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## Proposed Search Pattern for Atlantis Expedition to the Black Sea

### *Target Structure*

The aim of the mission is to identify the settlement described by Plato. This city is supposed to be a structure consisting of

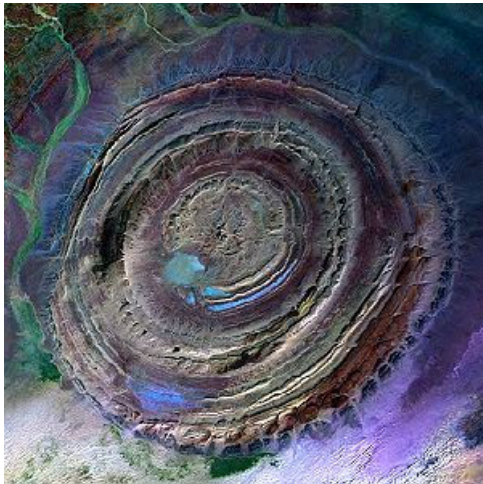
- a hill in the middle with a diameter of 1000 m and an elevation of approximately 15-30 m
- two concentric earth belts with a size of 400 m (inner ring) and 600 m (outer ring), respectively.
- three concentric “water rings” (havens) of 200, 400 and 600 m in size.



*City proposed by Plato*

The nature of this structure has been widely discussed. Based on the geological nature of the shelf we propose a certain form of erosion of a salt dome or similar structure. In this event, a part of the sedimentary layer is pushed up. The structure consists of sandstone and limestone. According to Plato the target structure was colored in layers of white, red and black. This can likely be attributed to limestone and iron and petroleum inheriting layers from different development stages of the Thetys Sea continental shelf.

Such a structure can be found in Mauretania in a geological similar (200 mn yr continental shelf) settlement. This “Richat” formation has a diameter of 38 km. Another concentric ring formation in the vicinity, the so called “Semsiyat” dome has a diameter of 5 km.



*Richat Structure, Mauritania*



The diameter of the targeted structure is approximately 5 km and lies in a depth of 75-85 m. From this it should be clear, that a single sonar sweep will not relieve a full picture but a set of elevations. Due to this it is necessary to review a whole area.

Further, it can be expected that the former water rings have been filled with sediments in the meantime. Consequently, it is necessary to use equipment that is able to penetrate these layers.

## **Search Area**

### **Random Search**

The flooded area of the continental shelf covers approximately the size of Switzerland. On a first glance it appears senseless to undertake a random search. However, since the area is a relatively flat plain the central hill should stick out of the surrounding area.

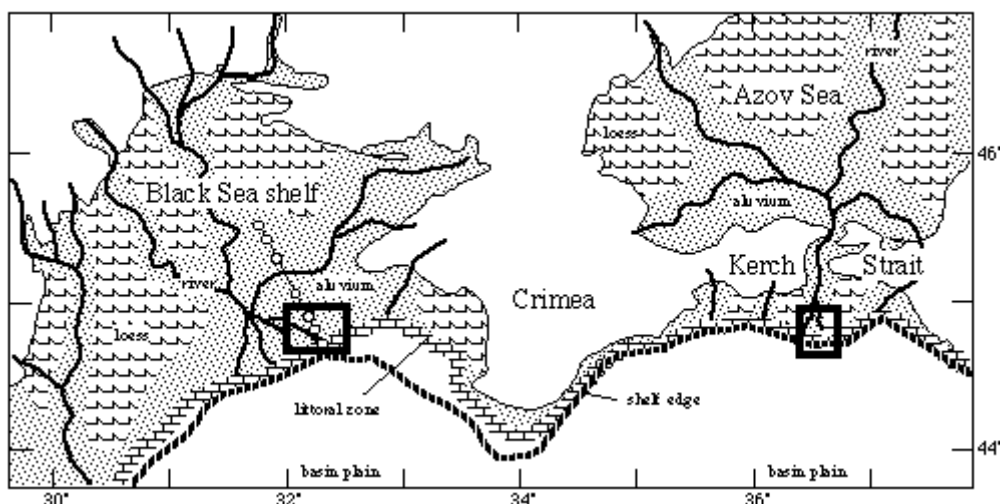
There is some indication from Mythology that the hill stuck out of the sea even after the flood. (island Leuke of Greek Mythology, island of Utnapishtim visited by Gilgamesch). Due to this we identified Snake Island, 40 km off the Danube delta of Romania, as a potential candidate. The geological structure and size fit in Platos description. Surrounding rings could not be identified. It has to be expected that this area is covered with > 15 m of sediments. The overall location however requires a wide interpretation of Platos report, so that this is not a primary target.

It might be possible to identify the hill on existing sonar scan sweeps or sea maps. This information is not yet available to us; however, a random scan of existing material is worthwhile.

## Structured Search

According to Plato the settlement has to be expected in the middle of the 550 km wide plain. The distance of the outer (water-) ring from the shoreline is about 10 km. A vast channel (reported 90 m) runs from the settlement towards the sea.

- The range of 550 km equals approximately the distance from the proto-Danube Delta to the mouth of the former Don River.
- The middle would lie between 31-33° with a peak at 32°.
- This area is likely to be identical with the mouths of Dnjestr, Dnjepr and Southern Bug (or probably a vast Proto-delta of all of these).
- Due to the overall description of Plato (and archaeological experience that shows that early cultures likely develop in river deltas) it is very likely that the settlement can be found in such a delta formation.



*Search Area ("the plain") (Source: Piman/Ryan et al. 1996). The left rectangular marks the primary target location.*

If it is possible to identify the former river beds it might be possible to jump directly into a random search in this area. Otherwise the following search pattern applies.

- Scan the earlier wave terrace (shoreline) at depth of 90-98 m.
- Identify the mouths of large rivers cutting through this formation.
- Select specific river beds applying a lineal combination of (a) distance from 32° (b) size of the bed and (c) preferred deltaic multiple mouth combinations.
- Follow the river bed for 15 km northwards in order to identify the target structure.

Alternatively a parallel run 12.5 km north of the identified wave terraces could be considered. However, this would be based on assumption that the reported distances and sizes are correct. Although the reported values are plausible, a riverbed based search appears more promising.

## ***Operations and Equipment***

As discussed above, the equipment must be able to provide images of the structure of the sea floor. Due to sedimentary influx it should also be possible to view through these sediments. The primary equipment should consequently be (linked to GPS):

- 100 KHz Sidescan Sonar with a range setting of 200m per channel (covering 400 m range) drawn 20-30 m above the sea floor.
- Multibeam echosounder for detailed bathymetry
- Parasounder, which is quite effective especially in dealing with the expected fine sedimentary layers in former river beds.

The following equipment would be helpful in order to review any findings immediately.

- Photo-ROV
- Floorgrabber

*30.12.2006 Christian & Siegfried Schoppe*

*Further Information (German): [www.atlantis-schoppe.de](http://www.atlantis-schoppe.de)*