to combine the both concepts of my 2nd Idea.

Basically, I will try to take the best aspects of every concepts to create a map that balances classic map information like topography, cardinal points, areal aspects, etc. and an illustrated map that provides insight at Edinburgh in its past state and present.

Why?

Most maps for my target group (people intrested in geology) are boring, colourless and to much centered around the technical stuff. I want my map to be exiting to work with and engaging to provide a better expierence for every one that has to deal with it.

I feel like my second idea has the greatest potential to be a intressting and functional map while also being visually appealing and different from classic geological maps.

Approach

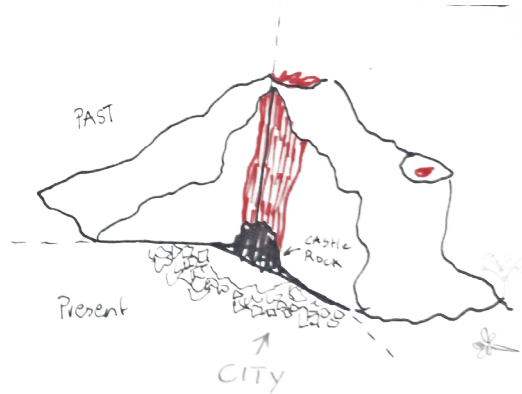
To get a balanced mixture for the final version, I will start of with creating a arial map and cross-section view of Edinburgh in its present state. The selected area will be focuse on the past craters of the vulcanos: Castle Rock and Arthur's Seat. To help me develop a somewhat precise model, I will use Google Maps a guideline.

Next, my plan is to use the two created views of present as a guideline, to create the maps of prehistoric time.

The outcome will be 2 views, arial and cross section of Edinburgh now and then. All views will be shown on the final map to compare past and present.

Up to this point the map will be maturely influenced by all the information I gathered in this sketchbook and probably feel a bit boring an technical.

To balance the map more into a creative and illustrated direction, I want to create a 3D View of the vulcano with a cut out section that shows modern Edinburgh as a comparison.



Sketch for the 3D, cut-out comparison view.

To underline the difference of the both times more clearly, several colour pallets should be used for the city and Vulcano.

Possible Colour Palette

Vulcano



Edinburgh Present



The other views will hopefully help me to construct the 3d model as precise as possible.

(I know that the map must be created in Illustrator only so the 3D View will be created only with the 3d functions provided and the Perspective Gride Tool)

Resources

Pictures

1. **Arthurs Seat, David Monniaux (2005, July 9);**
https://en.wikipedia.org/wiki/Arthur%27s_Seat#/media/File:Edinburgh_Arthur_Seat_dsc06165.jpg
2. **Bibliographisches Institut - Meyers Konversationslexikon (between 1885 & 1890)**
In Wikipedia: https://en.wikipedia.org/wiki/Carboniferous#/media/File:Meyers_b15_s0272b.jpg
3. **Charlie Brenner (2009, May 10)**
In Wikipedia: https://en.wikipedia.org/wiki/Carboniferous#/media/File:Pearl_River_backwater_in_Mississippi.jpg
4. **Albert, (2020 February 22)**
<https://www.volcanocafe.org/the-edinburgh-volcano/>
5. **Dinosaurpictures.org, By C.R. Scotese & Ian Webster**
<https://dinosaurpictures.org/ancient-earth#340>
6. **Dodoni,**
In Wikipedia: <https://en.wikipedia.org/wiki/Carboniferous#/media/File:Meganeura.jpg>
7. **Nobu Tamura, (2007)**
In Wikipedia: https://en.wikipedia.org/wiki/Carboniferous#/media/File:Hylonomus_BW.jpg
8. **Revolv 3D (2015)**
<https://sketchfab.com/3d-models/arthurs-seat-3a3f688bb8064a029be453f2e18fc5d0>
9. **Dr. Palamakumbura R.**
<https://www.bgs.ac.uk/discovering-geology/maps-and-resources/office-geology/geology-of-arthurs-seat/>
10. **Mihai Andrei, (2021, February 2)**
<https://www.zmescience.com/science/geology/types-of-volcano/>
11. **Tom Pering (2011)**
<http://www.volcano-blog.com/blog/arthurs-seat-edinburgh-ever-wonder-how-it-got-there>
12. **Karte (Kartographie)**
In Wikipedia: [https://de.wikipedia.org/wiki/Karte_\(Kartografie\)](https://de.wikipedia.org/wiki/Karte_(Kartografie))

Moodboard

13. **D. Leveson and C.E. Nehru**
<http://academic.brooklyn.cuny.edu/geology/grocha/mapcontour/>
14. **Lodon Minimalist Map - Lori Hinner**
<https://pixels.com/featured/london-minimalist-map-lori-hinner.html>
15. **William Smith's (~1820)**
<https://courses.lumenlearning.com/physicalgeology/chapter/8-1-the-geological-time-scale/>
16. **Pupliphoto (2014, April 4)**
<https://pixels.com/featured/carboniferous-landscape-publiphoto.html>
17. **Sheila Terry**
<https://www.sciencephoto.com/media/171378/view/carboniferous-landscape>
18. **Marco Di Marco**
<https://www.afar.com/magazine/crowds-flock-to-iceland-volcano-as-lava-spills>
19. **Markus Kretschmer (2021)**
<https://www.diweissensteine.de/index.php/2021/06/07/episode-ix-das-karbon/>

Information

20. **Albert (2020, February 22);**
<https://www.volcanocafe.org/the-edinburgh-volcano/>
21. **topographic-map.com**
<https://de-at.topographic-map.com/maps/zgh6/City-of-Edinburgh/>

Resources

22. **Arthur's Seat** (2021, September 8)
In Wikipedia: https://en.wikipedia.org/wiki/Arthur%27s_Seat
23. **Carboniferous** (2021, October 14)
In Wikipedia: <https://en.wikipedia.org/wiki/Carboniferous#Life>
24. **David Leveson and C.E. Nehru;**
<http://academic.brooklyn.cuny.edu/geology/grocha/mapcontour/>
25. **dinosaurpictures.org - C. R. Scotese, I. Webster;**
<https://dinosaurpictures.org/ancient-earth#340>
26. **Agnus Miller, (2020)**
https://www.ed.ac.uk/files/atoms/files/the_volcanoes_that_shaped_edinburgh.pdf