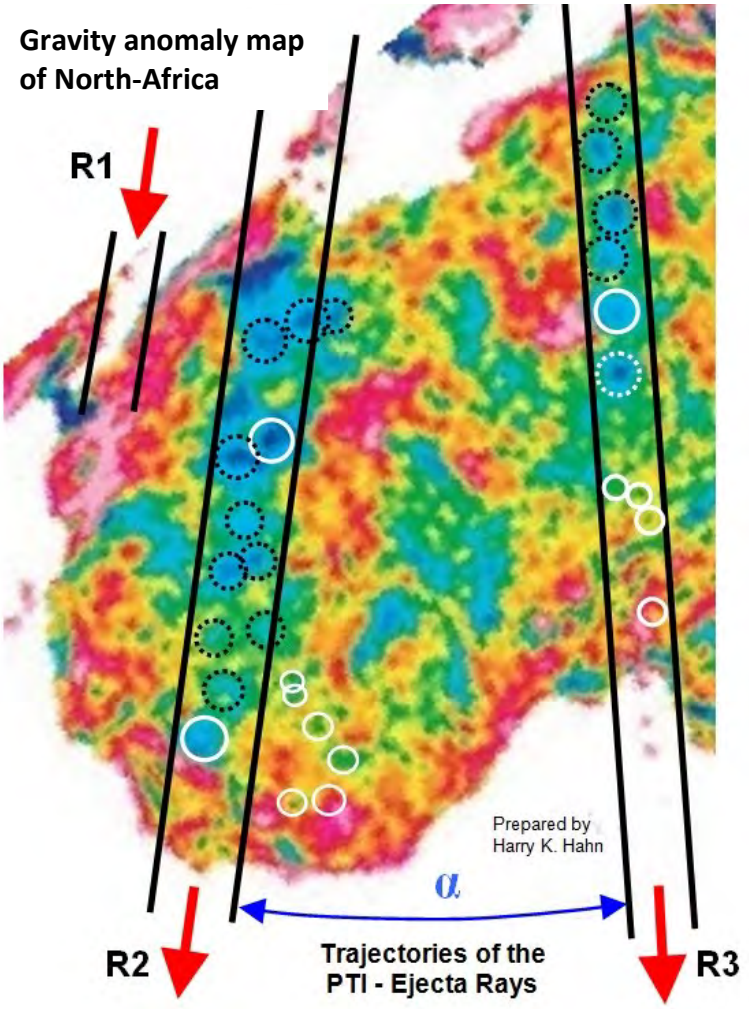
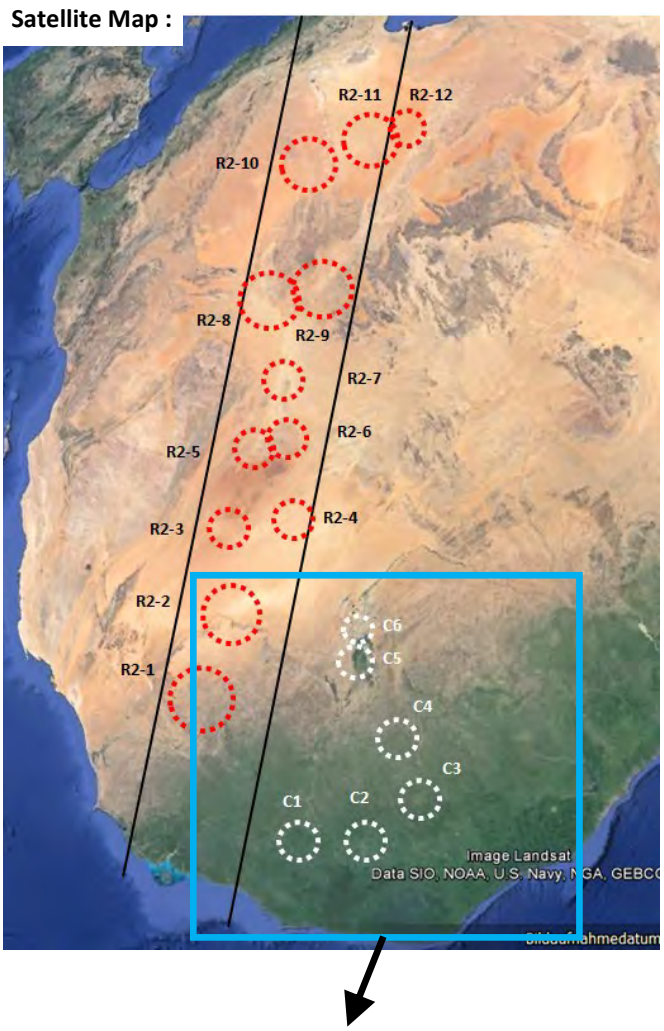
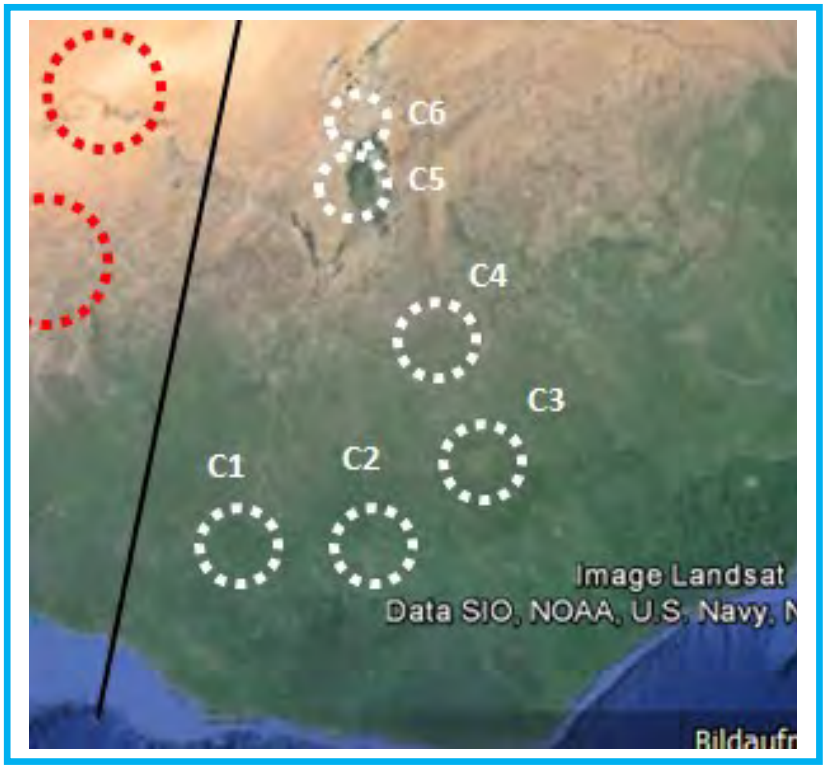
A7 The possible Impact Craters C1 to C6 seem to be related to the Ejecta Ray R2 : (by Harry K. Hahn)

The possible impact craters (structures) C1 to C6 which I describe in this document seem to be related to the Ejecta Ray (Crater Chain) R2, which probably was caused by the PT-Impact Event. Therefore these Craters (impact structures) C1 to C6 represent either secondary structures of the Crater Chain R2 or they were caused directly by ejecta originating in the PT-impact event. The gravity anomaly map only shows slight negative anomalies (indicated by green color) on the locations of these impact structures C1 to C6.



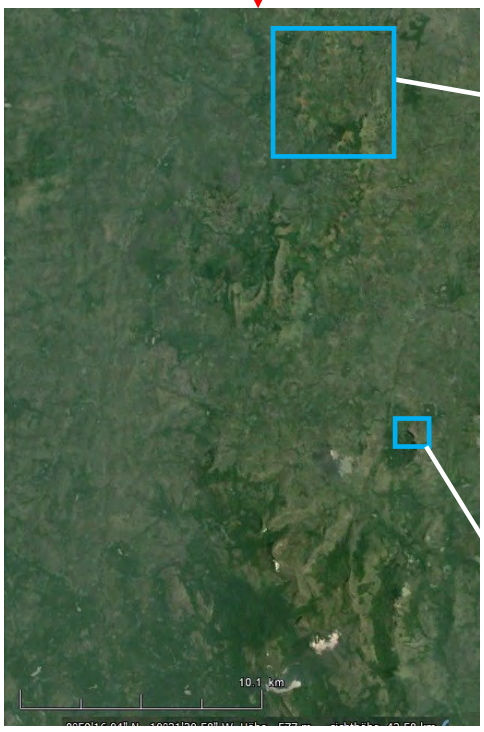


On the following pages we only have a closer look at the possible impact craters (impact structures) C1 to C6 indicated on the map on the righthand side.



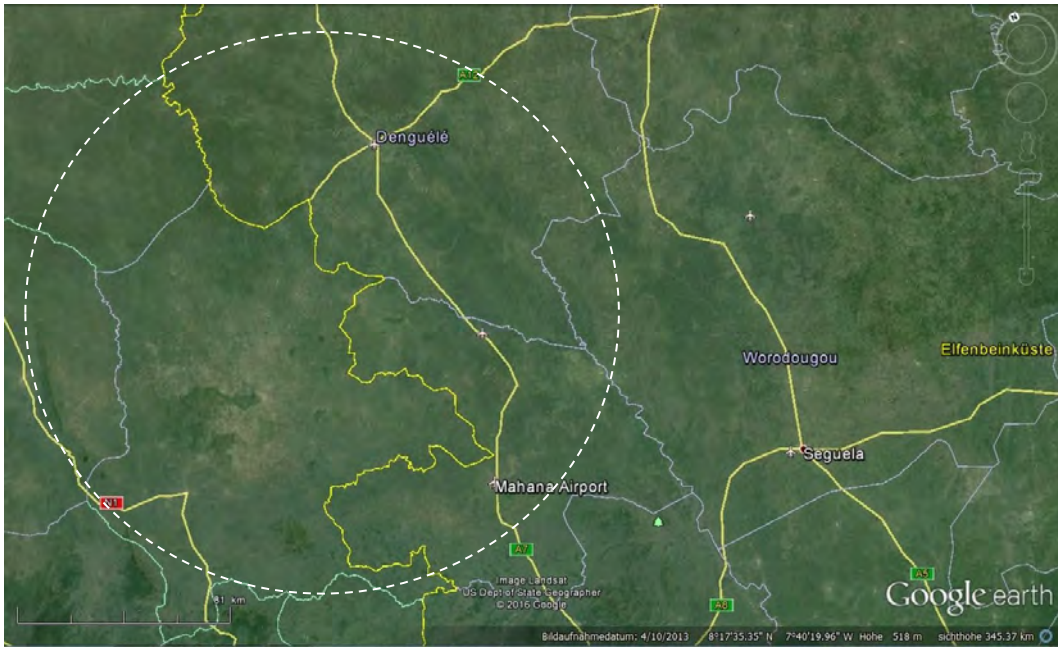
Crater Area C1 : (possible Ø ~ 160-180 km)

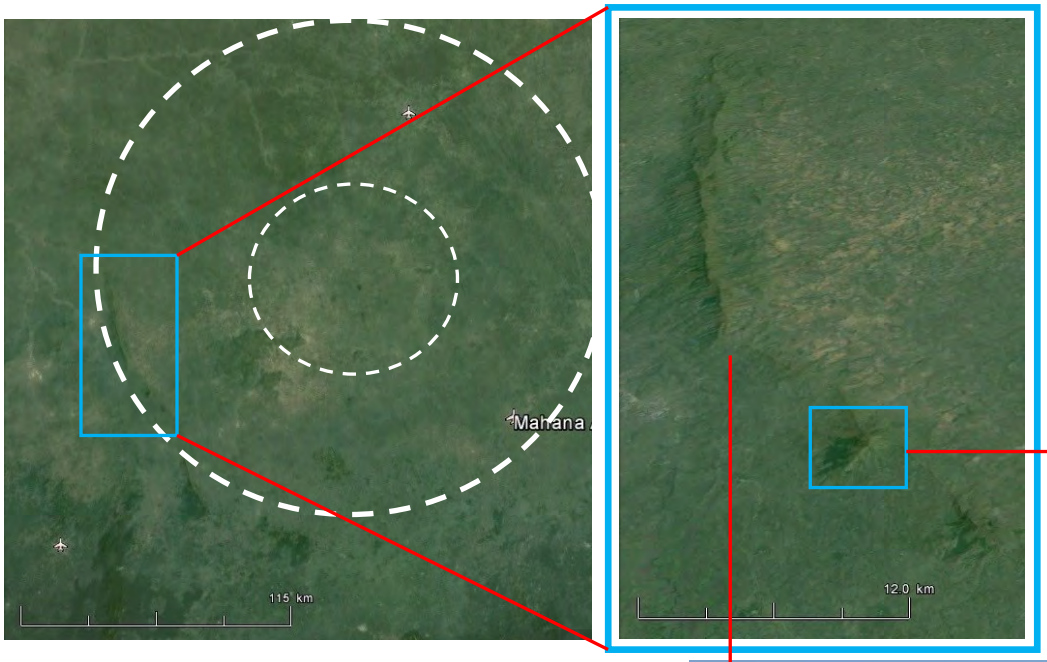
Contrast enhancement used :



The structure shown on the image on the righthand side seems to represent a kind of crater wall structure.

Crater Area C2 : (possible Ø ~ 200 km)

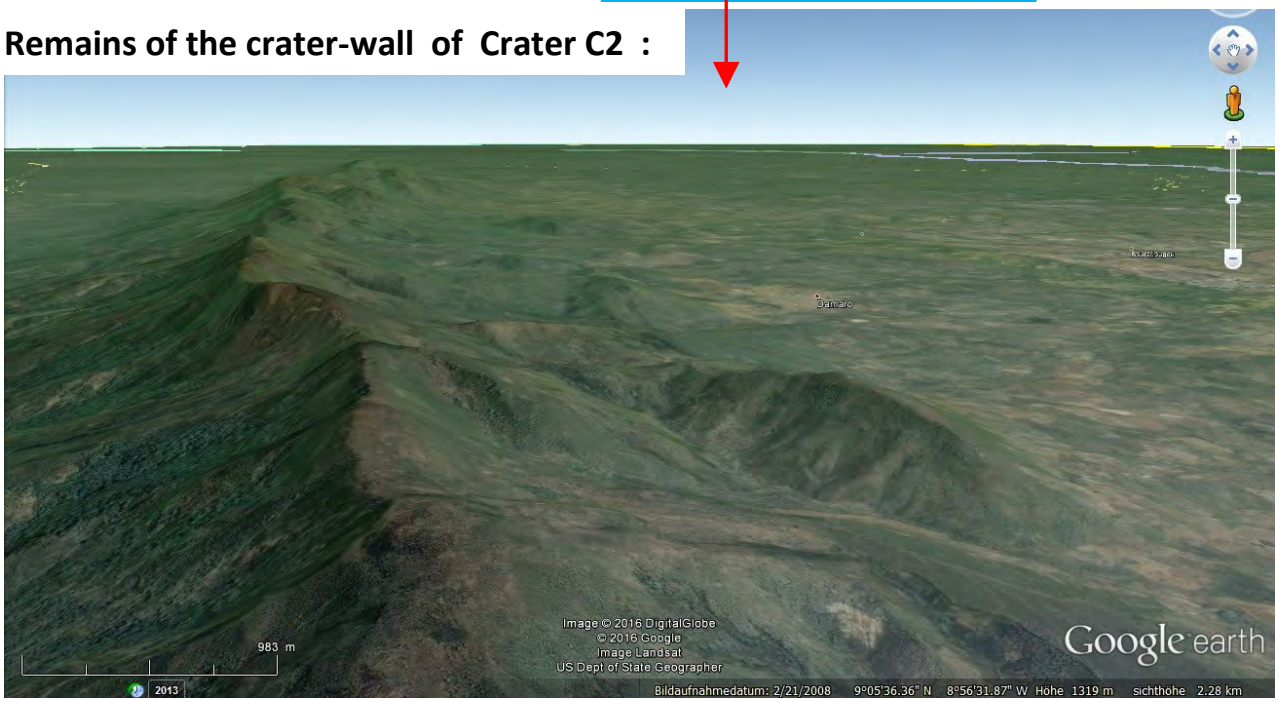




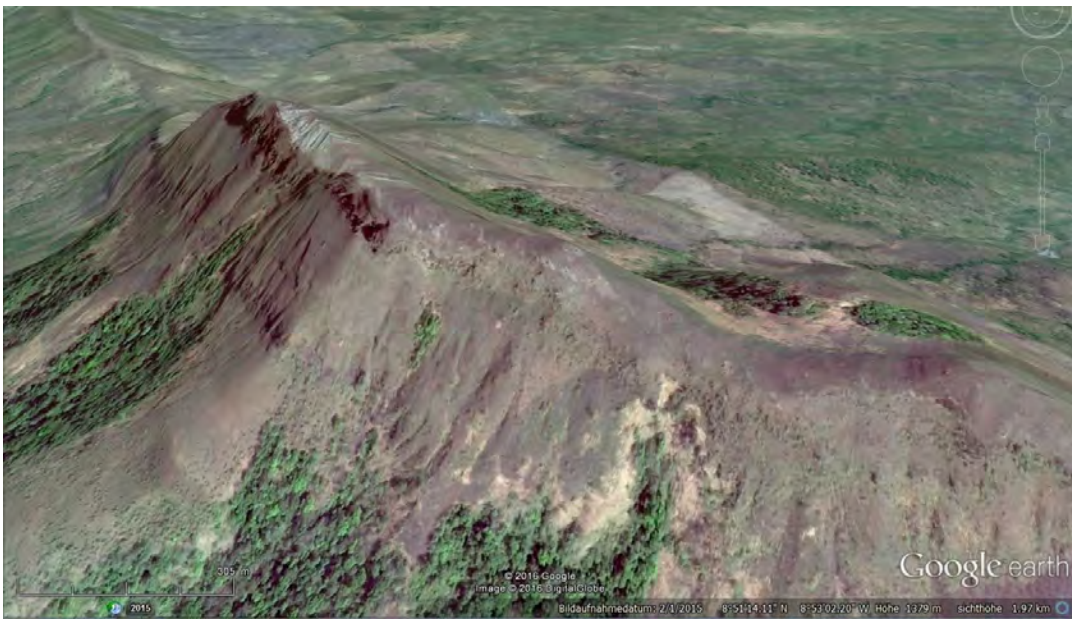
This and the following images seem to show crater wall structures caused by the assumed Impact Event (Crater) C2 :

Detail see next page

Remains of the crater-wall of Crater C2 :



Remains of the crater-wall of Crater C2 :

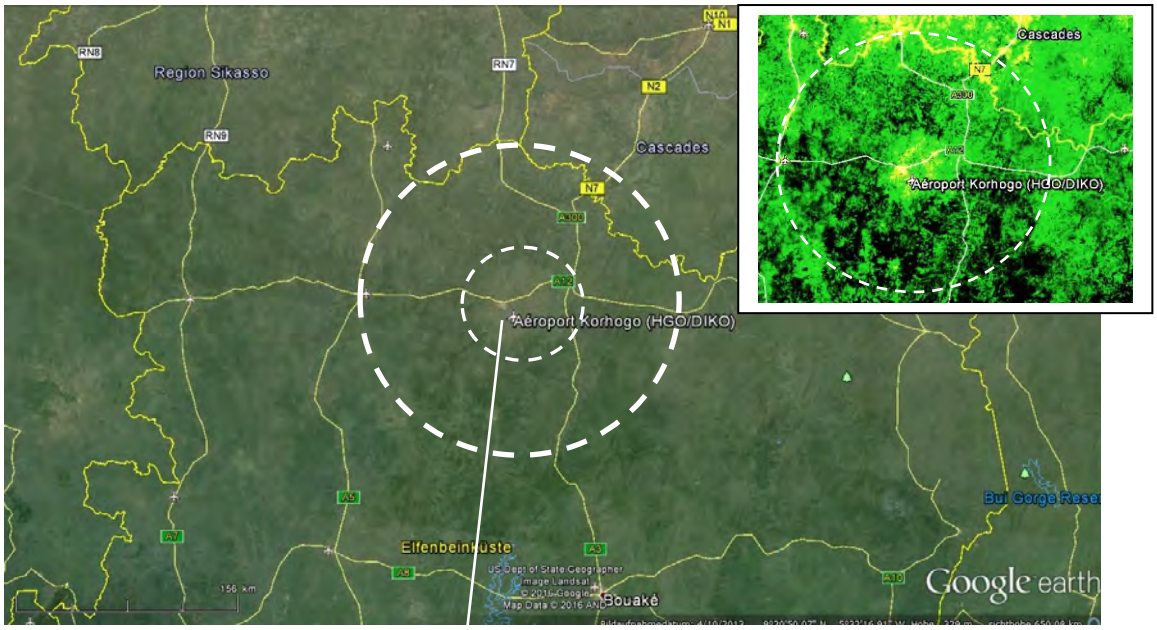


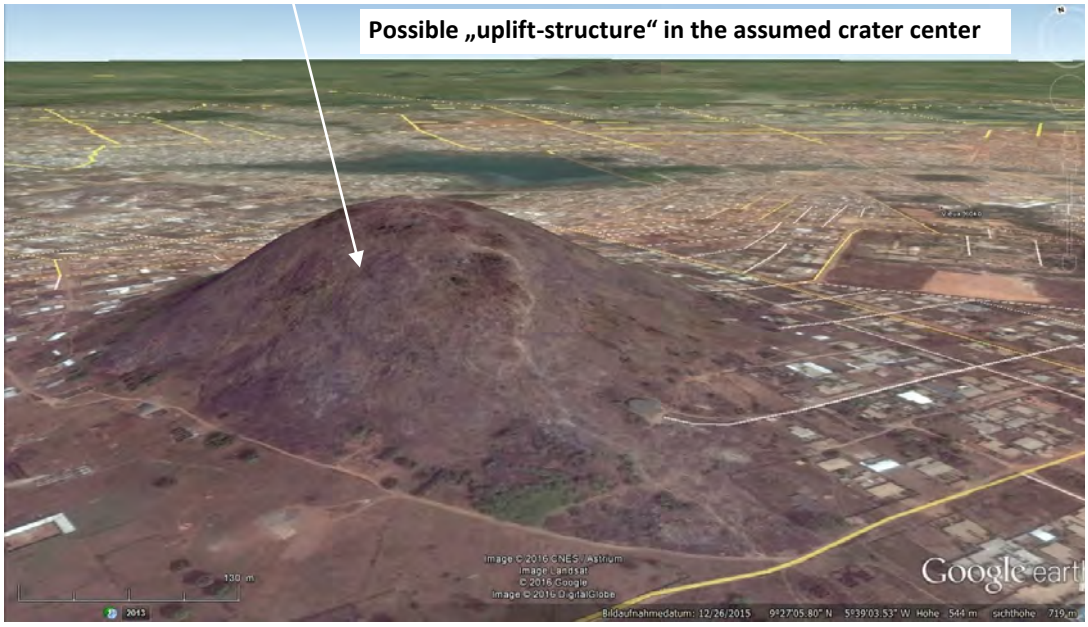
Here we probably see a relatively good conserved remain of the crater wall of the Impact Crater C2 !

95

Crater Area C3 : (possible Ø ~ 200 km)

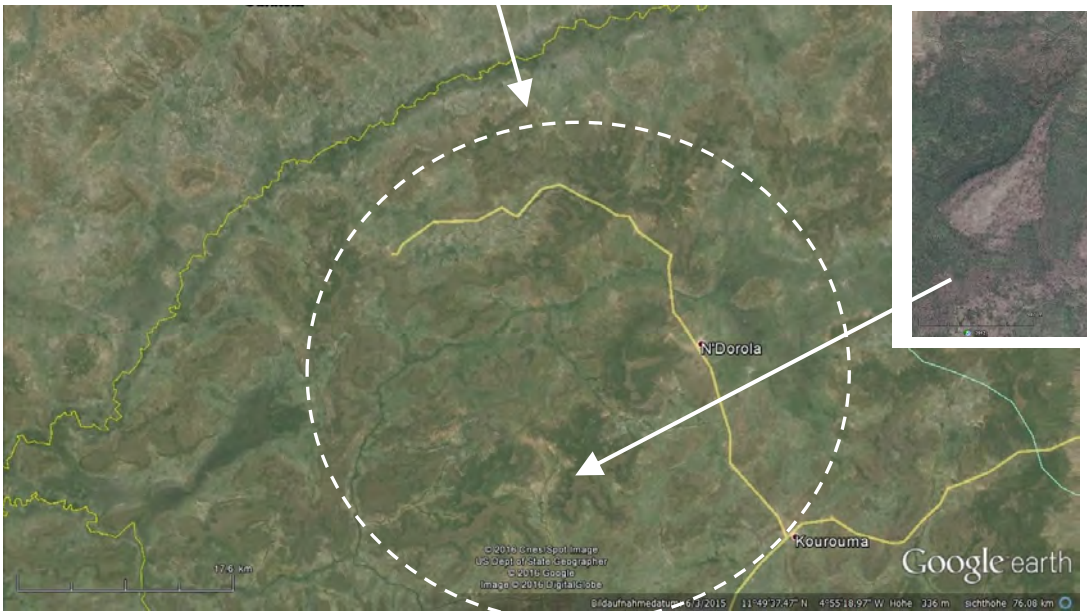
Contrast enhancement used :



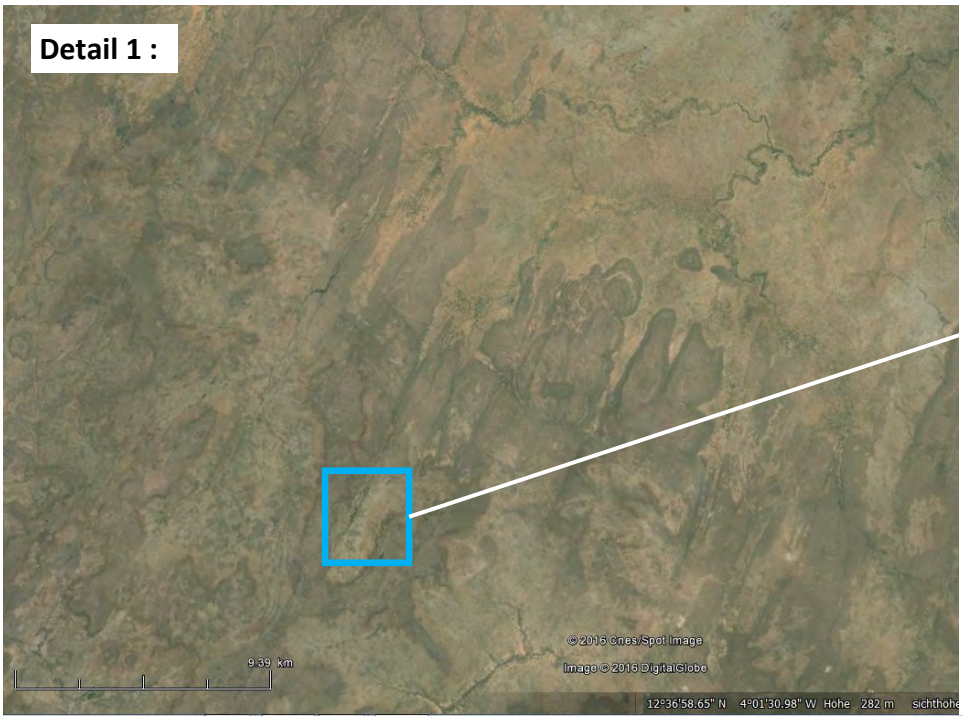


96

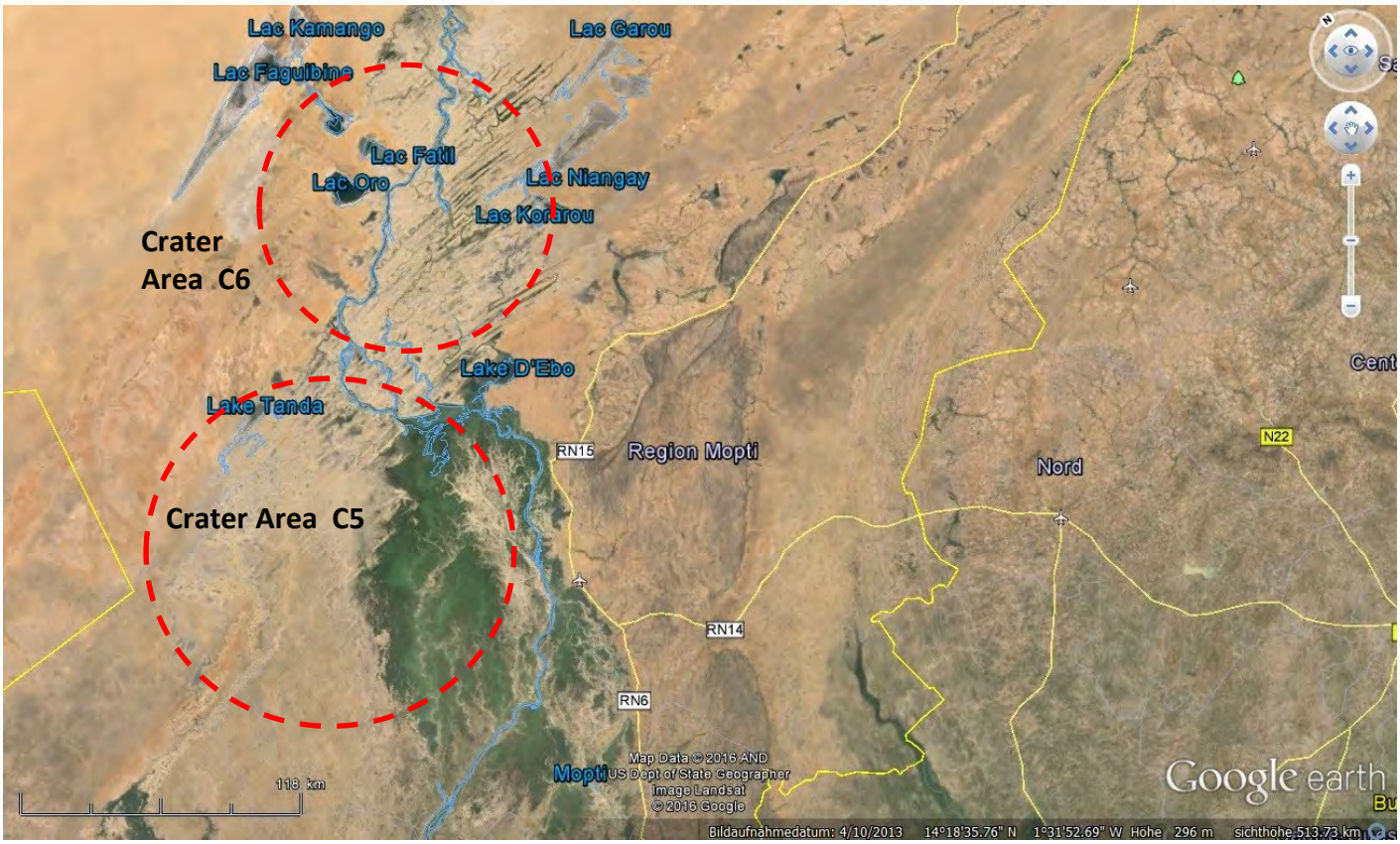
Crater Area C4 : (possible Ø ~ 160 - 180 km)



Detail 1 :



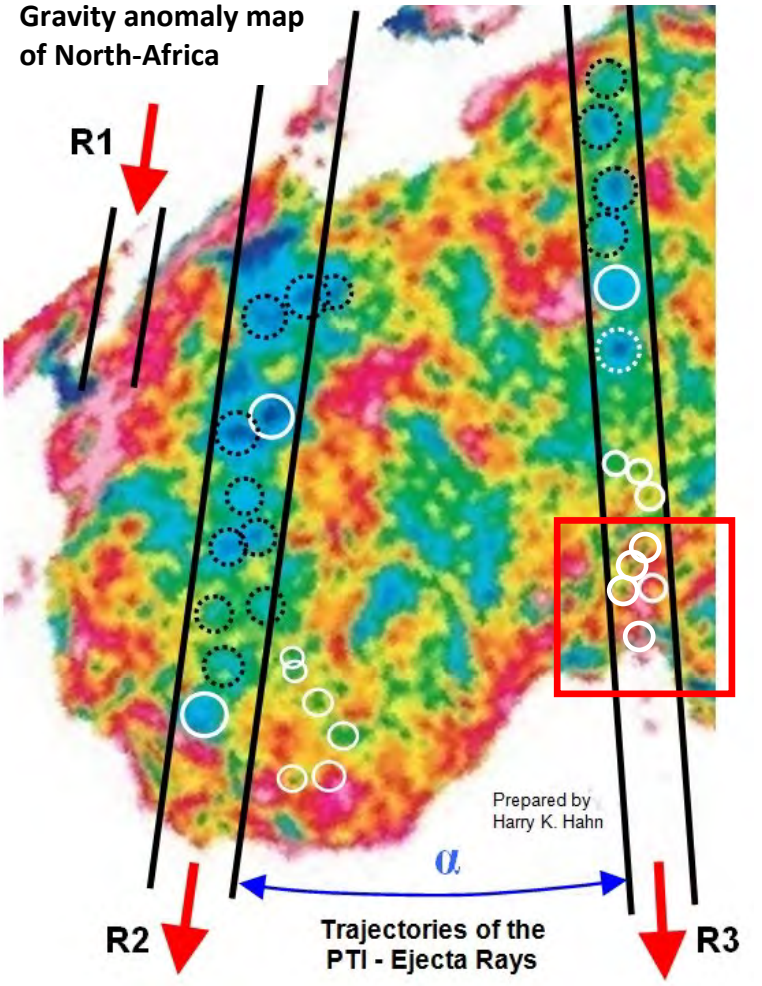
Crater Areas C5 & C6 : (possible Ø : C5 ~ 150 km & C6 ~ 120 km)

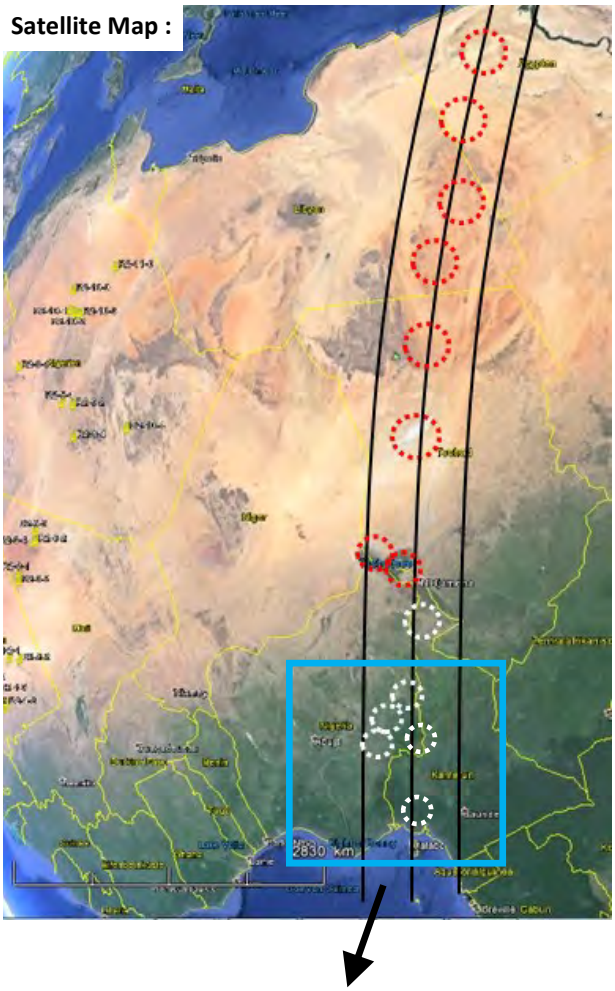


And to further possible Impact Structures R3-X1 to -X22 on the southern end of Ejecta Ray R3 :

The assumed impact structures R3-X1 to R3-22 which I describe in this document are probably related to the Ejecta Ray (Crater Chain) R3, which was caused by the PT-Impact Event around 253 Ma ago.

The gravity anomaly map only shows slight negative anomalies (indicated by green color) or some ring-shaped structures with positive anomalies on the southern end of Ejecta Ray R3.

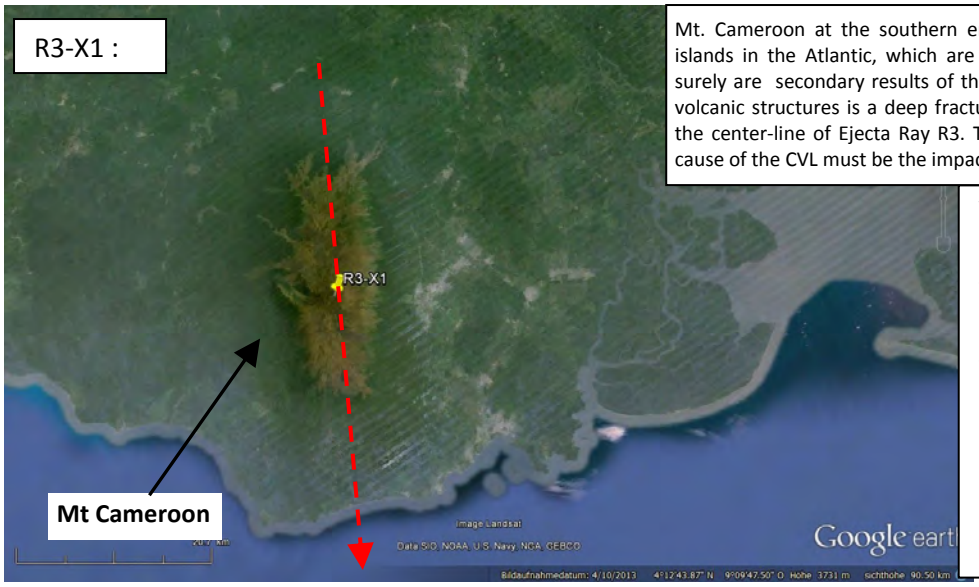




On the following pages we will have a closer look at some possible impact structures at the southern end of Ejecta Ray R3.

We will examine some of the highest mountain tops of the selected structures which show deformation and melting which seems to be caused by the blast of a later impact event !

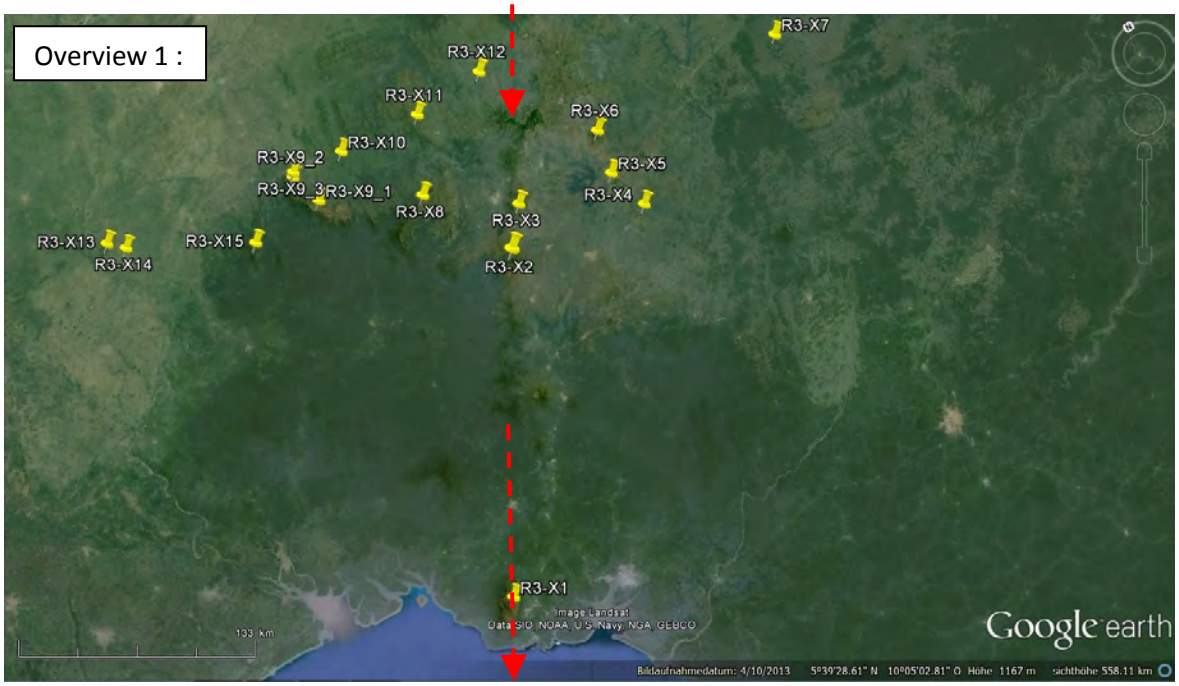
Note : Not all marked structures R3-X1 to R3-X22 are shown. Only some selected structures are shown !

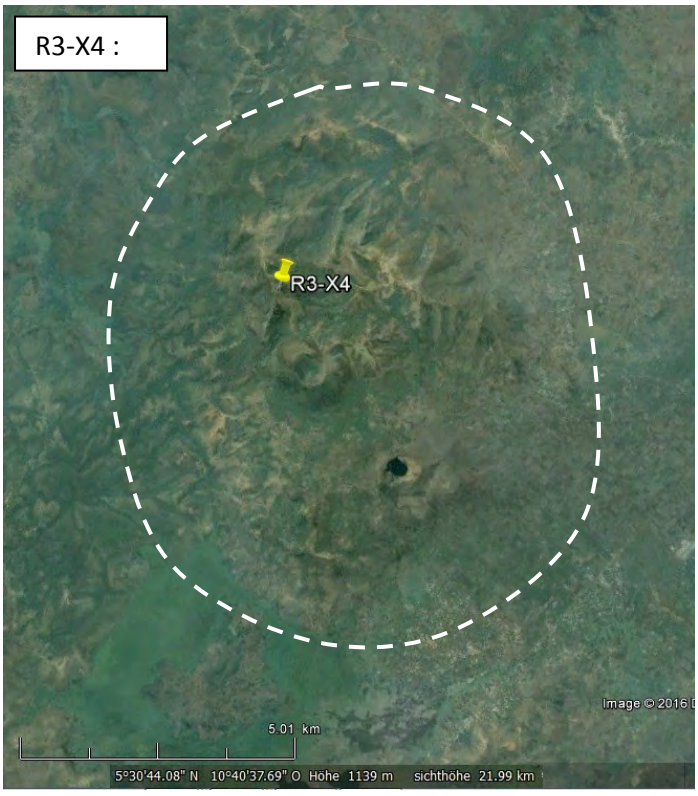


Mt. Cameroon at the southern end of Ejecta Ray R3 together with some volcanic islands in the Atlantic, which are precisely in line with the assumed ejecta ray R3, surely are secondary results of the impact of the Ejecta Ray R3. The cause of these volcanic structures is a deep fracture in the crust which is orientated precisely along the center-line of Ejecta Ray R3. Therefore it is only logical to assume that the true cause of the CVL must be the impact of Ejecta Ray R3 and in general the PT-Impact !

The origin of the Cameroon Volcanic Line (CVL), a 1600 km long linear volcanic chain without age progression that crosses the ocean-continent boundary in west-central Africa, is investigated using body wave tomography. Relative arrival times from teleseismic P and S waves recorded on 32 temporary seismic stations over a 2-year period were obtained using a multichannel cross-correlation technique and then inverted for mantle velocity perturbations. The P and S wave models show a tabular low-velocity anomaly directly beneath the CVL extending to at least 300 km depth, with perturbations of −1.0 to −2.0% for P and −2.0 to −3.0% for S. The S wave velocity variation can be attributed to a 280 K or possibly higher thermal perturbation, if composition and other effects on seismic velocity are negligible. The near vertical sides of the anomaly and its depth extent are not easily explained by models for the origin of the CVL that invoke plumes or decompression melting under reactivated shear zones.

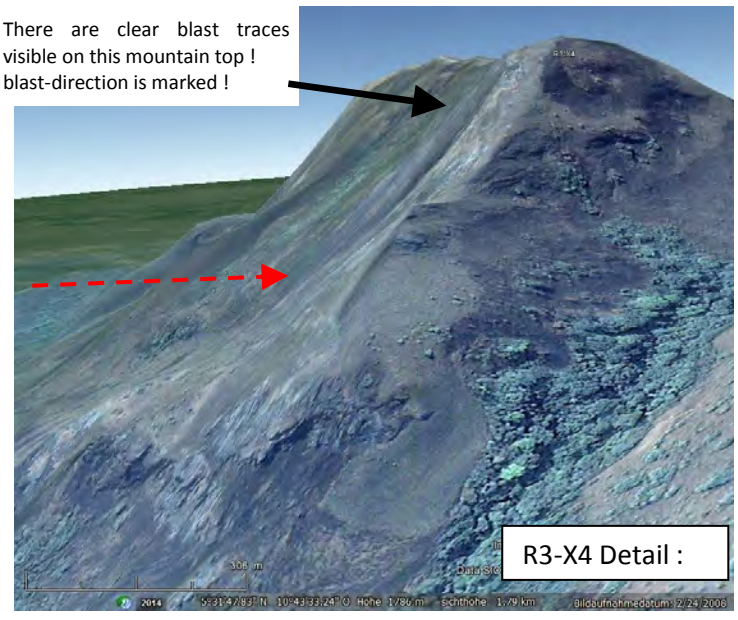
From A.M.Reusch, A.A. Nyblade & others

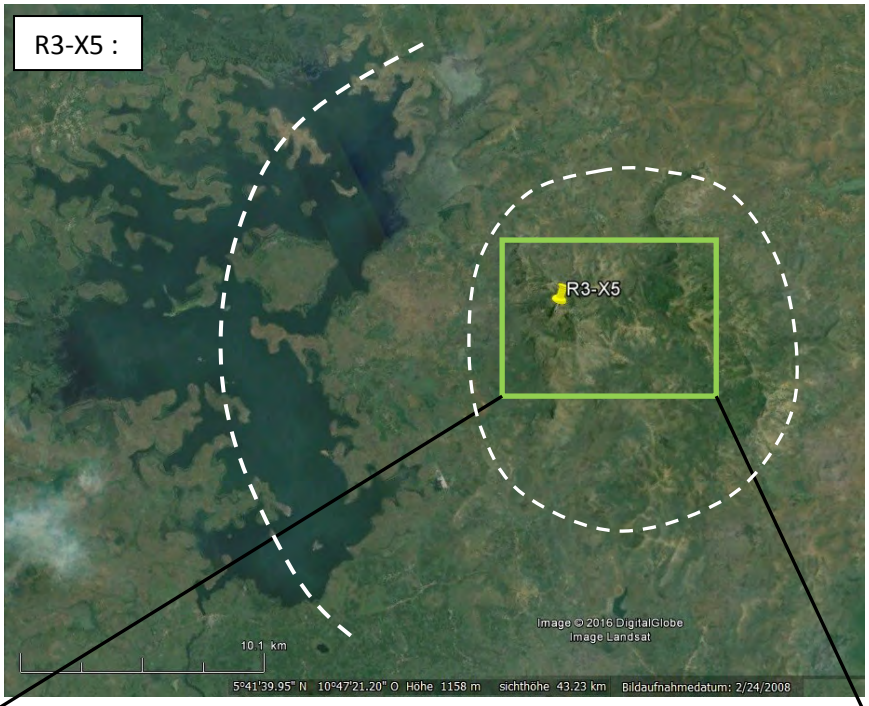


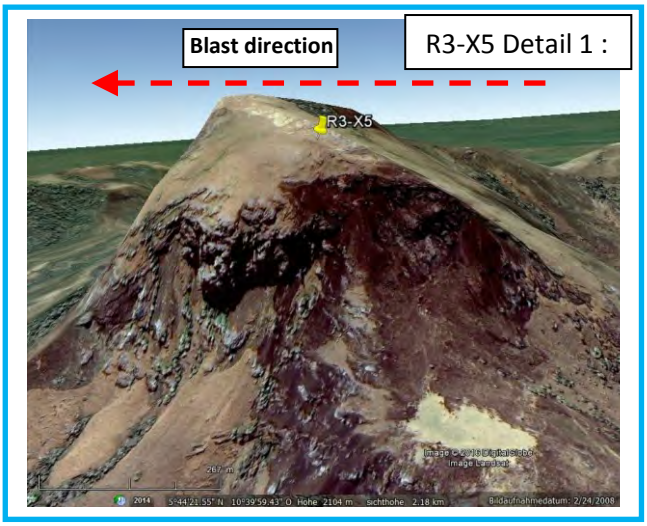


The structure R3-X4 seems to be an impact structure which belongs to Ejecta Ray R3. It could be either the central uplift of a smaller crater or an accumulation of ejecta material. However the blast traces on some high mountain tops in this area seem to be the result of another incident which happened later ! → See next pages !

There are clear blast traces visible on this mountain top ! blast-direction is marked !



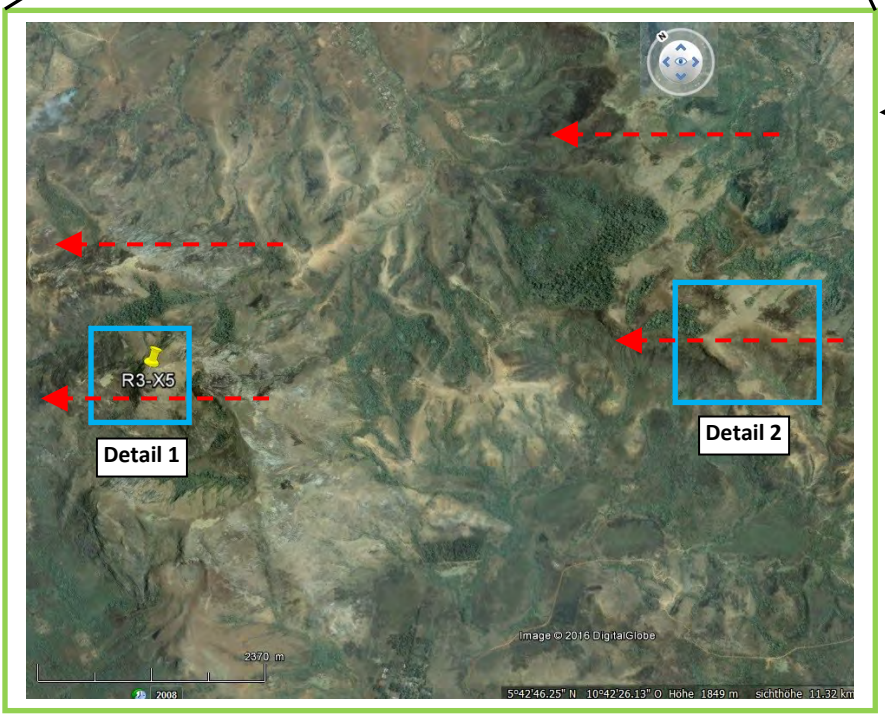


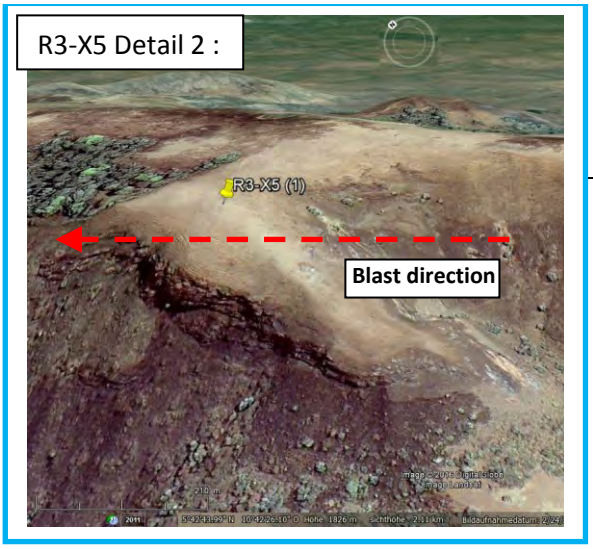


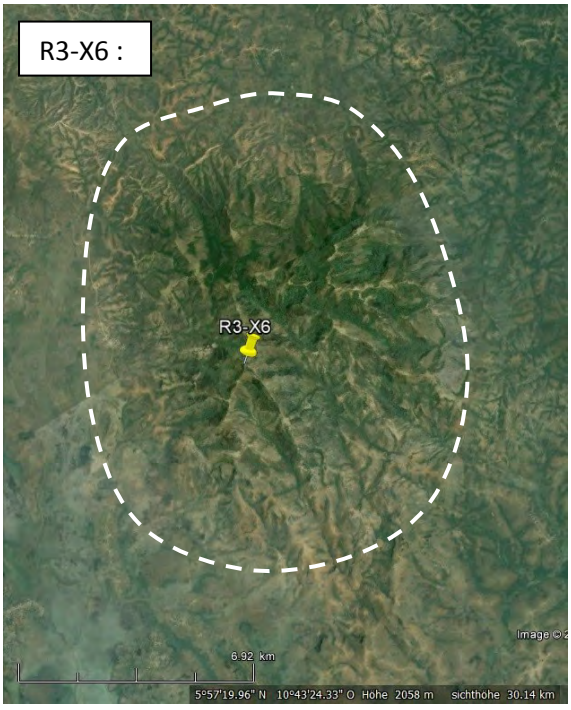
Similar to R3-X4 the structure R3-X5 also seems to be an impact structure caused by the PT-Impact, belonging to Ejecta Ray R3. It seems to be a crater-structure with ~Ø 60 km, which has a central uplift structure.

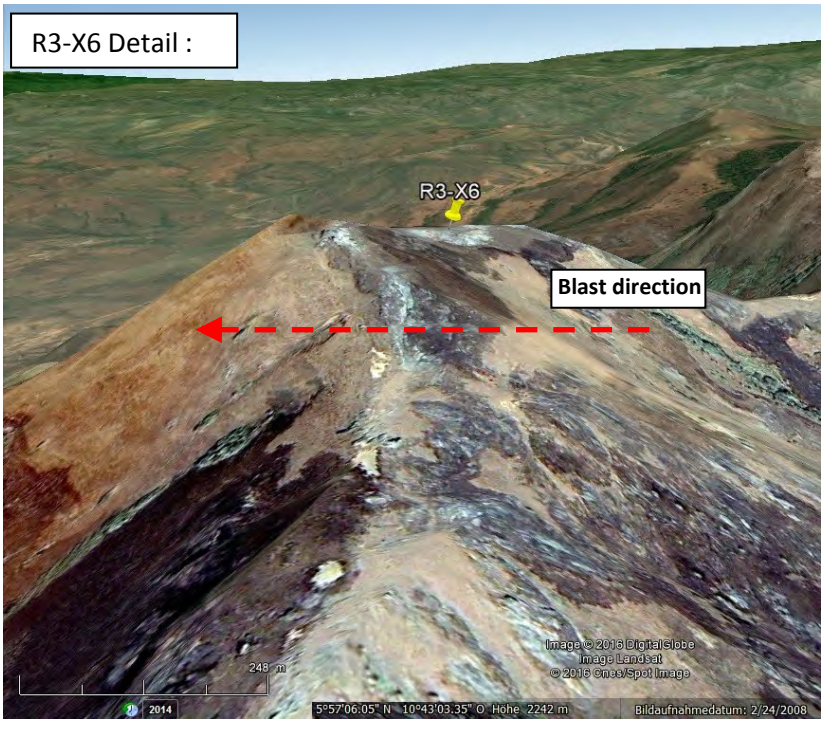
The high mountain tops of the central uplift structure show interesting deformations which seem to be caused by a later very hot and violent atmospheric blast. This blast came from a SE-direction. This can be read from the blast-deformations shown on the left image.

The probable cause may be the later Congo Impact









To the deformation and melting of mountain tops through impact blasts

(by Harry K. Hahn)

The structures R3-X4, -X5, -X6,-X9,-X15 and -X20 from the southern end of the assumed Ejecta Ray R3 of the PTI-Impact Event, seem to belong to smaller secondary impact-crater structures in the diameter range of Ø20 km to Ø60 km. Some of these structures may be remains of uplift structures.

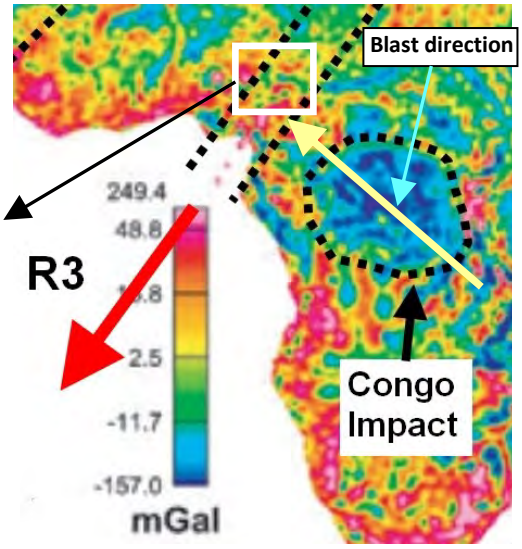
If these structures indeed are a result of the PT-Impact, then they are approx. 253 Ma old.

However the deformation and melting visible especially on some of the high mountain tops of the mentioned structures seem to be caused by a later very hot and violent atmospheric blast.

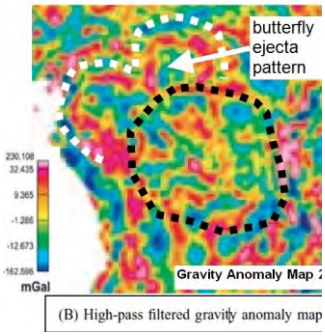
I believe that the assumed Congo Impact Event, which probably happened 60 to 90 Ma after the above mentioned structures were formed, has caused this hot and violent atmospheric blast.

The Congo Impact Event probably was caused by a large Comet which collapsed just before impact.

To proof this, an age-analysis of material from the melted mountain tops and from unmelted material from defined lower locations should be made.



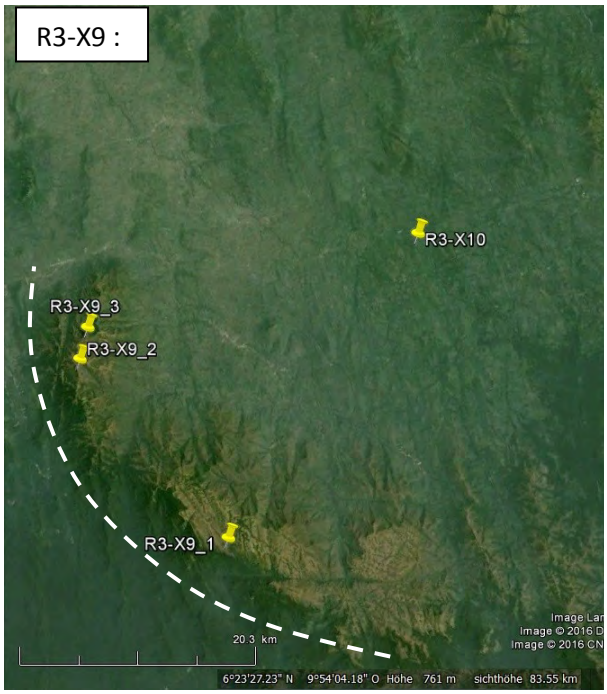
Impact Structures R3-X1 to R3-X22



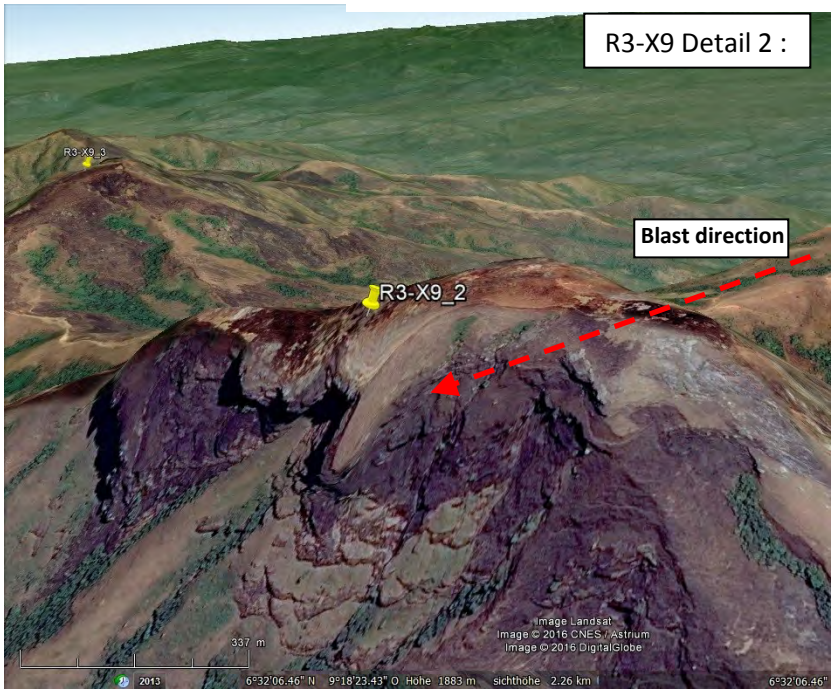
(B) High-pass filtered gravity anomaly map

This image shows the assumed Congo Impact Crater and the Ejecta Ray R3 on a gravity anomaly map.

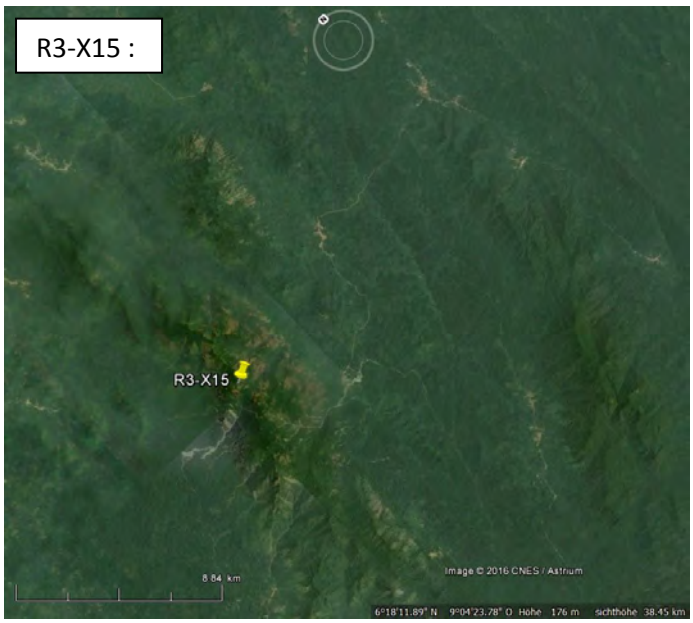
R3-X9 :



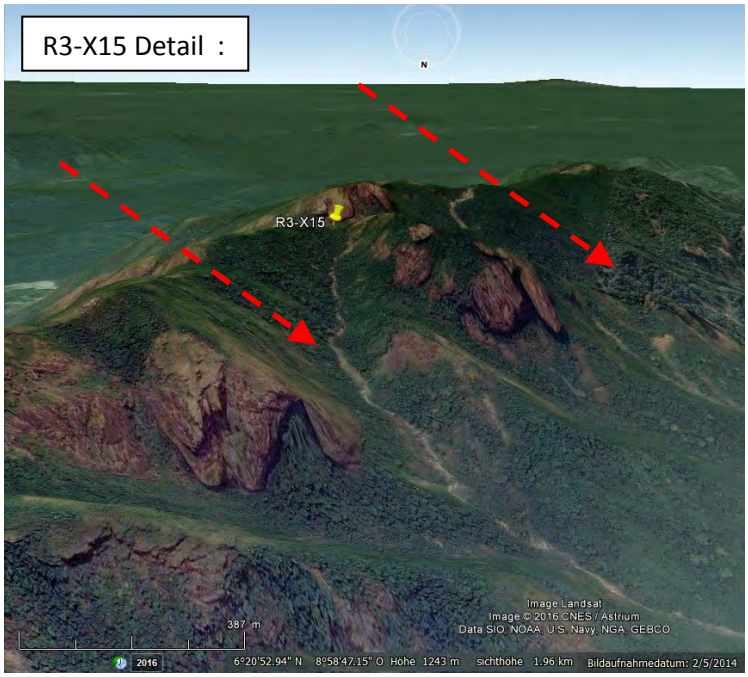
R3-X9 Detail 2 :

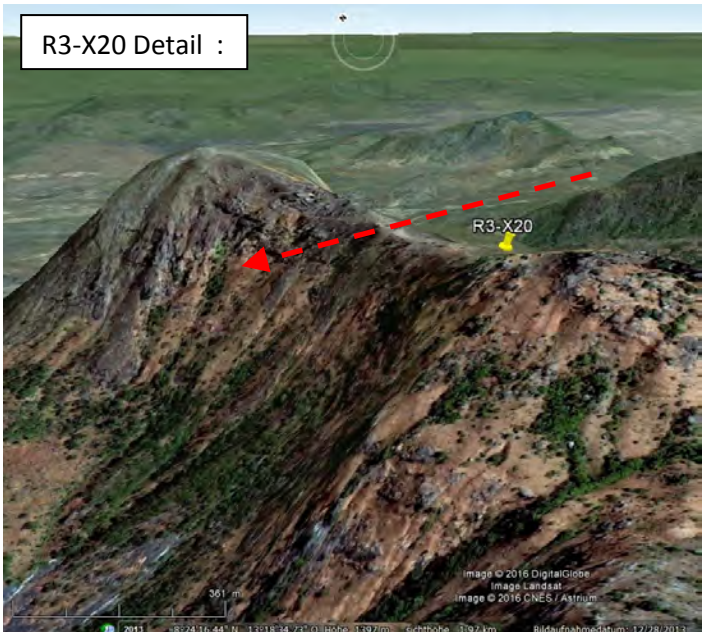


R3-X15 :



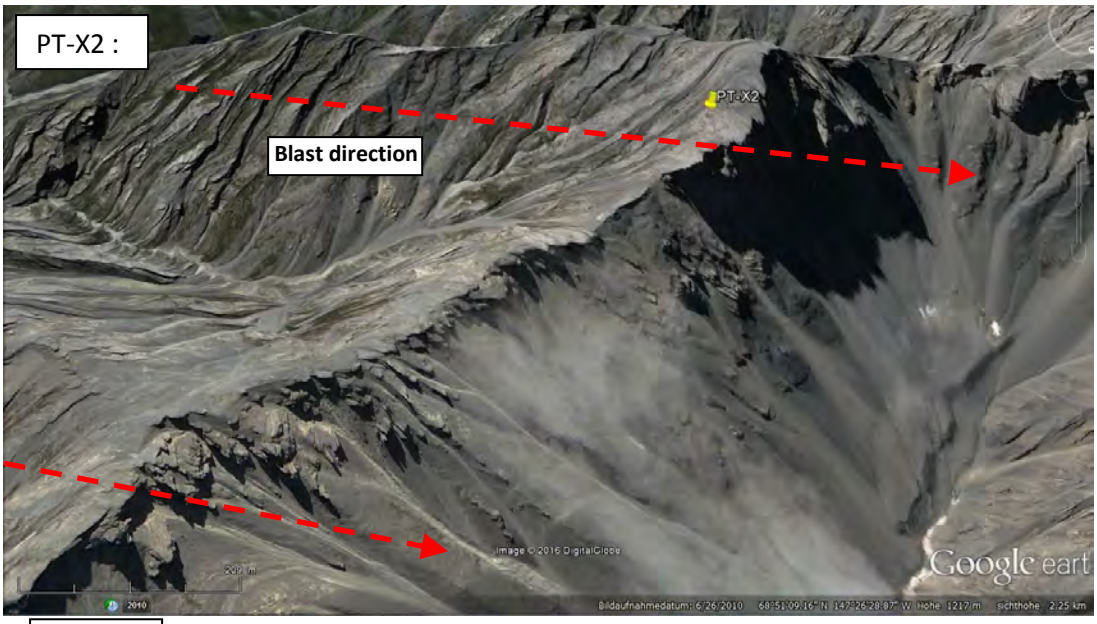
R3-X15 Detail :

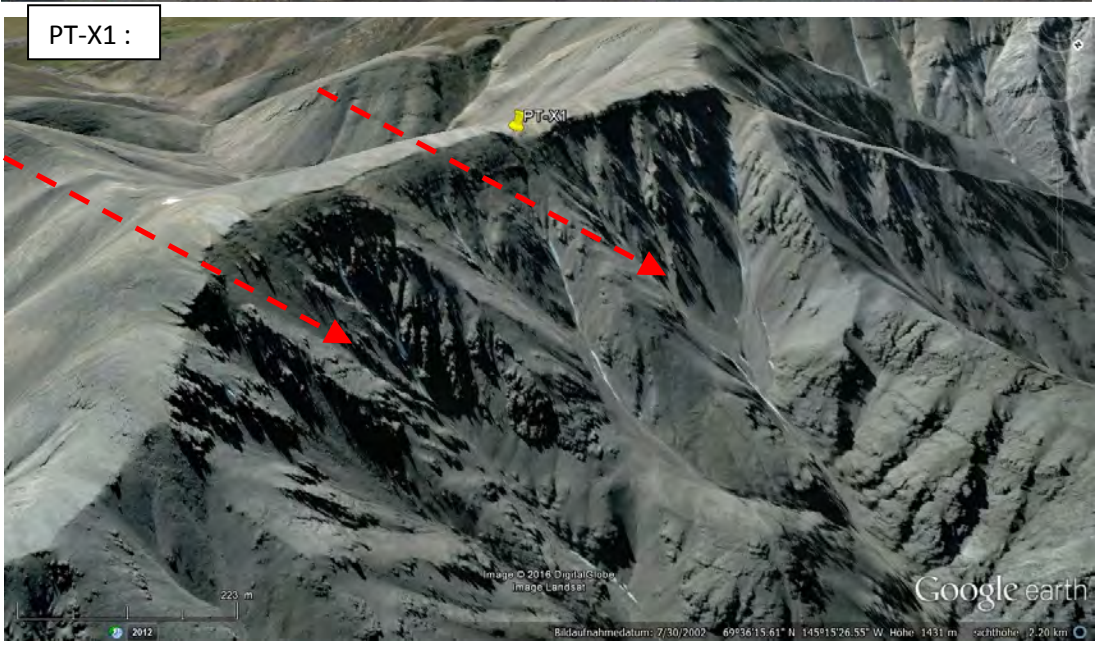




For comparison : Two examples of mountain tops from the Brooks Range (Alaska) :

The Brooks Range in Alaska, which in all probability was initially formed by the PT-Impact Event, also shows Mountain Tops which were deformed by a violent atmospheric blast. However the blast direction indicates, that the blast came from the opposite direction in reference to the PT-Crater. The possible explanation could be as follows : The initial mountain range was formed by the PT-Impact, which also ejected large quantities of magmatic material. After the impact shockwave a later violent “backflow” of the atmosphere produced the final deformation of the magmatic cover layer.

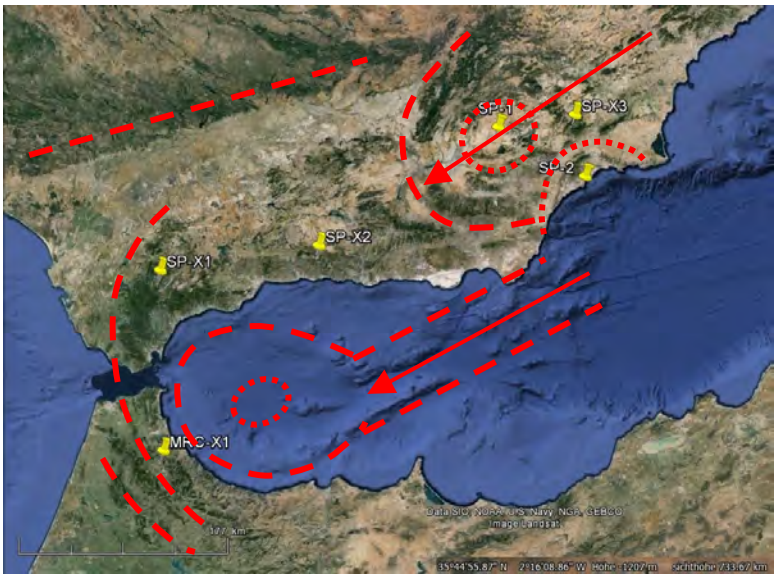


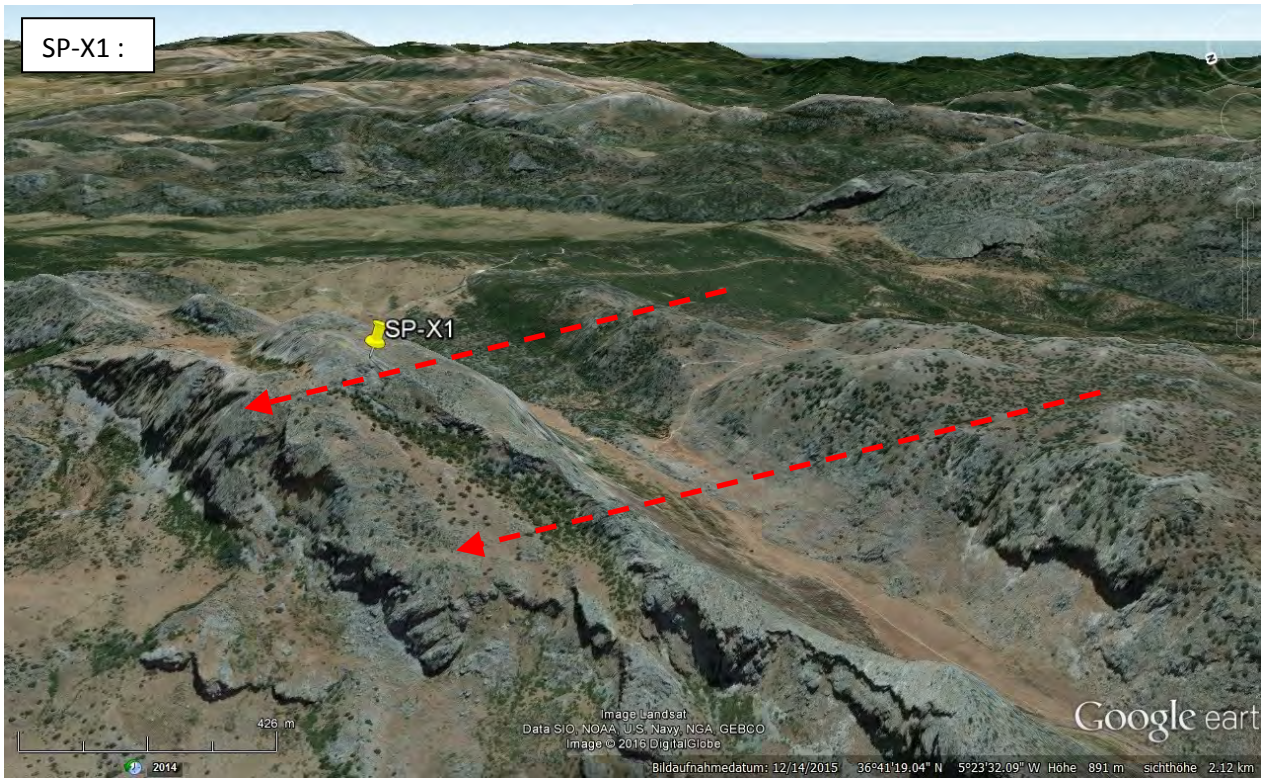


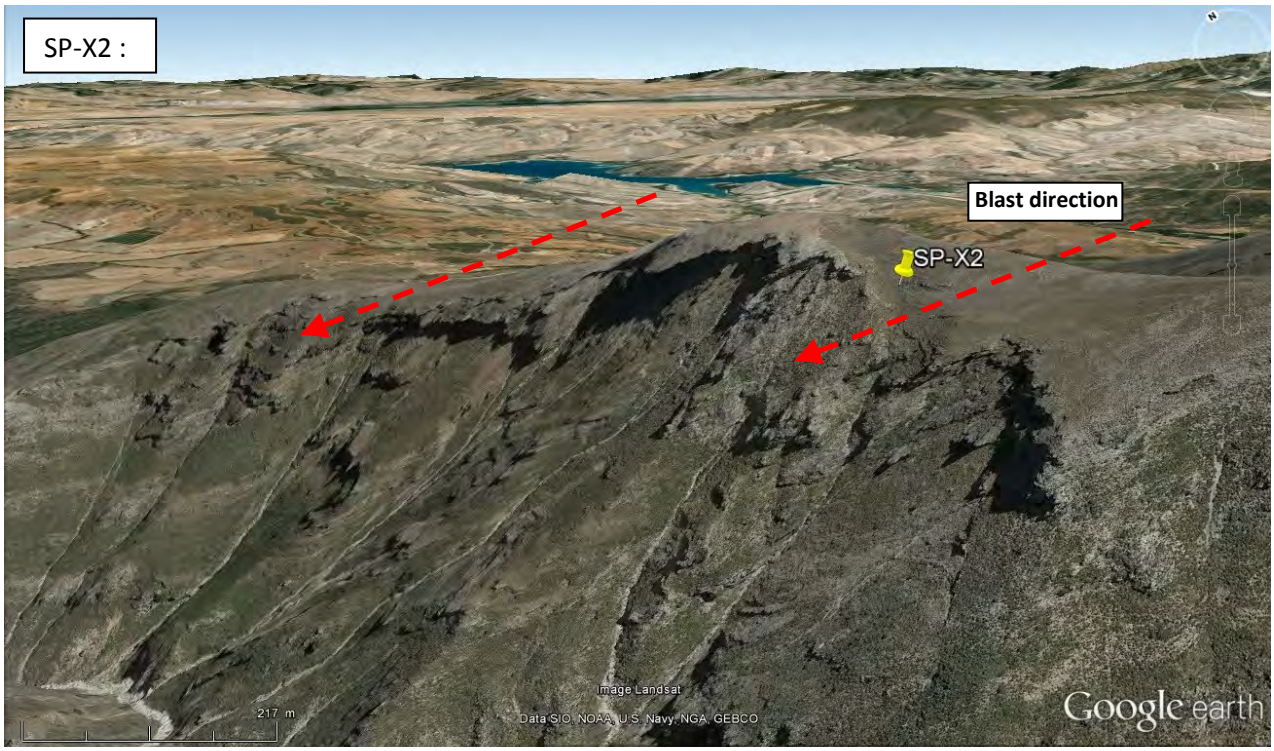
And here some examples of deformed mountain tops from Southern Spain :

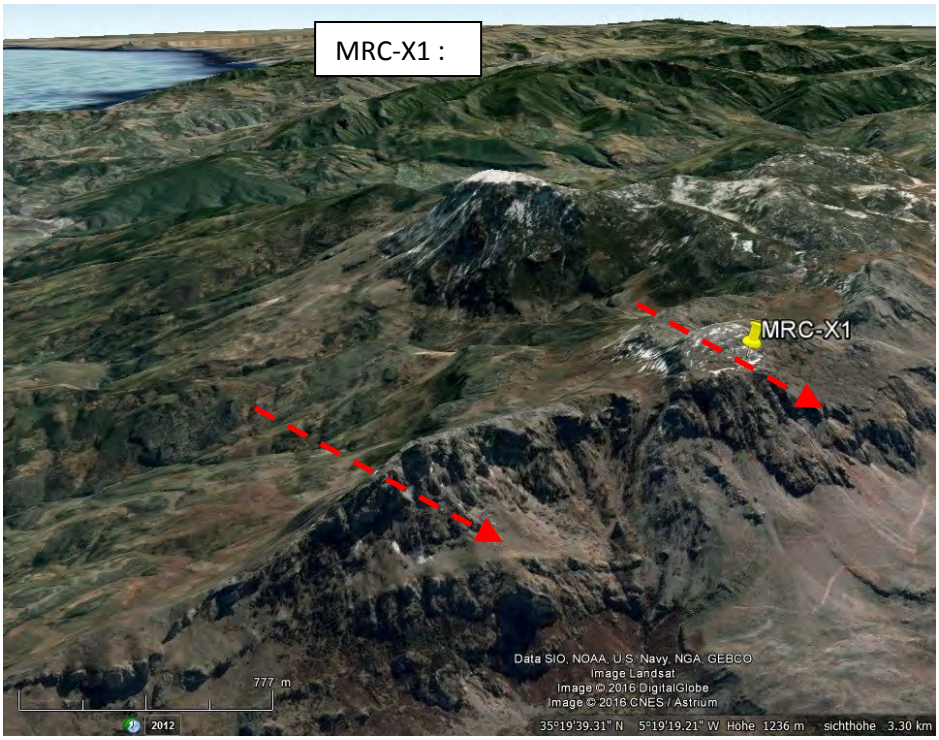
The tops (peaks) of some mountain ranges in SW-Spain and in NW-Morocco, which in all probability were formed by the PT-Impact Event, or by later volcanic eruptions from the crater-areas, also show deformations caused by a violent blast event.
In all probability these deformations were caused by a blast (shockwave) from a violent volcanic eruption or from an impact event (e.g. the Kongo-Impact Event).

The two shown examples SP-X1 & SP-X2 are from southern Spain, and MRC-X1 and MRC-X2 are from NE-Morocco.







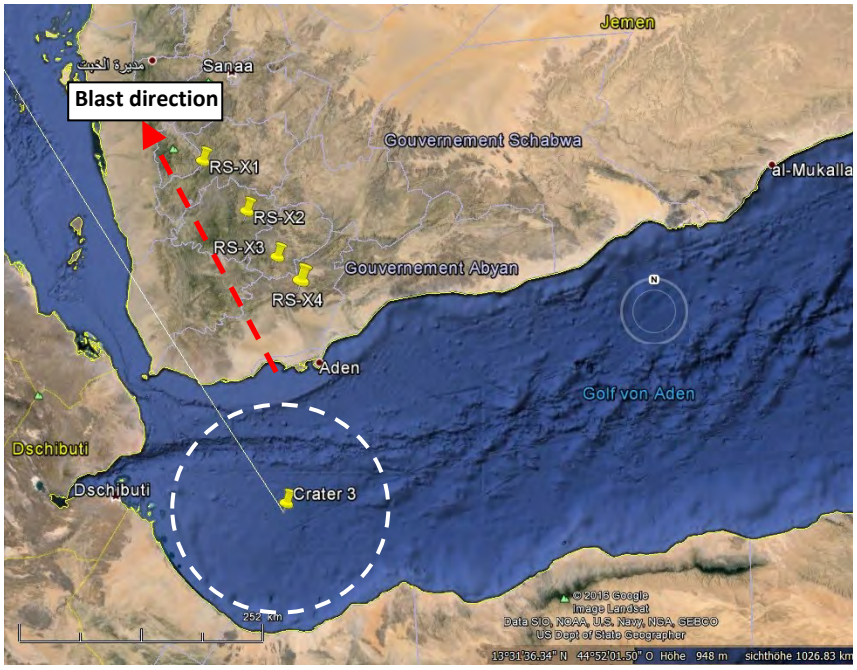


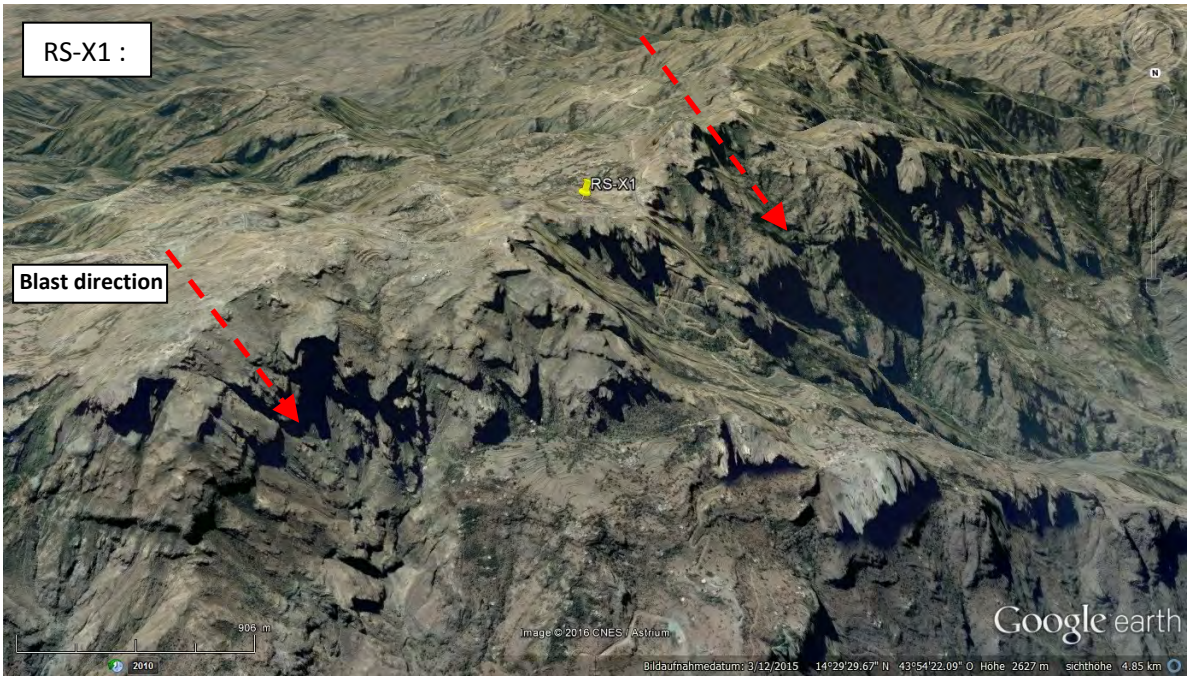
At last some examples of mountain tops deformed by impact blast from the Arabian Peninsula (from Jemen) :

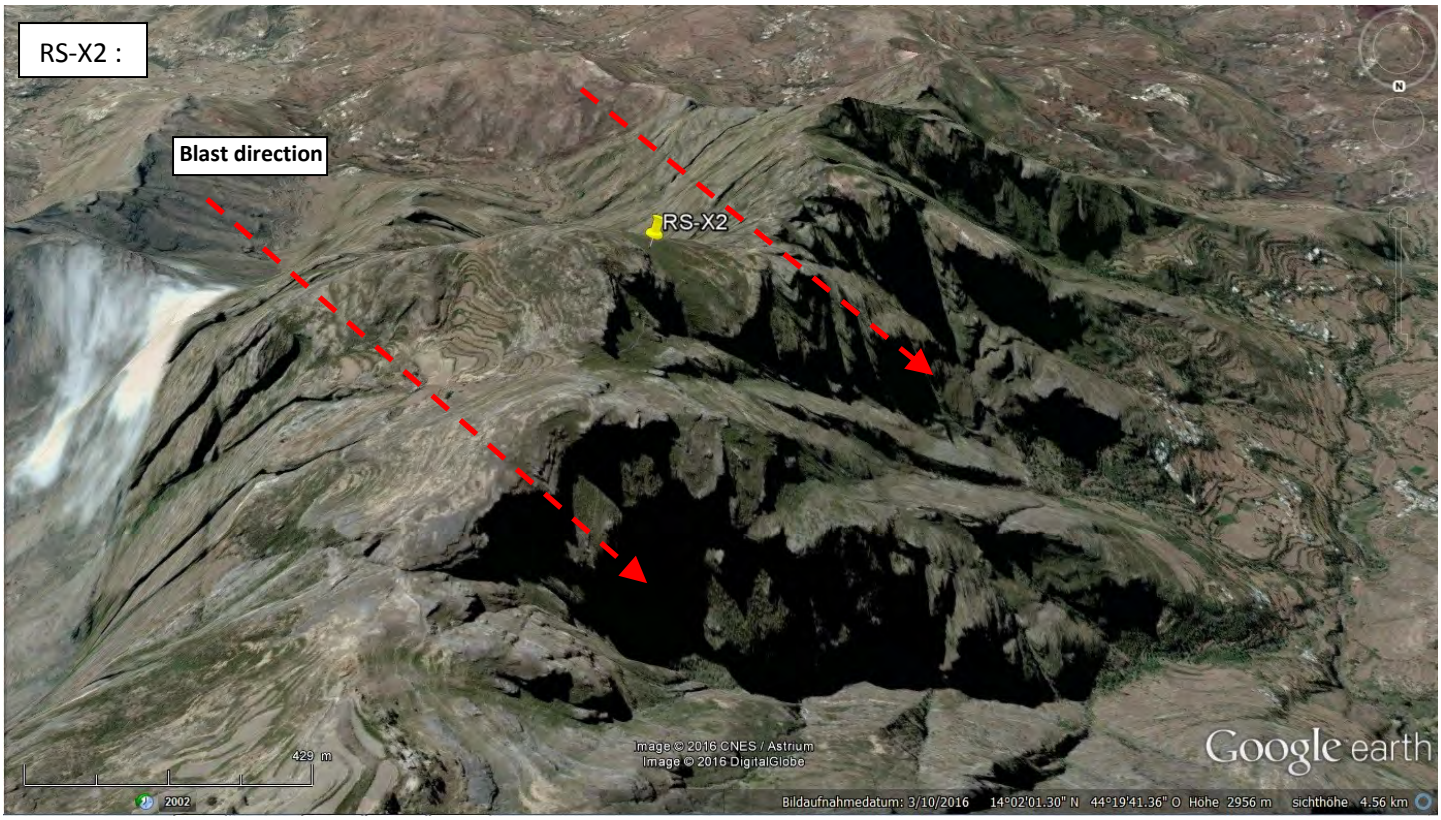
Similar mountain tops which were deformed by impact blasts can be found on other places worldwide. Here are a few more examples which are located in SW-Jemen.

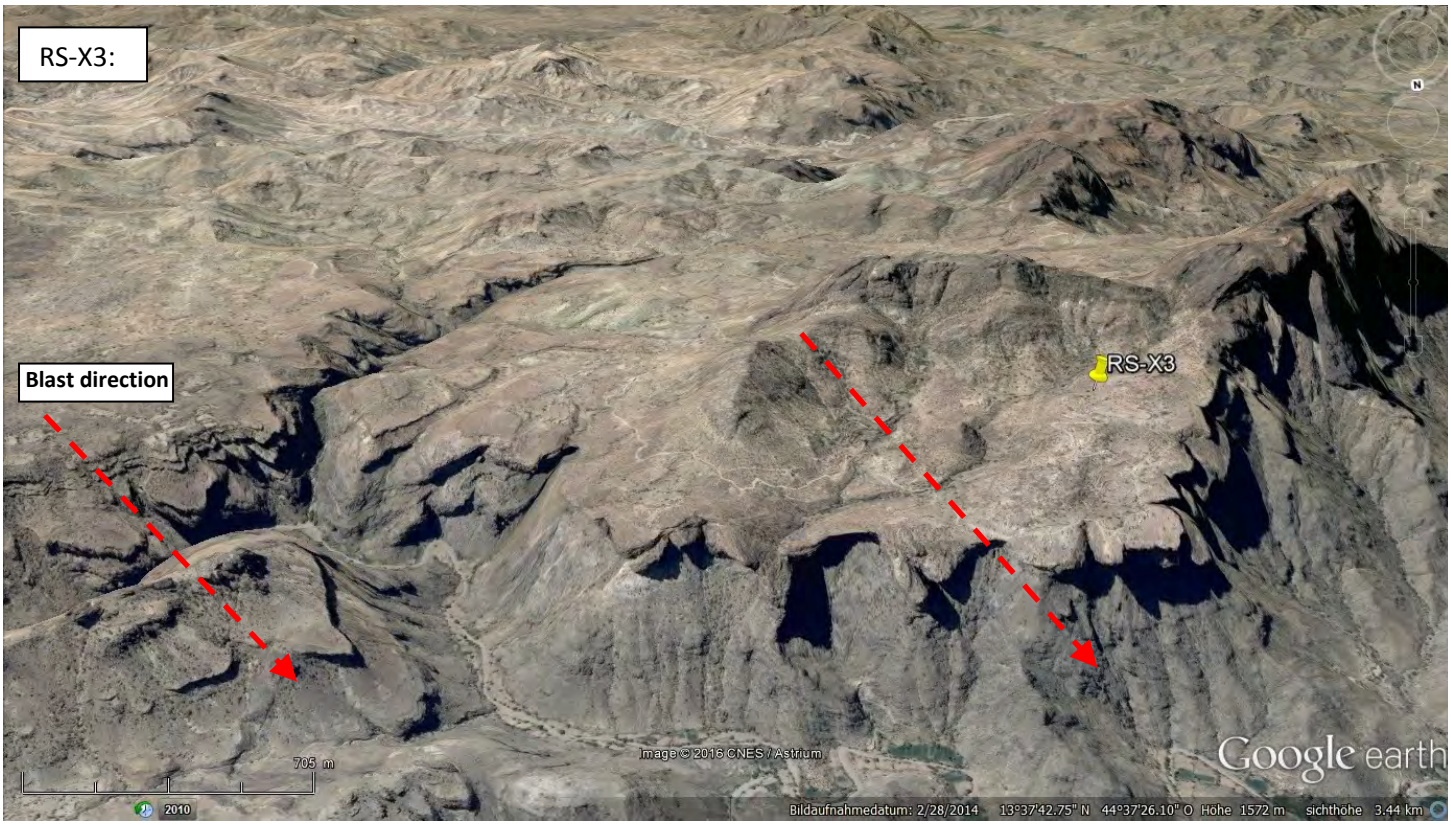
The shown examples RS-X1 to RS-X3 in all probability were formed by the impact blast of an Impact Crater which is located in the Golf of Aden (Crater 3). → for further explanation of this Impact Event read the document : **"The Red Sea Impact Event".**

The shown mountain tops again were formed by melted material (ejecta material ?) which flew away from the source of the blast for a short time before it finally solidified.






RS-X2 :
Blast direction
RS-X2
Image © 2016 CNES / Astrium
Image © 2016 DigitalGlobe
Google earth
Bildaufnahmedatum: 3/10/2016 14°02'01.30" N 44°19'41.36" O Höhe 2956 m sichthöhe 4.56 km

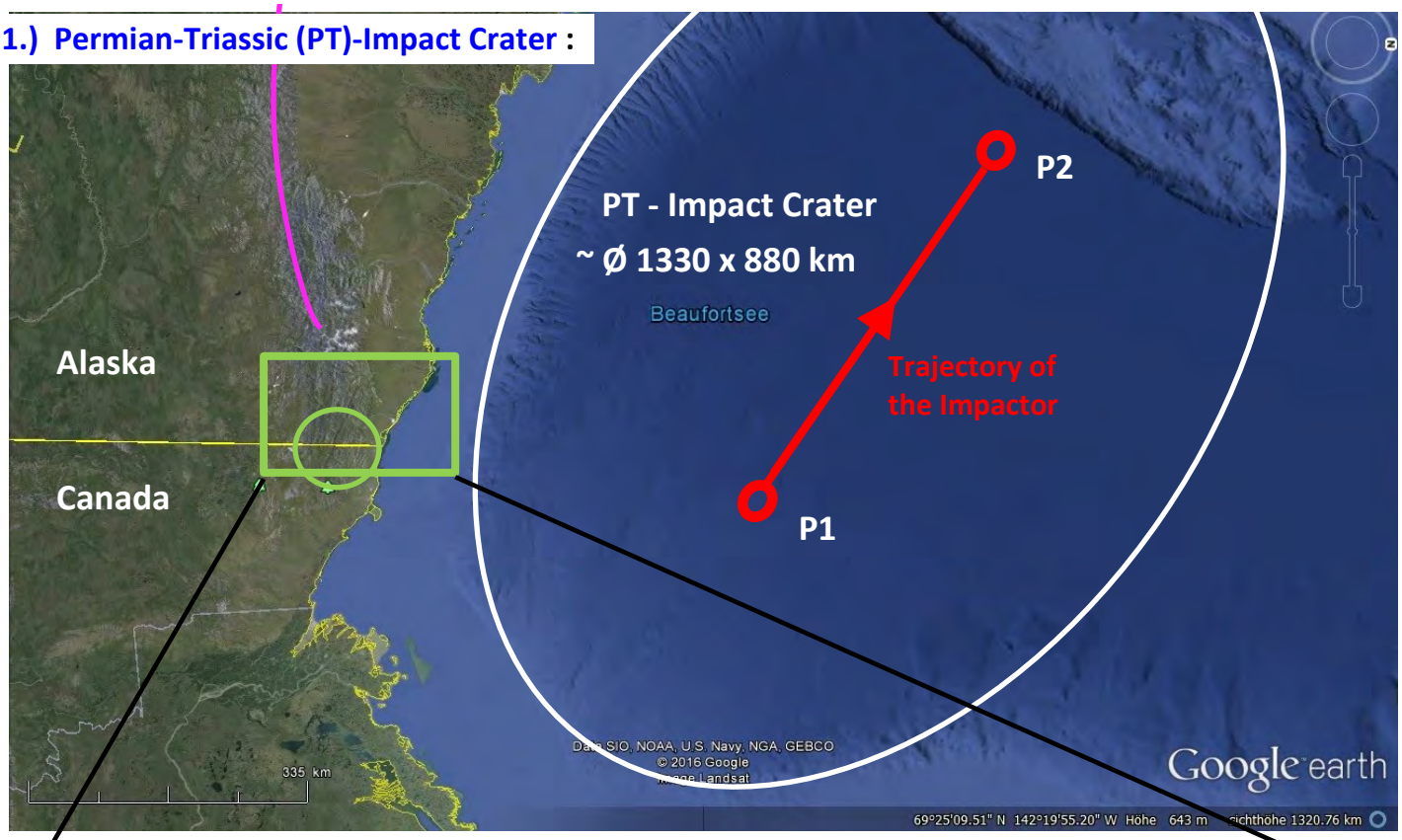

RS-X3:
Blast direction
RS-X3
Image © 2016 CNES / Astrium
Google earth
Bildaufnahmedatum: 2/28/2014 13°37'42.75" N 44°37'26.10" O Höhe 1572 m sichthöhe 3.44 km

A9 Recommended sites for the collection of rock samples

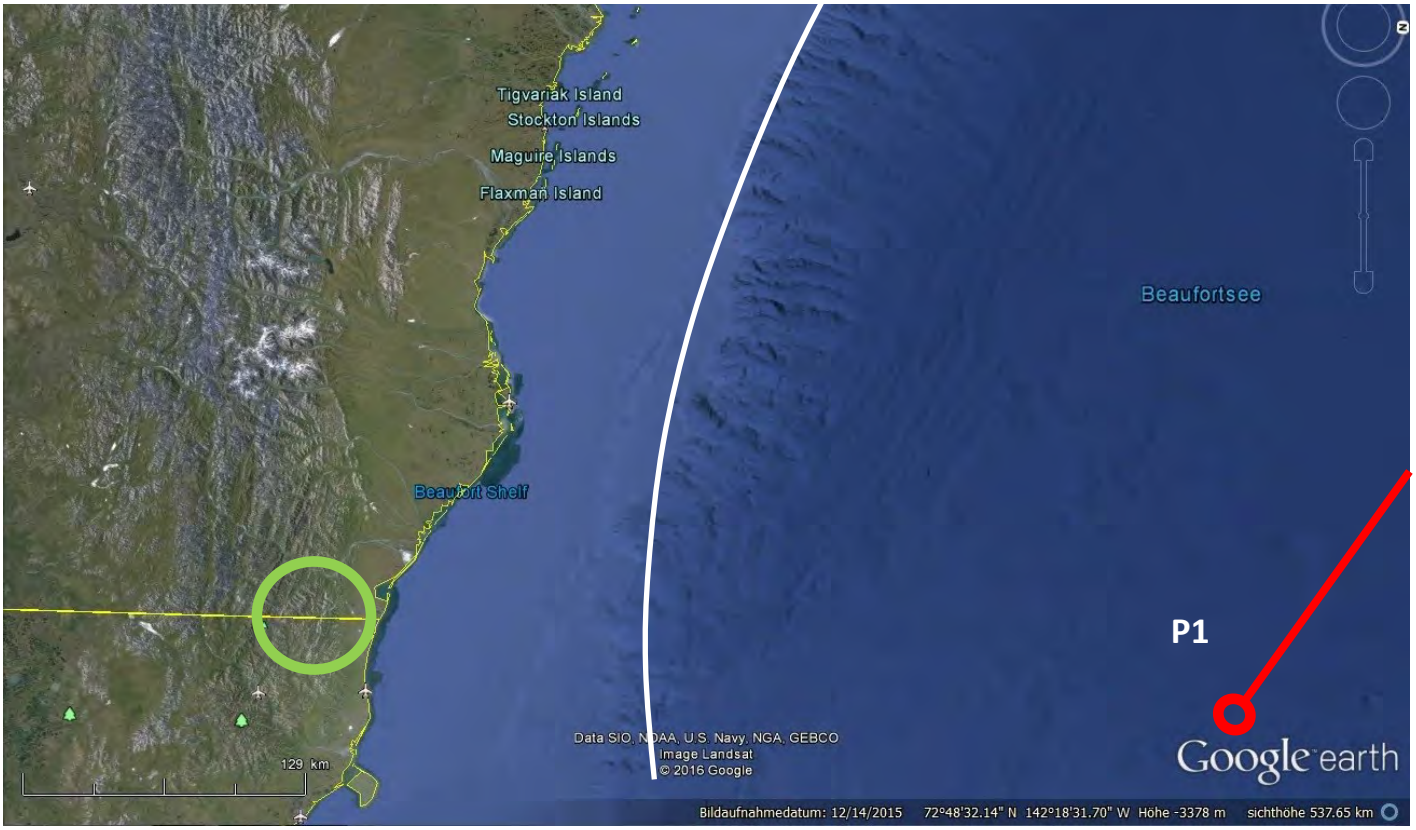
Sites where Ejecta-Material and Impact Structures may be accessible, to proof the PT-Impact Crater, the Cape York-, Bengal Bay- & Kongo Crater, & other big Impact Craters

The following image shows the main impact site of the assumed **PT-Impact Crater**. The impactor which has produced the crater probably hit the surface around Point P1. The green marked area lies close to this point.

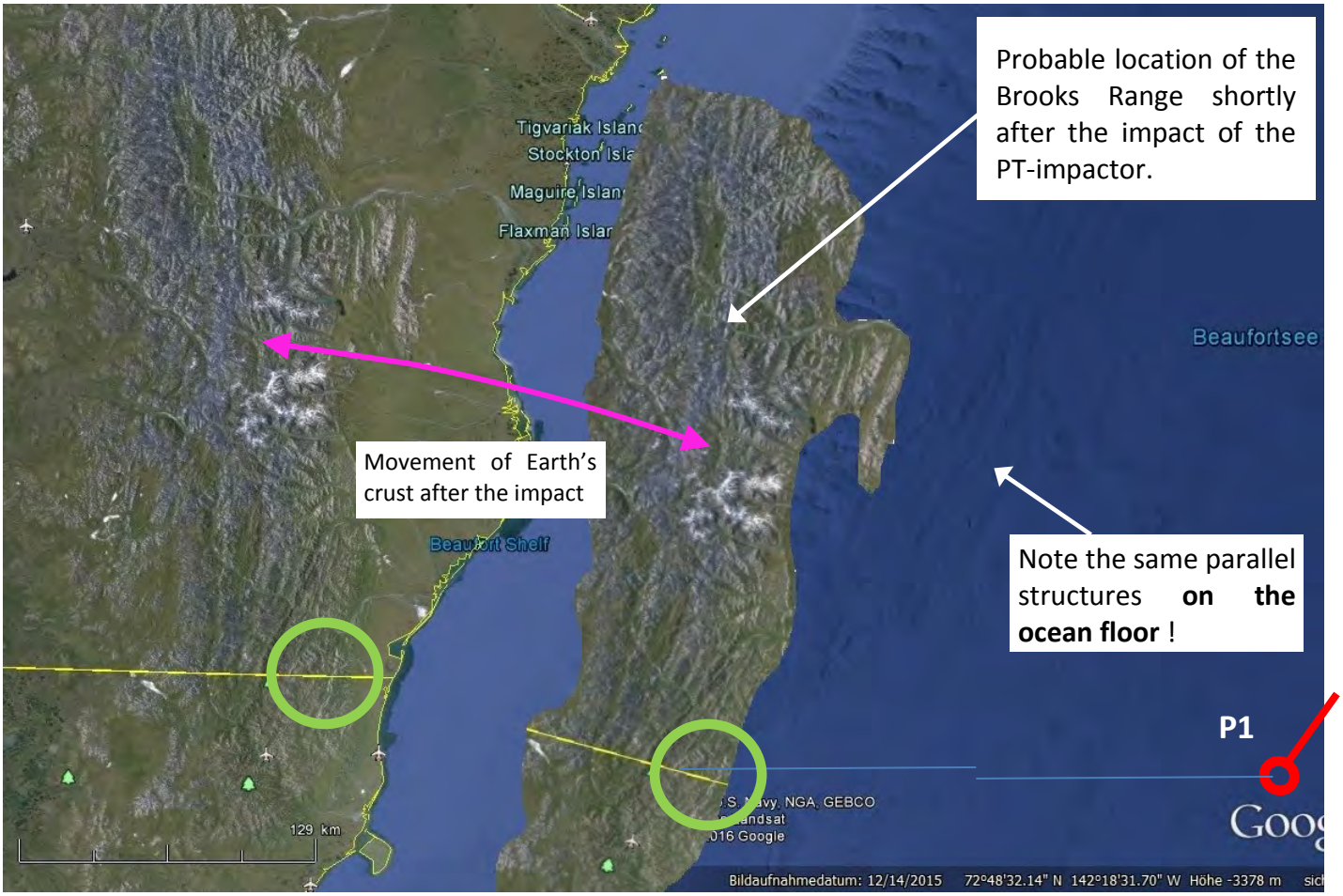
1.) Permian-Triassic (PT)-Impact Crater :



The second image below shows the probable location of the southern section of the Brooks Range shortly after the impact of the PT-impactor. The PT-Impact Crater in all probability is responsible for the formation of the Brooks Range. Therefore the rocks of the southern section of the Brooks Range should contain shock deformation features. Also ejecta material from the crater may be found in this area.

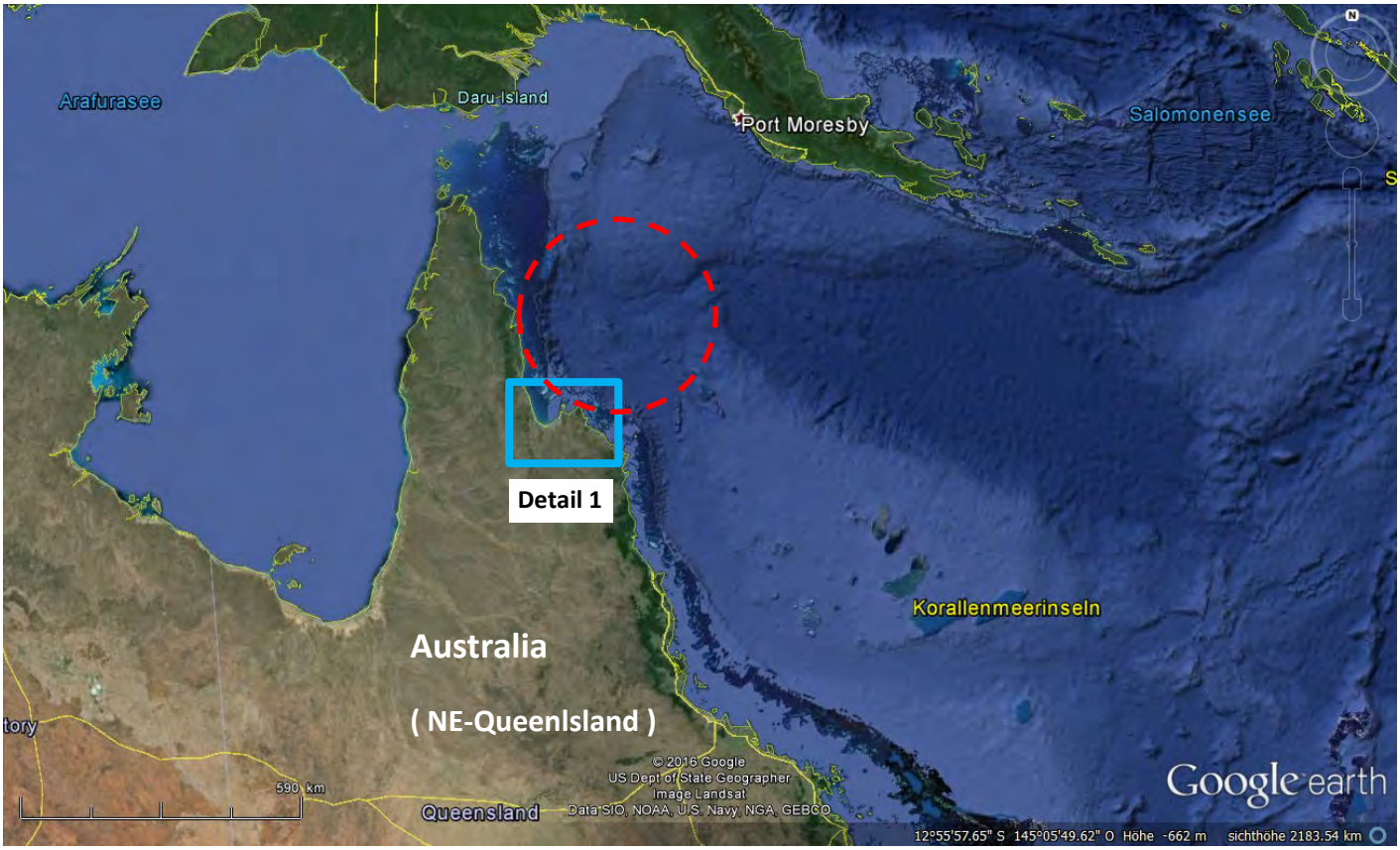


The area marked by the green circle lay very close to the initial impact point (P1).



2.) Sites where ejecta of the Cape York Crater (~ Ø 320 km) is located

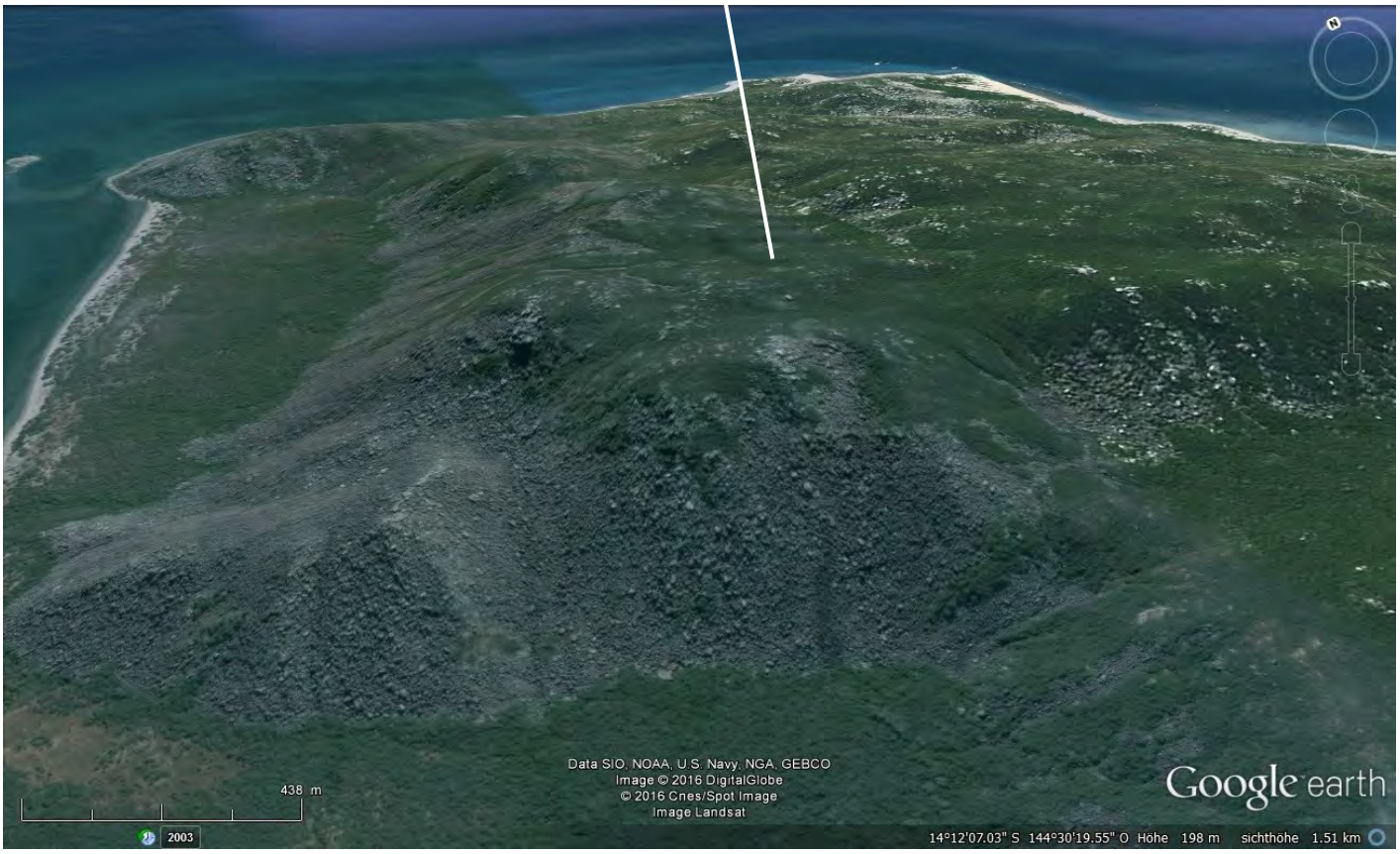
The following images show the impact site of the assumed Cape York Impact Crater and sites where larger quantities of ejecta material from the Cape York Impact should be located.



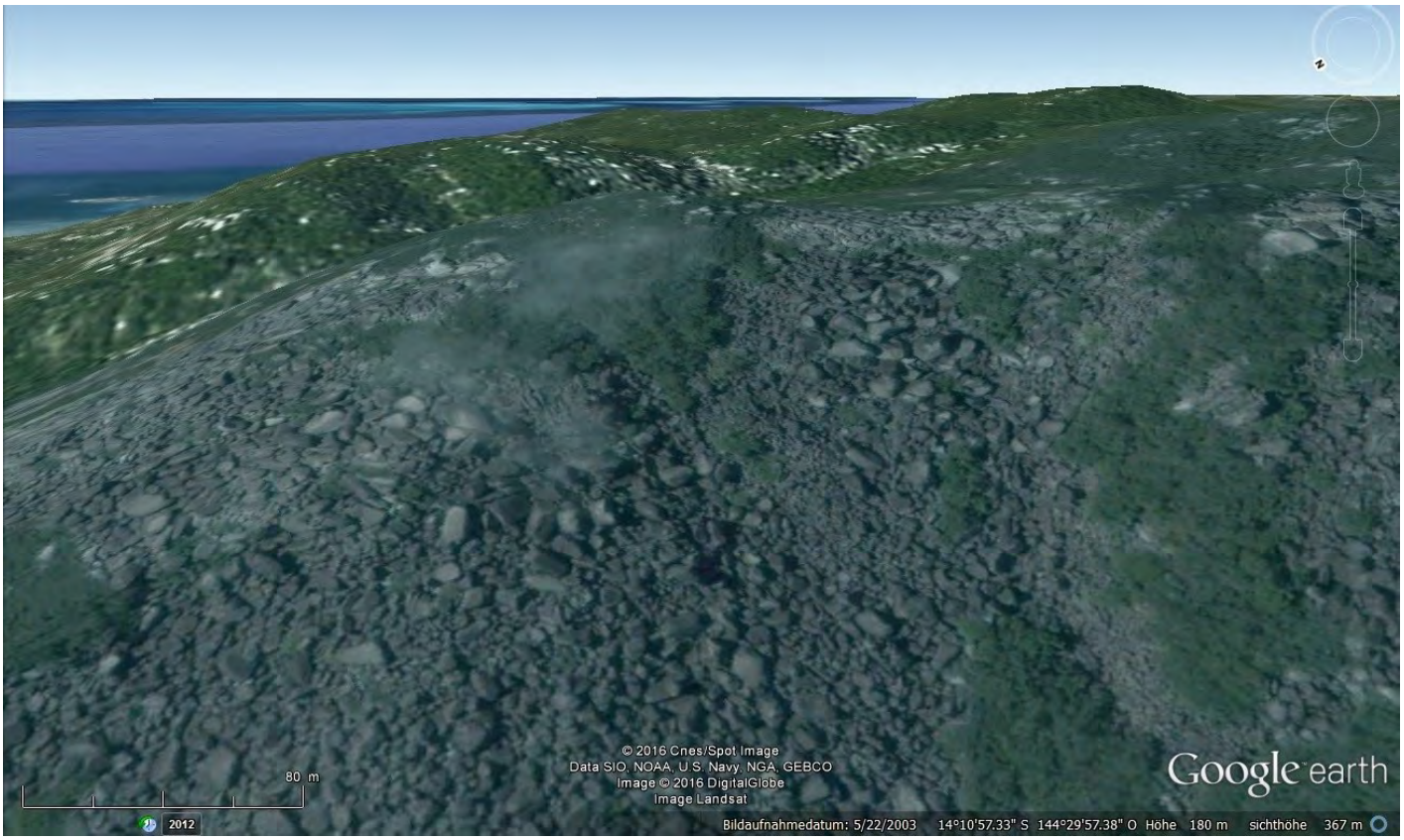
Especially in the marked area which is located close to the Cape York Crater large quantities of ejecta material should be accessible.

Detail 2 :

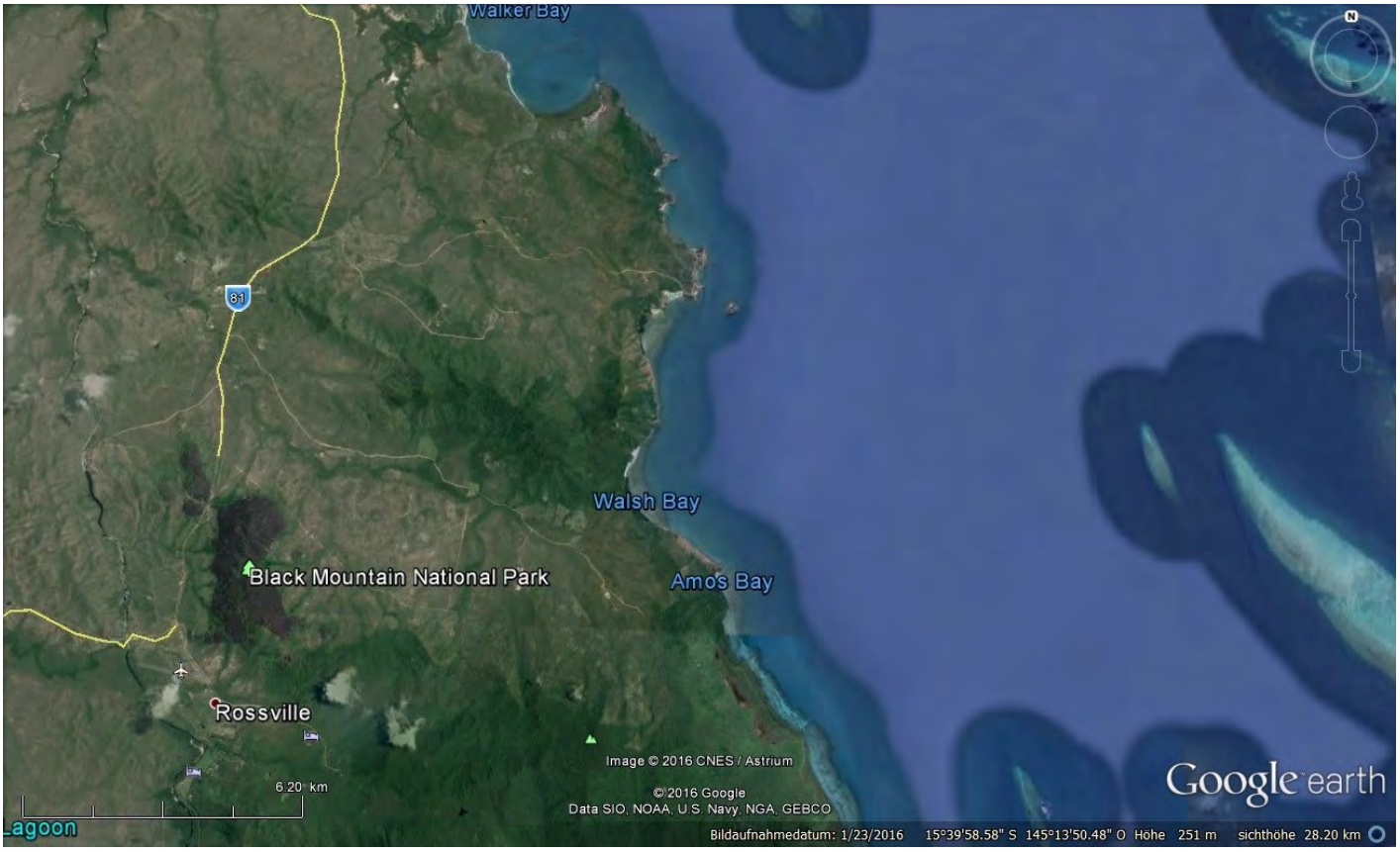

5.01 km
© 2016 Cnes/Spot Image
Image © 2016 DigitalGlobe
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2016 CNES / Astrium
Google earth
14°12'05.41" S 144°30'24.76" O Höhe 184 m sichthöhe 21.50 km

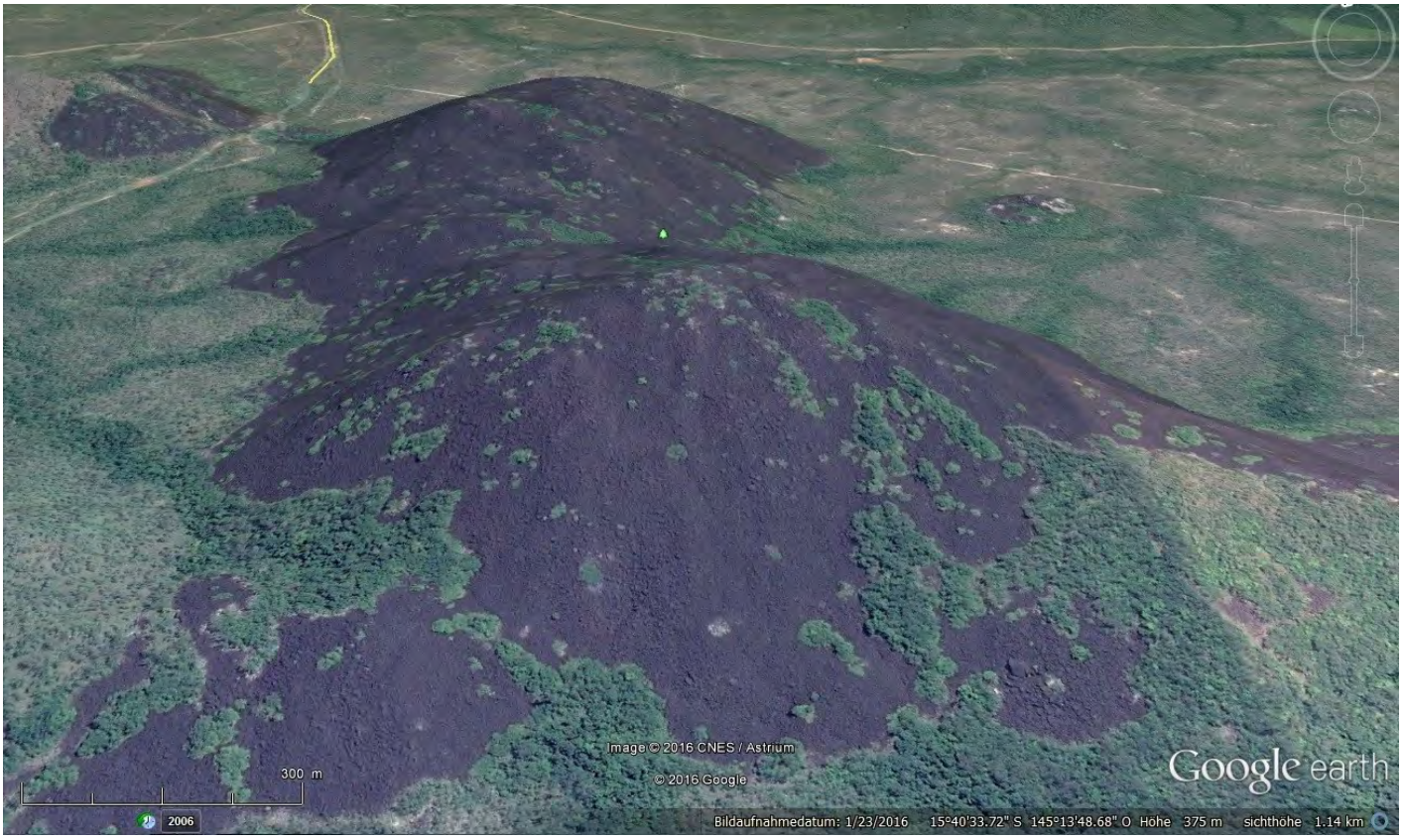

438 m
2003
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
Image © 2016 DigitalGlobe
© 2016 Cnes/Spot Image
Image Landsat
Google earth
14°12'07.03" S 144°30'19.55" O Höhe 198 m sichthöhe 1.51 km

The shown hill probably consist purely out of ejecta from the crater. Ejecta boulders are up to 20m in size.

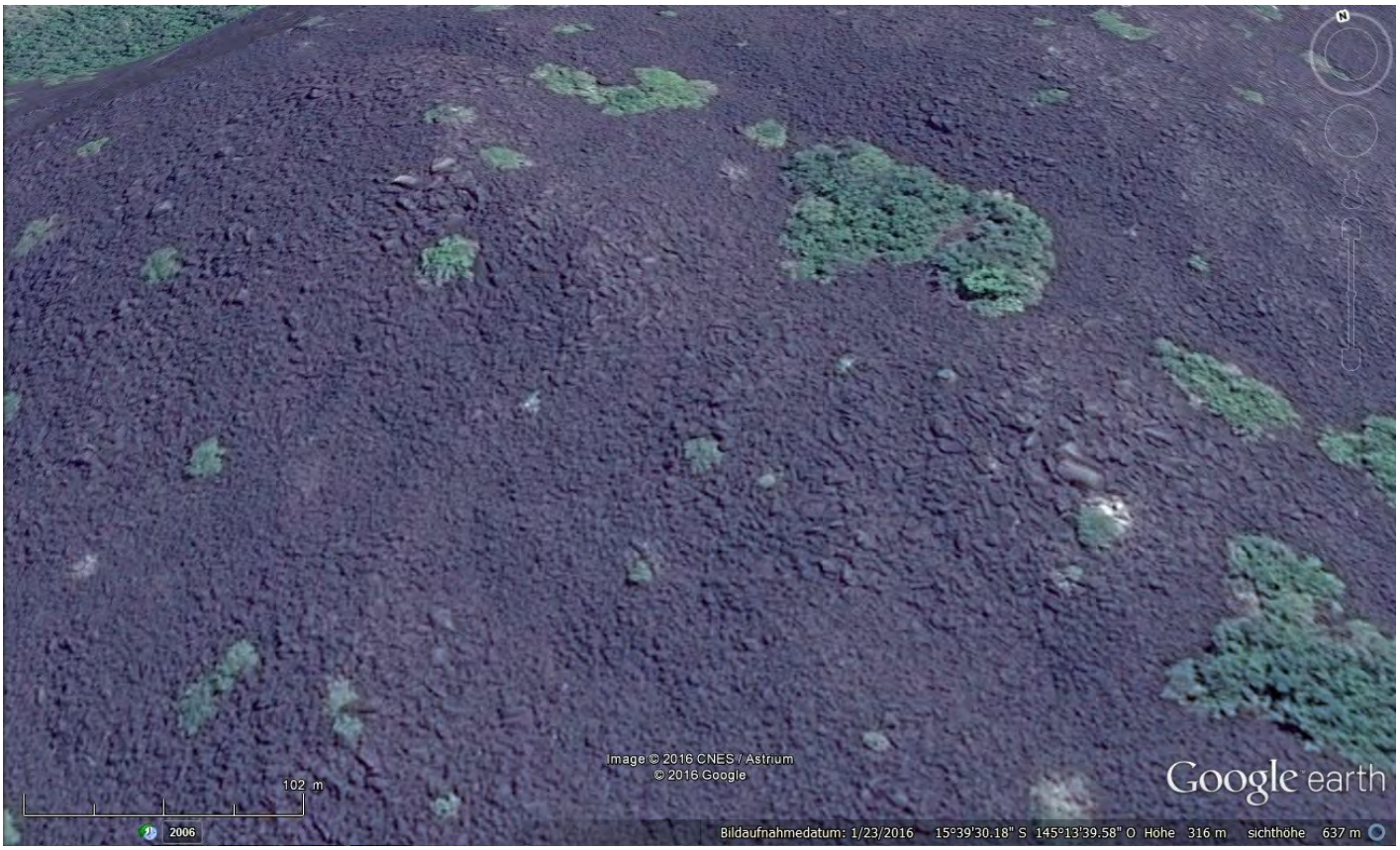


Another hill made of ejecta from the crater. This accumulation of ejecta material is a bit further away from the crater (→ it is located near Rossville). Here the **Rock Sample No. 23** was collected !





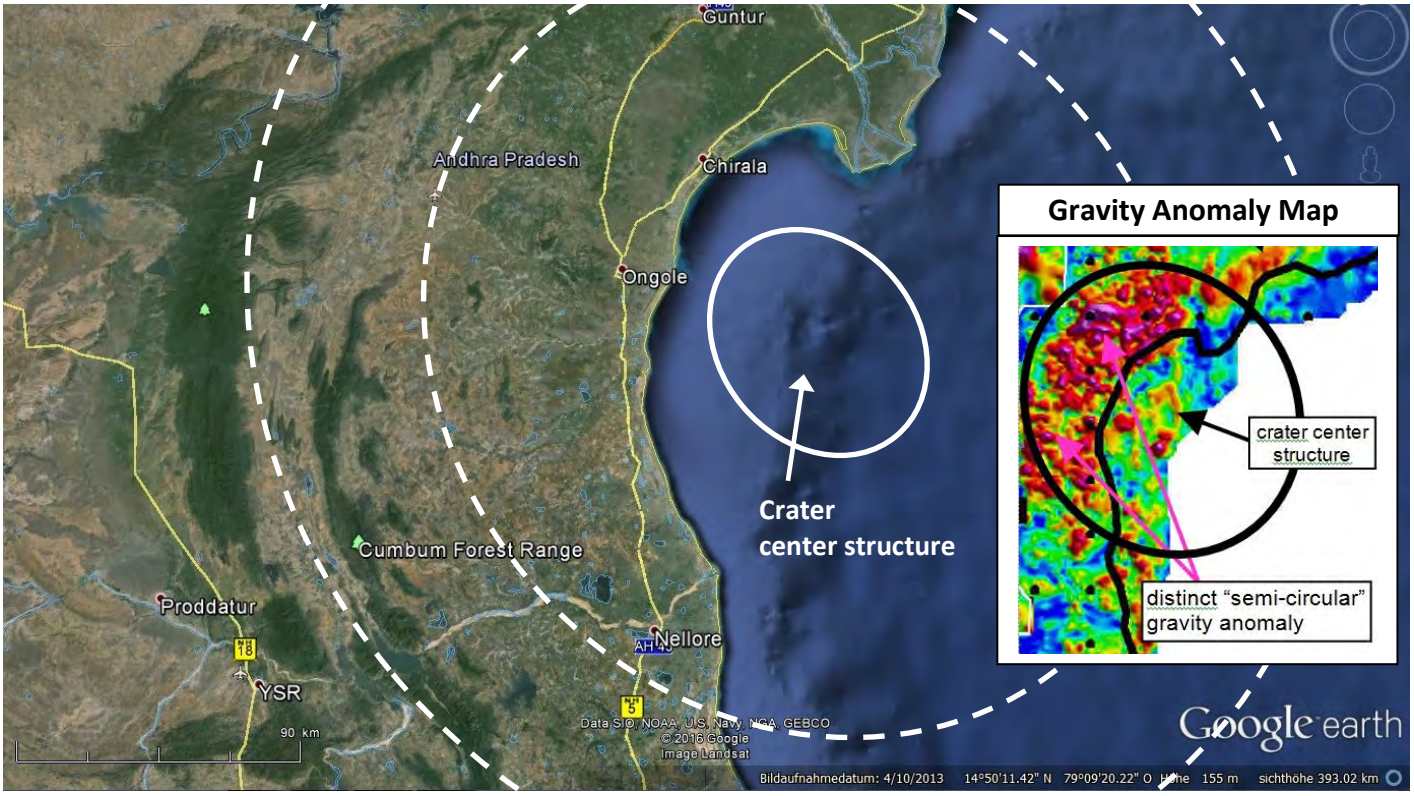
This hill also consist purely out of ejecta from the crater. The Ejecta boulders are a bit smaller here and reach up to around 5m in size.



The hills along the coast, in Cooktown / Queensland, also seem to consist purely out of ejecta from the Cape York crater ! These hills seem to be formed out of one coherent mass of ejecta.

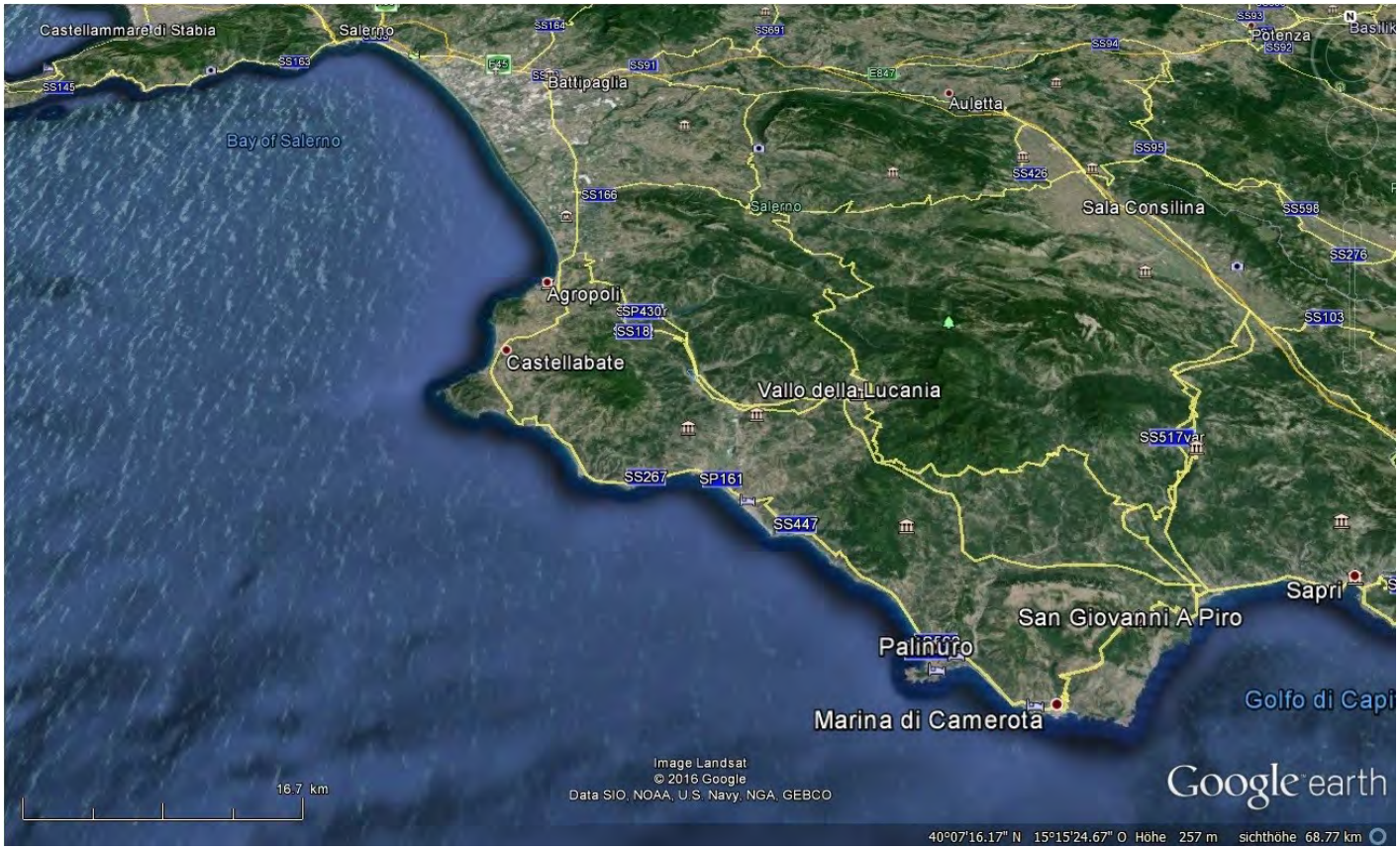
3.) India – Bengal Bay Crater (~ Ø 450 x 380 km) :

To confirm the 400km Crater which has formed the Bengal Bay in India, Rock Samples from the bow-shaped mountain range between Nellore and Ongole should be taken and analysed. (e.g. in the Cumbum Range). Also deep-drilling and material sampling from the center structure on the ocean floor should be done.



4.) Italy – Ø 160 km Impact Crater in the Tyrrhenian

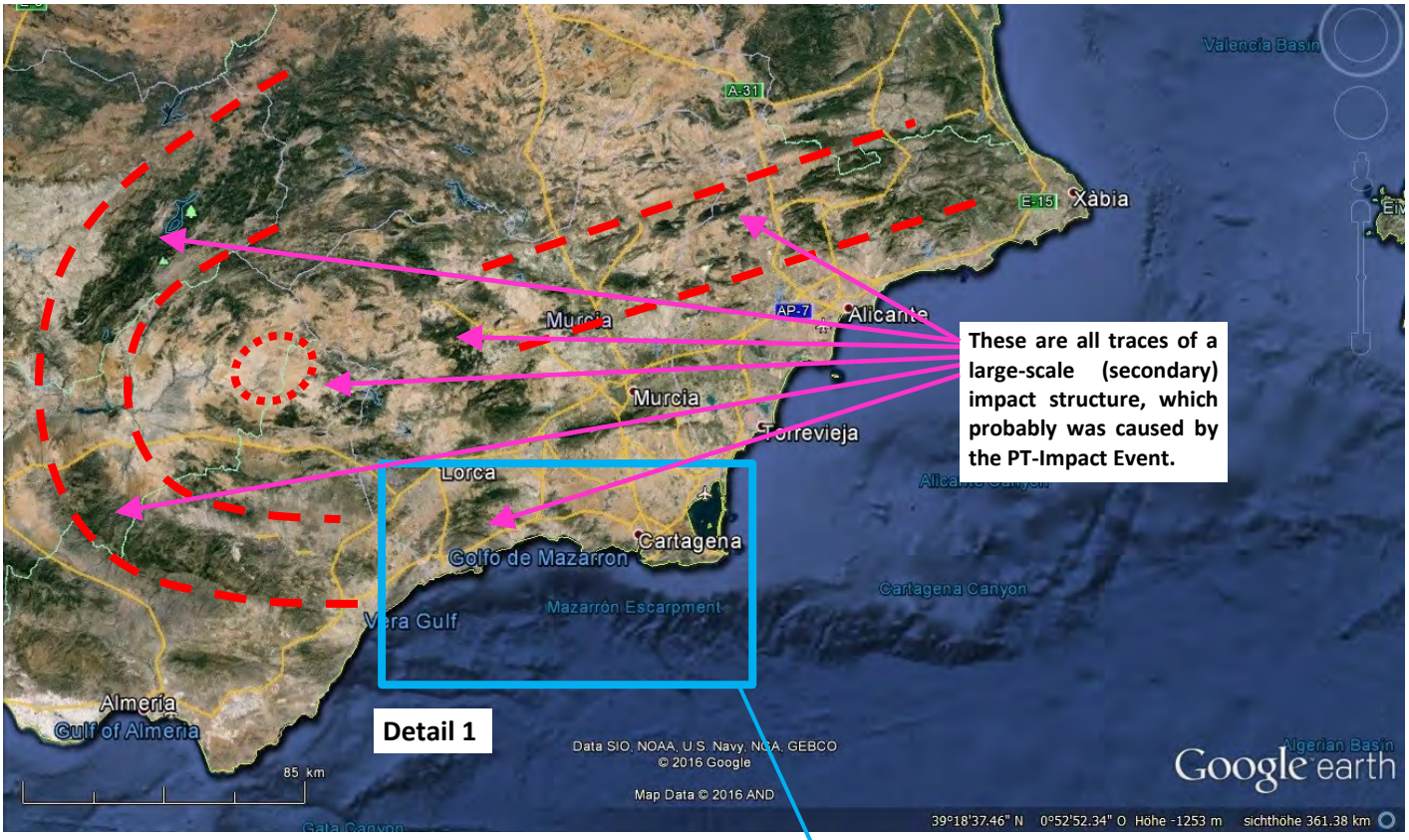
The center area of the Ø 160 km Crater lies between the cities Sapri and Agropoli. Therefore rock samples to proof this crater should be collected in this area close to the coast-line. (e.g. see samples No. 14 to 21)



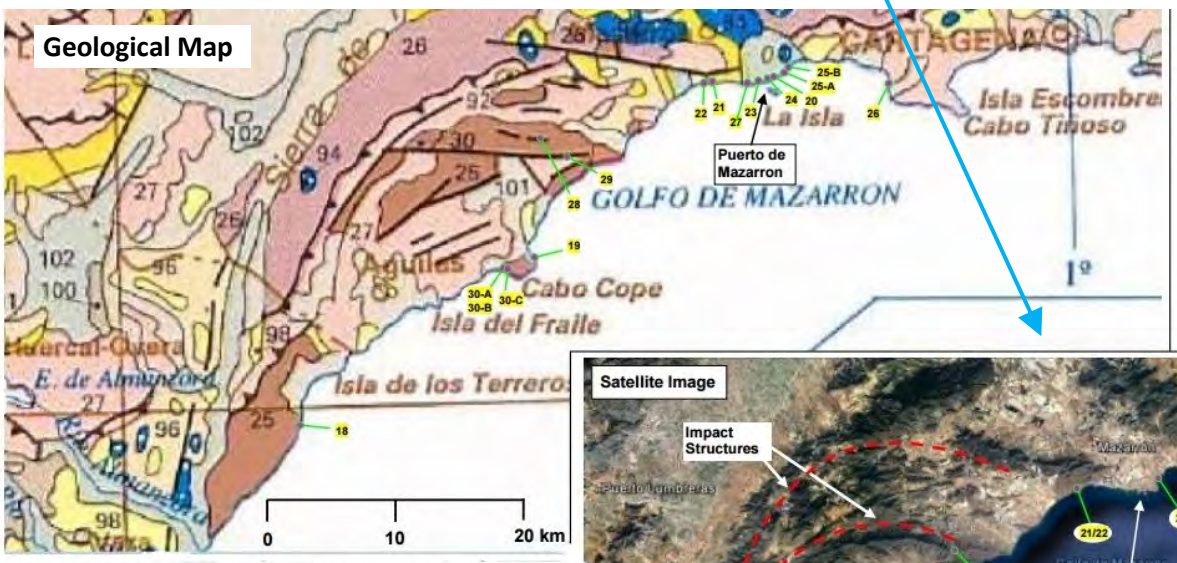
A good area to find impact breccia is the area around Ascea (a few km's towards Pisciotta)

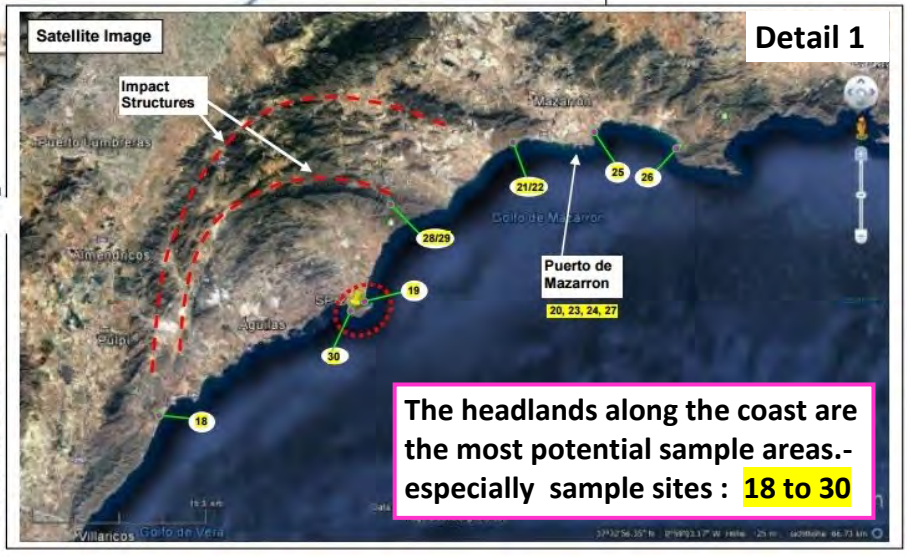
5.) Spain – The 300 x 160 km Impact Structure :

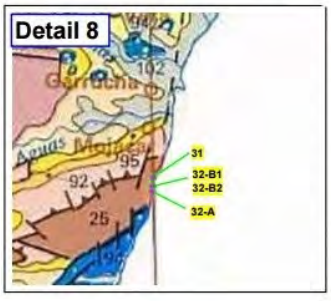
To proof the assumed large-scale impact structure in Spain, rock samples from different areas should be collected. Especially samples from mountains and outcrops which in all probability were caused by the impact event should be collected. But because most impact structures seem to be covered under a layer of younger volcanic (magmatic) material, sample areas should be selected where this layer of volcanic material is absent or where it is as thin as possible (e.g. along the coast) ! → see samples No. 0-B to 3, 7, 18 to 30)



The coastline near Aguilas (e.g. Cabo Cobe) and around Puerto de Mazarron is full of spots which seem to consist of impact breccia. Therefore the headlands in this area should be visited. (→ sample sites 18 to 30)







The bow-shaped impact structures shown on the satellite image are the remaining crater-wall section of a large impact crater.

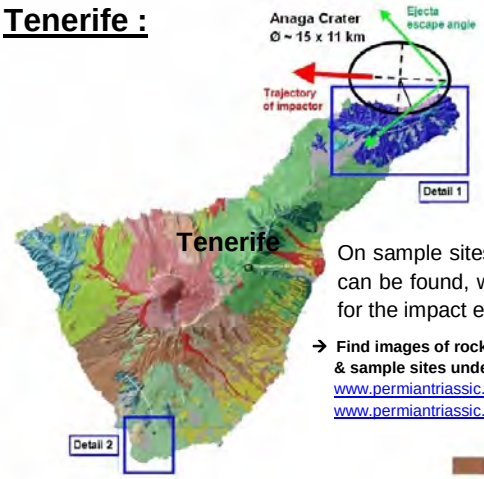
These impact structures in all probability were caused by a large oblique (elliptical) impact crater with the dimensions of ~200x160 km, which is now located on the ocean floor of the Mediterranean Sea, and which belongs to a chain of impact craters. → See the explanation in my main study document.

The headland near Calabardina seems to consist mainly out of impact breccia (e.g. the eastern section of the headland near the eastern coastline)

Here an angle view of the assumed impact (crater) area. The shape of the impact structures indicates that it probably is a big secondary impact structure → probably caused by the assumed PT-Impact Event)

6.) Spain / Canary Islands – Two oblique Impact Craters – Ø 20 x 15 km & Ø 15 x 11 km

Tenerife :



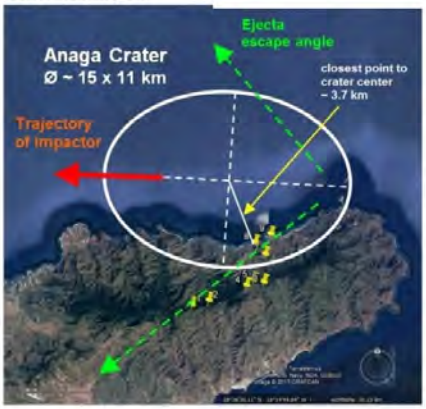
Recommended sample sites :

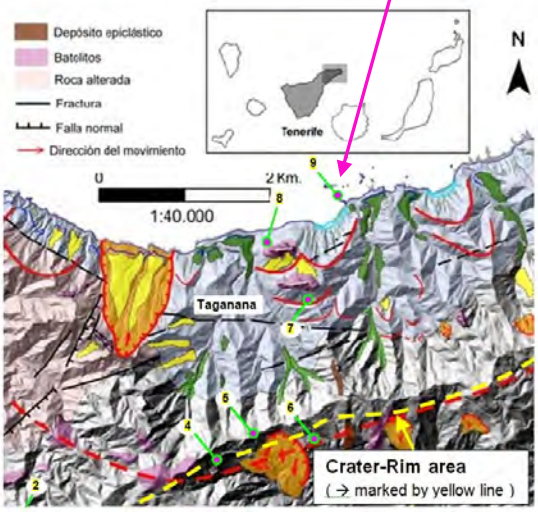
➔ **No. 7 & 9**

On sample sites **No. 7 & 9** Suevite can be found, which providse proof for the impact event.

➔ **Find images of rock samples & sample sites under :**
www.permiantriassic.at or
www.permiantriassic.de

Satellite Image :



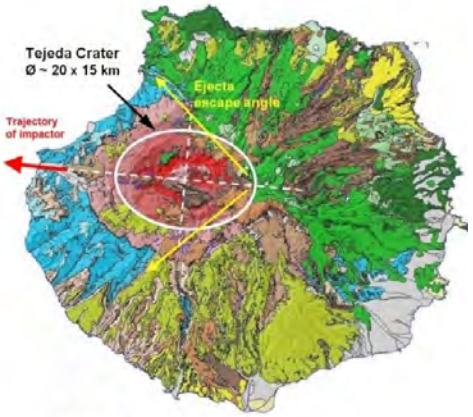


Gran Canary :

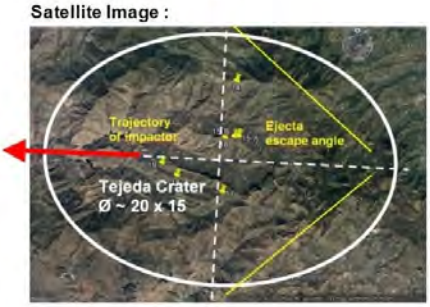
Recommended sample sites :

➔ **No. 13 to 19, and 21**

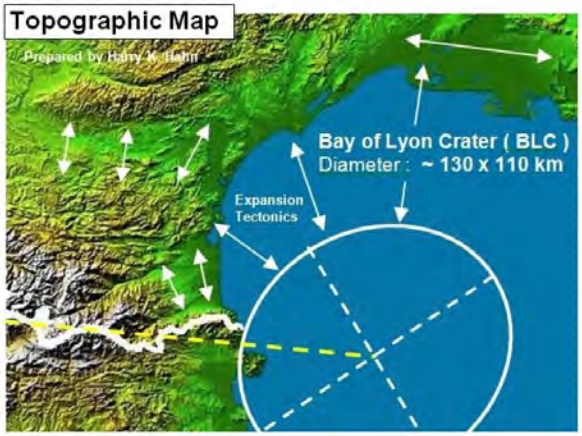
Impact Breccia can be found here

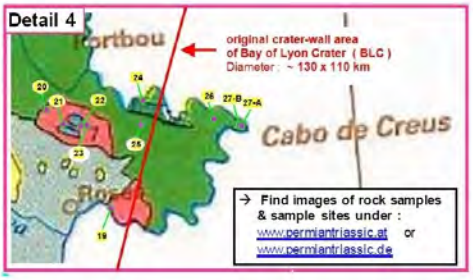


Satellite Image :

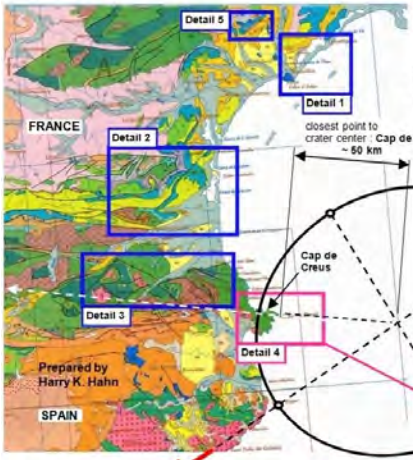


7.) France – Oblique Impact Crater – Ø 130 x 110 km





Detail 4 : shows the sample sides 19 to 27 near **Cap de Creus**



Bay of Lyon Crater (**BLC**)
Diameter : ~ 130 x 110 km

closest point to crater center : **Cap de Creus** ~ 50 km

Cap de Creus

Trajectory of Impactor

The geological map, gravity- & magnetic anomaly maps all show evidence for the **BLC-impact**. Rock samples were taken in the areas Detail 1-5. **Cap de Creus** shows the clearest evidence for an impact event.

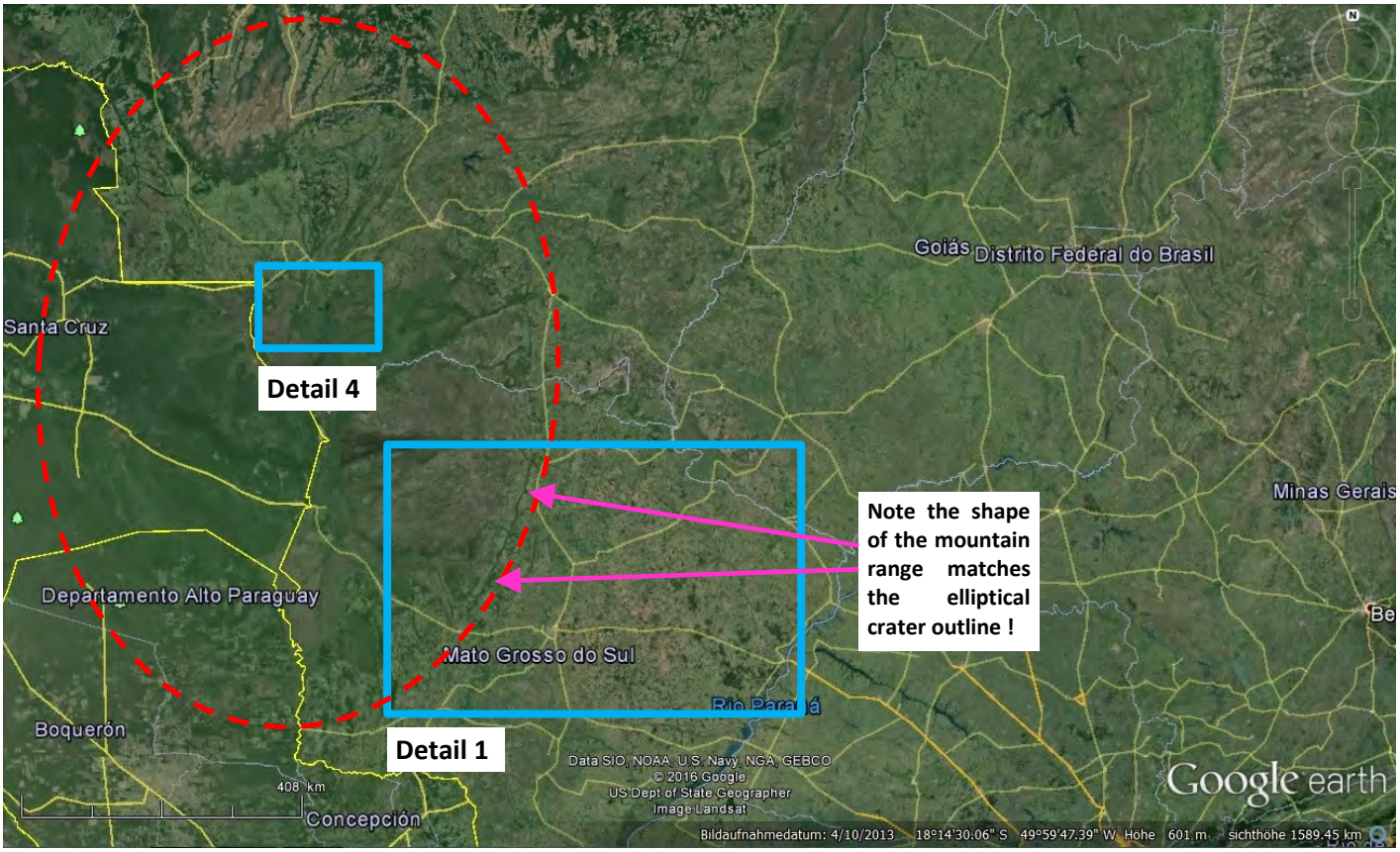
The sample sides No 27-A and 27-B near Cap de Creus show the clearest evidence for an impact event.

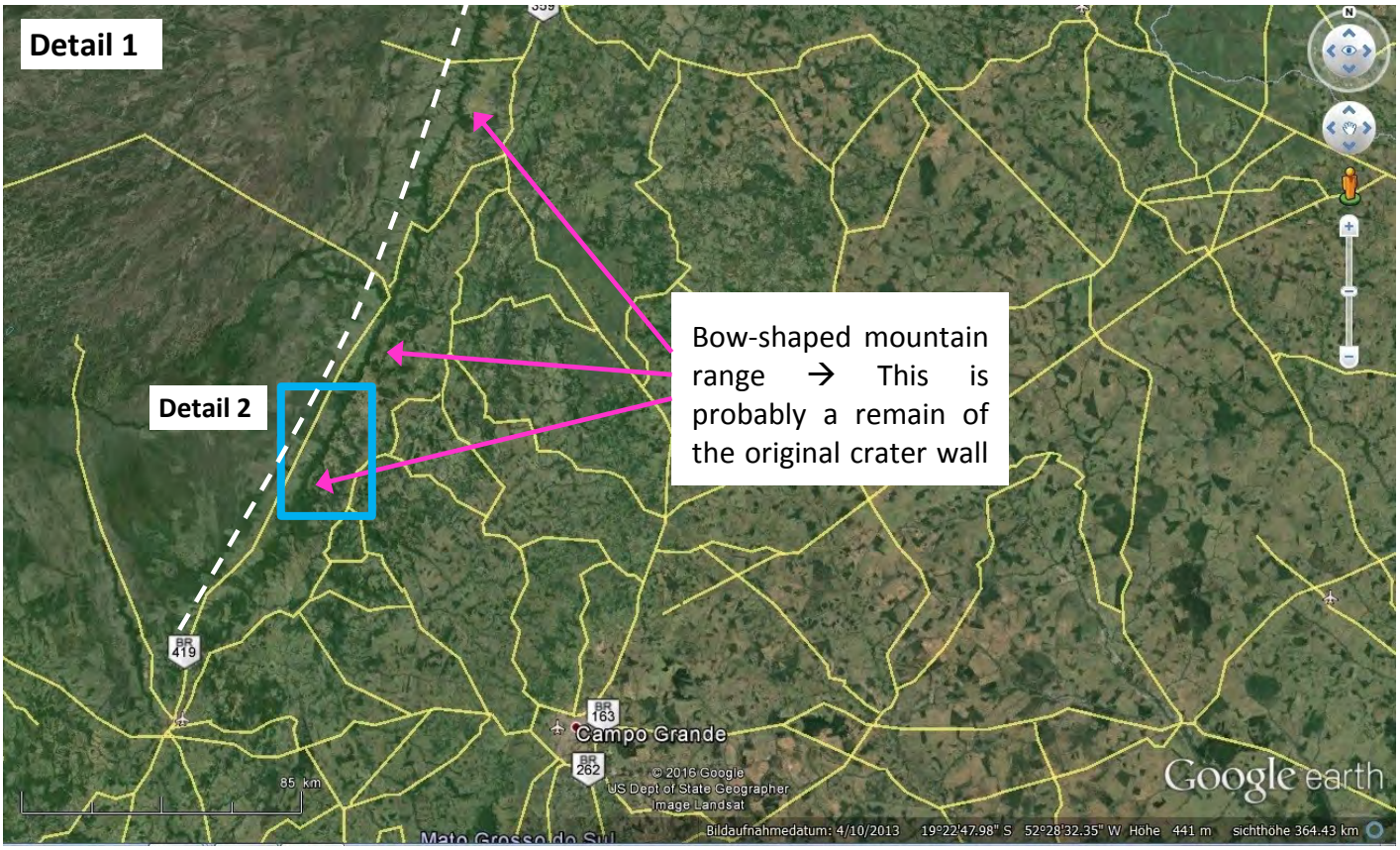
➔ **See Detail D**

sample side 24 just left of Detail D also shows proof.

8.) South-America (Brasilia) – Pantanal Impact Crater ∅ 840 x 630

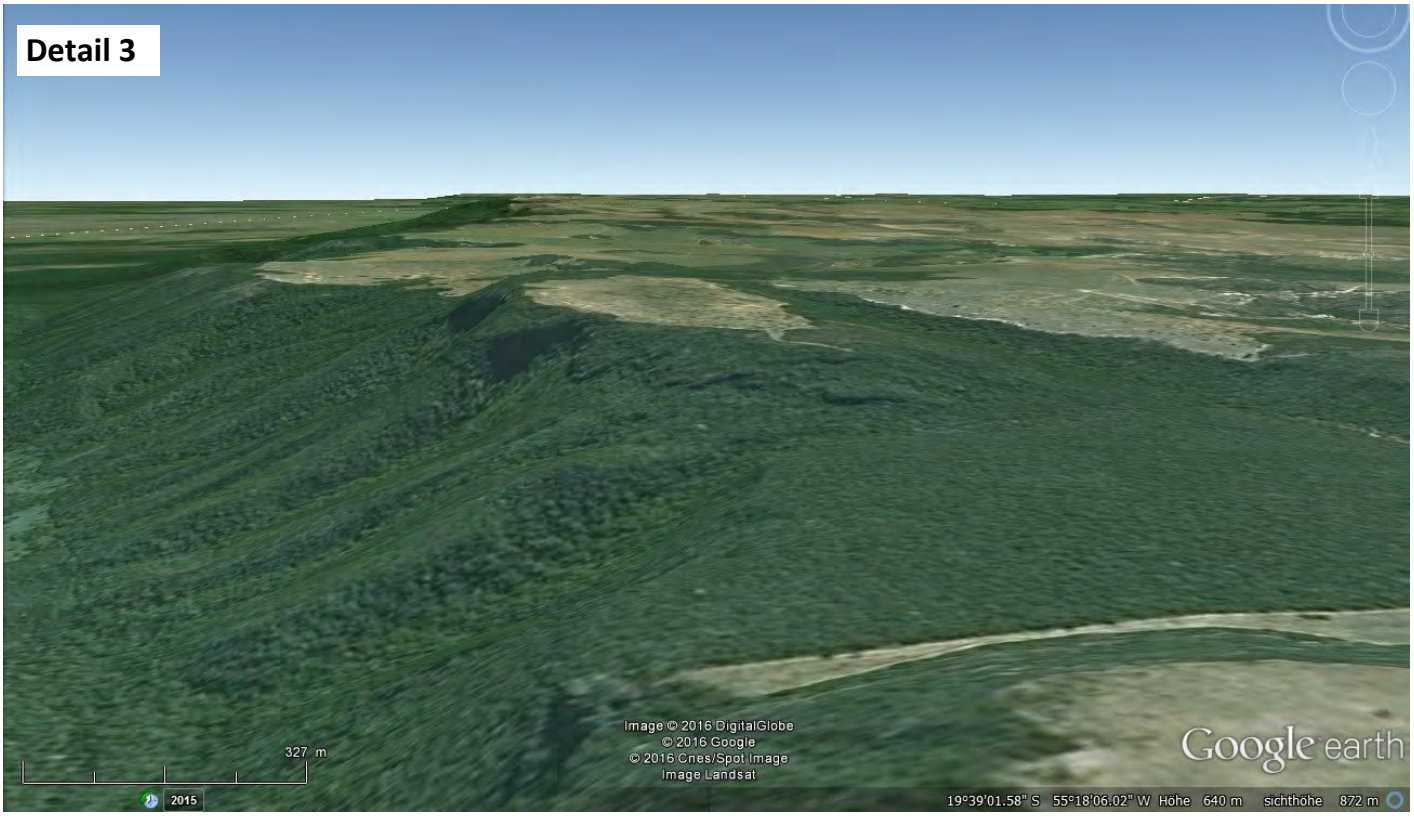
To confirm this large elliptical crater which has formed the Pantanal plain, Rock Samples from the bow-shaped mountain range on the south-east side of the assumed crater should be analysed (→marked area)
This mountain range seems to be a remain of the original crater wall !



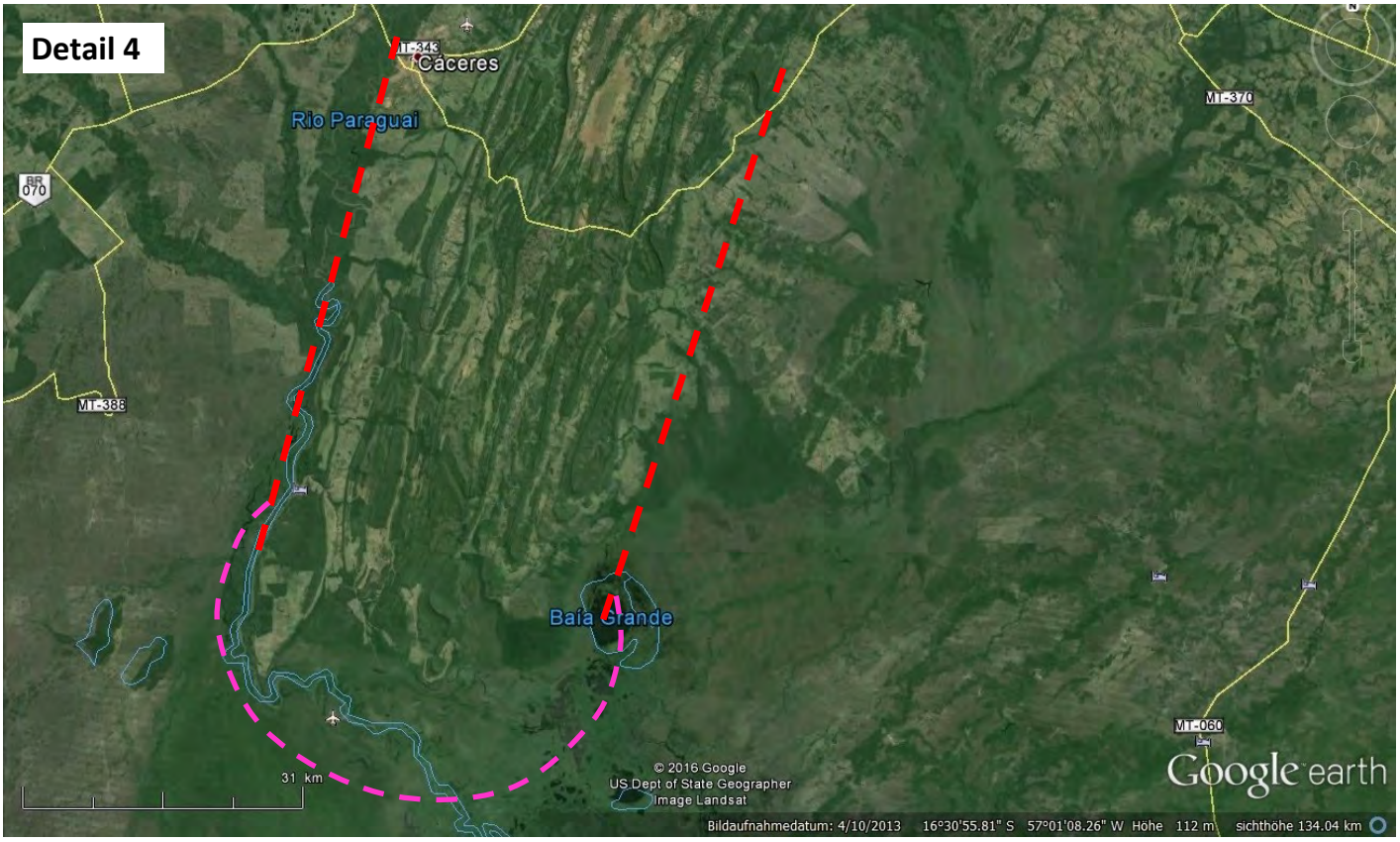


This image shows a close-up view of the remaining crater wall-area of the Pantanal Crater.

Here an angle view of a small section of the assumed crater wall-area. Note the bow-shape of the crater-wall on the west-side ! This bow-shaped wall area must consist of rock with enclosed shock deformation features.

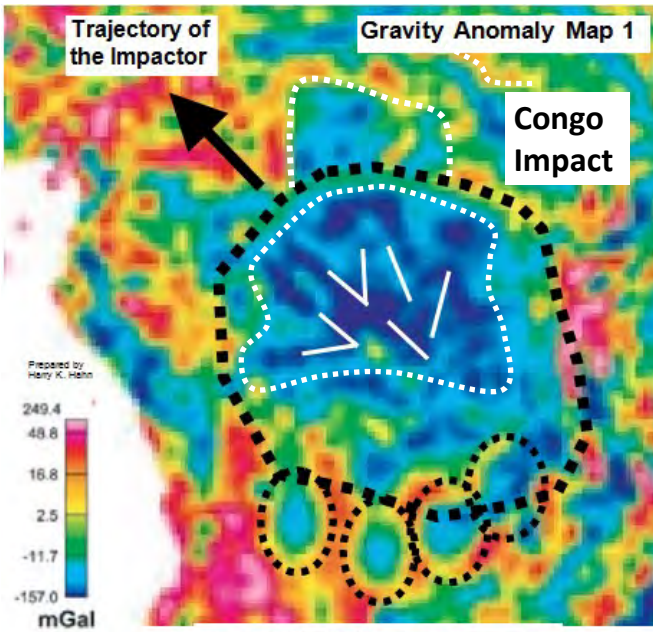


The next satellite image shows an area close to the assumed crater center. Here we see the end of a 30 km wide solidified magma stream which has its origin in the lower section of Earth's crust ! This magma stream flew out of this point after the impact occurred and must have caused extensive flood lava areas (it probably contributed to the CAMP event). It may be possible to find small amounts of crater floor material enclosed in the magma material of this solidified magma stream, which could help to proof the impact hypothesis.



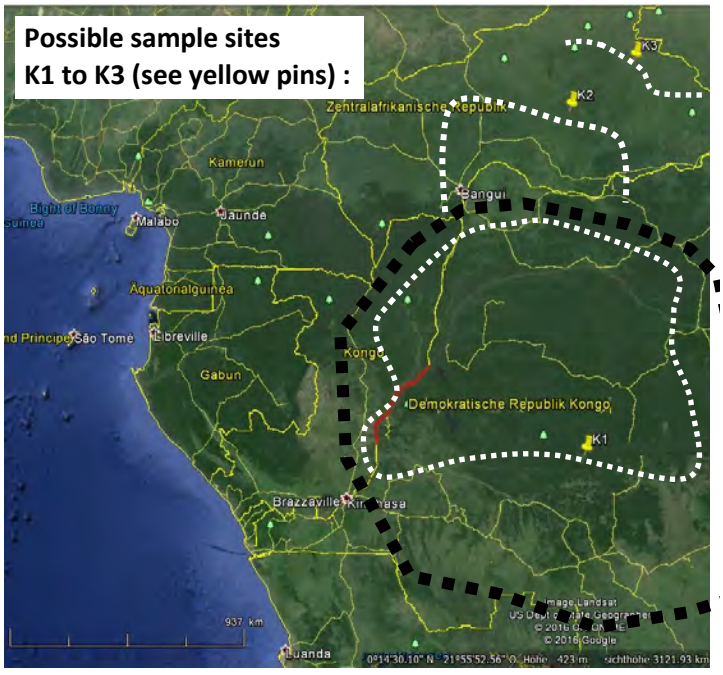
9.) Africa – Congo Impact Crater ∅ 1200 x 850 km :

The best area to search for rocks with shock deformation features from the Congo Impact Crater probably is an area close to the rear end of the crater, with less vegetation. On the front end and on the sides of the elliptical crater probably too much volcanic (magmatic) material was ejected and probably produced a thick layer (cover) of volcanic material in these areas, so that it would be difficult to find any original bedrock (→original rocky ground) with shock deformation features from the impact event in these areas !



(A) EIGEN-GL04C free-air anomaly,

→ Eigen-GL04C free-air gravity anomaly map



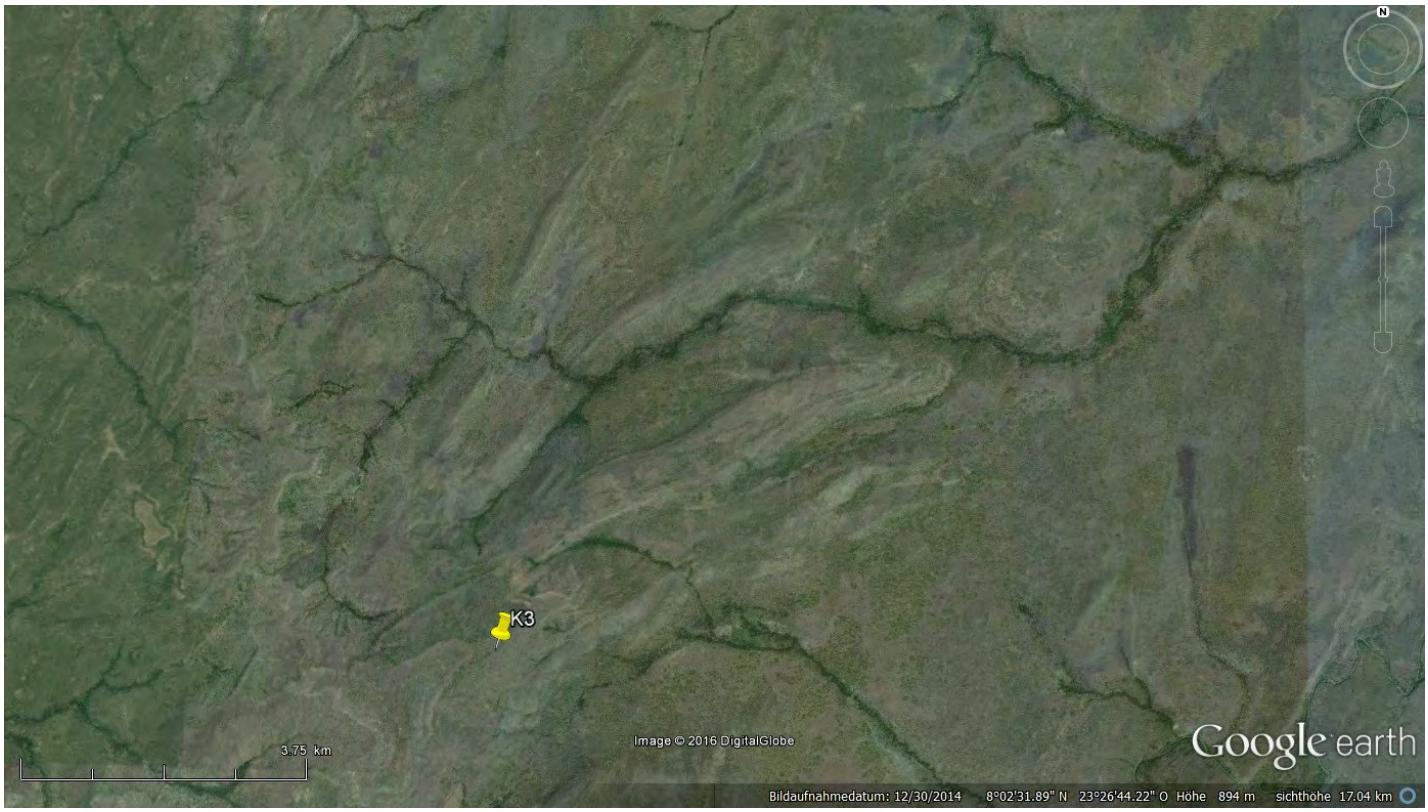
The following image shows the suggested sample site **K1** near the rear-end of the Congo Impact Crater. This sample site **K1** lies close to the assumed center of the impact (crater) area. The site is elevated, and it may be an eroded remain of the original crater-wall area. Large areas are free of vegetation. Therefore the bedrock seems to be easy accessible in this area , which lies close to the impact center.

Detail 1 of the sample site shows a selected area of the site K1. Here a large area on the ground is free of vegetation and it seems that the bow-shaped lines in the brown-colored areas seem to represent either border-lines between individual rock layers, whereby the rock-ground was shaped even and smooth by either wind- or water erosion. Or these bow-shaped lines represent solidified flow-lines of rock which was deformed and molten by the impact, or which was ejected from the crater during the impact.

The next image shows the suggested elevated sample site **K2** on the front-end of the Congo Impact Crater. This sample site **K2** lies close to an area where the ejecta of the right ejecta-wing of the assumed complex oblique impact crater left the impact site. In this area large-scale linear and bow-shaped structures are visible which seem to be either deformed bedrock and/or solidified material (e.g. ejecta) from the crater. In this area it may be possible to find ejecta and/or bedrock which shows shock deformation features-

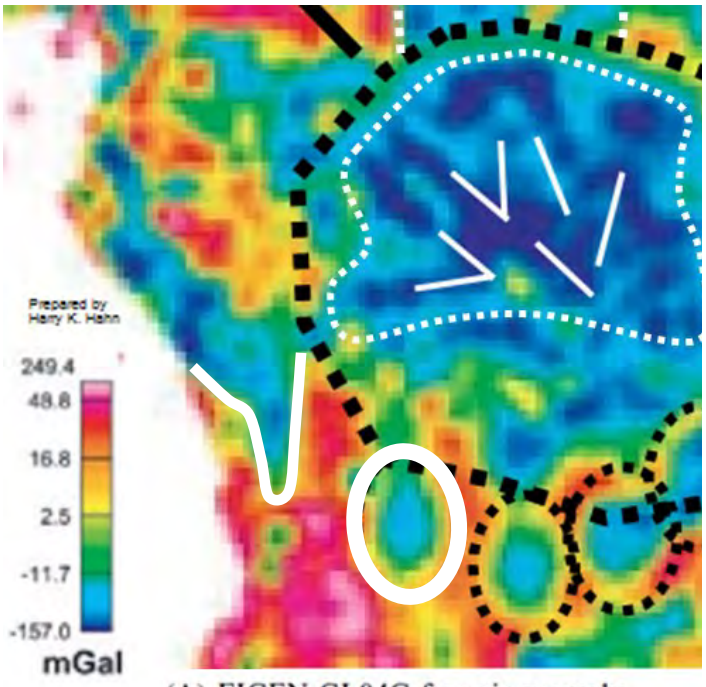
This image shows a close-up view of the suggested sample site K2, which shows parallel bow-shaped structures which seem to be caused by the impact- or ejecta impulse (of the ejecta which left the crater)

This is an image of the suggested sample site **K3** which also lies near the front-end of the Congo Impact Crater. It lies a bit further away from the crater then sample site K2, but it also seem to represent an area where the ejecta either left the impact site or it may be an area which shows bedrock which was deformed by the impact- or ejecta impulse. In this area it may also be possible to find bedrock which shows shock deformation features and ejecta from the impact crater. This site is also elevated to the surrounding area.



Congo Impact Crater - Impact structures outside the crater which may belong to the impact event :

At last I want to show two structures which may also be a result of the Congo Impact Event, or they may be independent. Because the main crater probably was formed by a large asteroid or comet which broke into pieces just before impact, some of the impactors (pieces of the asteroid or comet) may have impacted a bit further away from the main impact site. In the following we have a closer look at two such structures. The first structure is located just west of the main crater (→ the blue area on the gravity anomaly map west of the crater) → Sites X1-1 to X1_3. And the second structure is an elliptical structure just south of the crater.

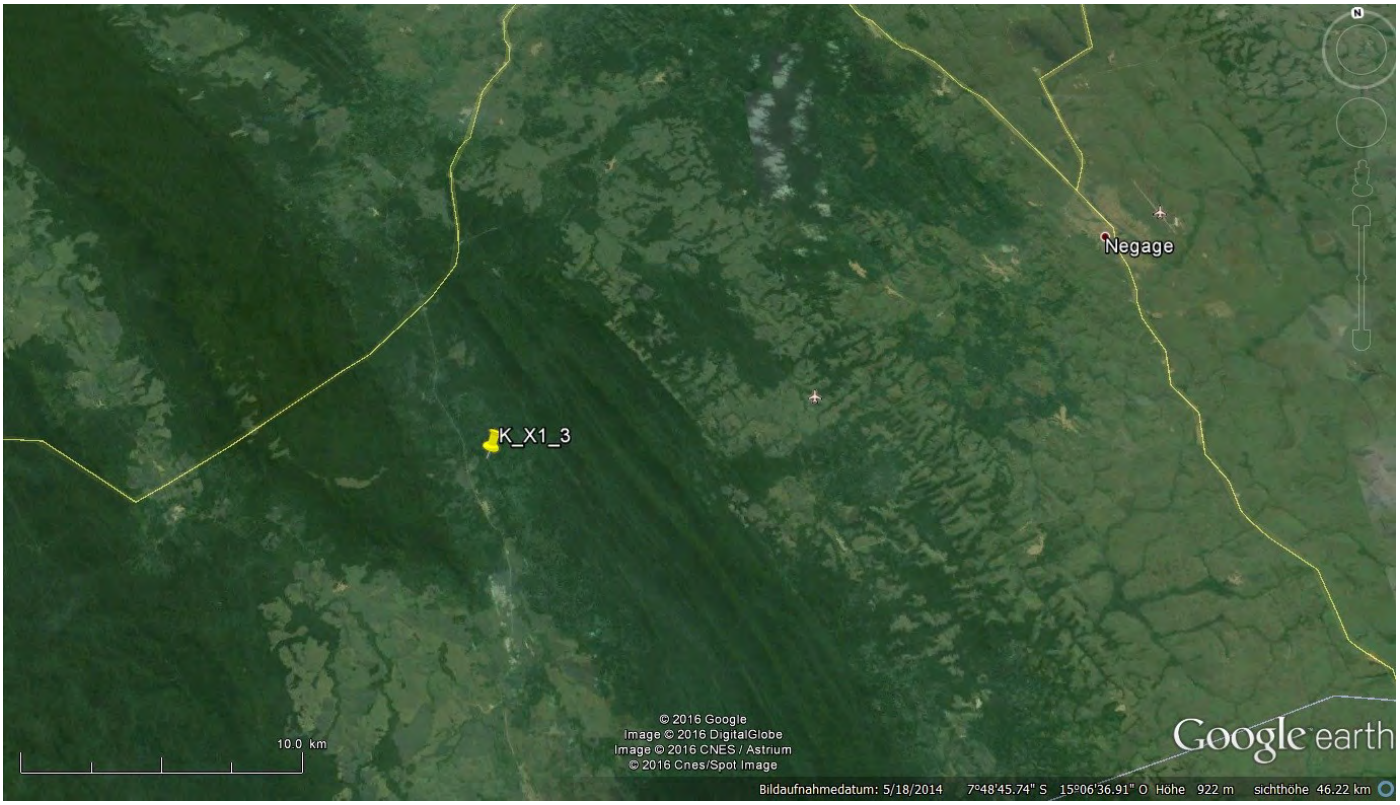


(A) EIGEN-GL04C free-air anomaly,

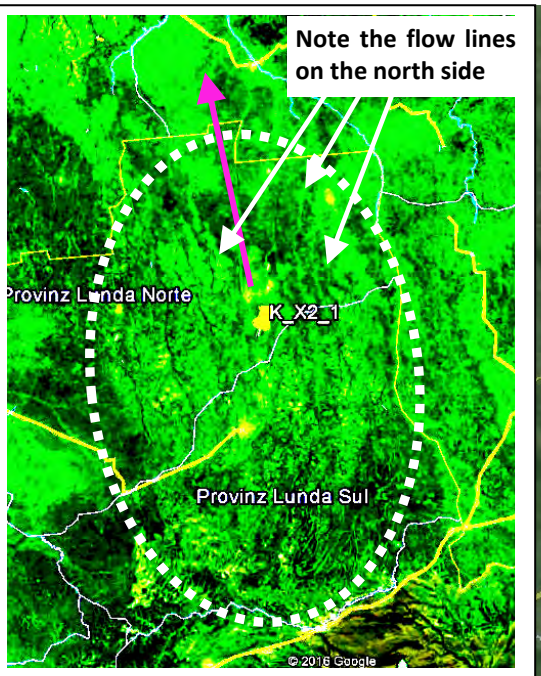
This image shows the two sites X1-1 and X1_2 which are located on the southern end of the mentioned first structure. Site X1_1 shows bow-shaped flow lines probably caused by ejecta or magma which solidified here. And Site X1_2 probably shows a larger chunk of ejecta which impacted and later solidified on this location.

A close-up view of the two sites X1-1 and X1_2 :

This image shows a close-up view of the site X1-3 which is also located within the first mentioned structure. The visible elevated linear structures probably also represent ejecta material which was produced by an impactor piece which impacted west of the main impact site.



These images show the second structure X2, which is one of the elliptical structures just south of the Congo Impact Crater. It probably represents the remain of an elliptical (oblique) impact crater caused by a piece of the main impactor which impacted a bit south of the main impact crater area. The gravity anomaly map and the satellite image indicate that material flew out of this crater on its northern side.



Satellite Image (contrast enhancement used) :

Gravity Anomaly Map of the elliptical structure :