

The 320 km Cape York Impact Crater and the Cape York Crater Chain in North-East Australia

see also Parts 1 - 6 of my study : "Global Impact Events are the cause for Plate Tectonics and the formation of Continents and Oceans"

(→ Please find my other studies on vixra.org, archive.org under my Autor-name ; or on this website : www.permiantriassic.de)

by Harry K. Hahn / Germany - 8. July 2017

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Abstract :

The gravity anomaly map of Australia shows traces of a \varnothing 320 km Impact Crater east of the Cape York Peninsula. This Impact Crater probably belongs to an impact crater-chain of at least three large craters in the 200 – 300 km diameter range. That is indicated by different gravity anomaly maps and topographic maps.

The assumed crater chain in all probability represents a secondary crater chain that was caused by the giant 1270 x 960 km Permian Triassic Crater around 253 million years ago

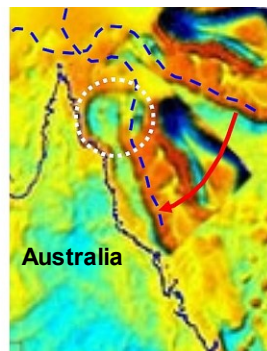
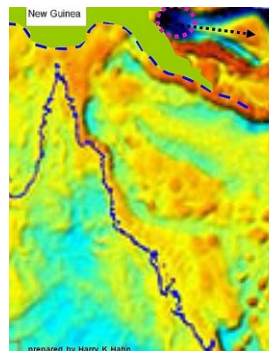
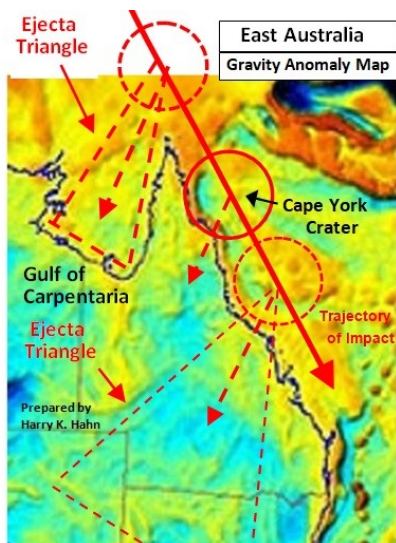
A manipulated gravity anomaly map, where New Guinea was rotated by 45 degree and moved close to the NE-coast of Australia, seems to confirm that this impact event separated New Guinea from the Australian Plate. New Zealand probably was cut-off from the Australian Plate by the same Impact Event. The impact crater chain caused the initial crack, and the later massive outflow of magma from the Cape York Crater was a driver of the separation of New Guinea and New Zealand from Australia.

The traces of this assumed outflow of magma from the Cape York Crater (CYC) are clearly visible on the gravity anomaly map and topographic map.

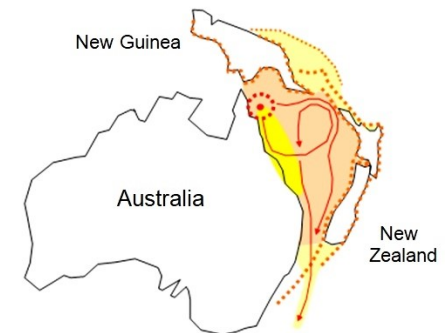
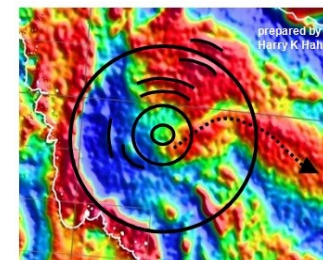
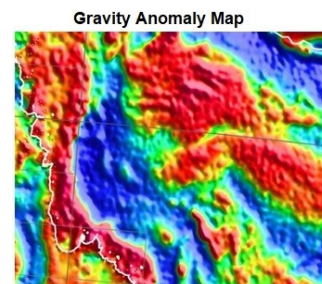
Another indication for the assumed Impact Crater Chain comes from the triangular shape of the Gulf of Carpentaria in the North of Australia, which probably was formed by the ejecta of another 300 km crater that belongs to the CY-impact Crater Chain. The image of an impact crater on planet Pluto shows a nearly identical triangular ejecta-impact-structure, which I consider as first proof for my assumption. Further proof for the impact event comes from [Raman spectroscopy analyses of rock samples from the CYC-area](#)

The massive and powerful magma outflow from the Cape York Crater produced two "magma flows", which are responsible for the ocean floor relief in the NE of Australia. The magma flowing out of the Cape York Crater seems to have caused a large magma enclosure, which not only finalized the break-off of New Guinea and New Zealand from Australia, but in all probability also caused a gigantic flood-event when it finally collapsed. The geological record indicates that this collapse probably happened around the Triassic-Jurassic (T-J) boundary, maybe caused by extreme earthquakes that were triggered by the Congo Impact at the T-J boundary.

The flood event, is also indicated by traces on the gravity anomaly- and magnetic anomaly map. A chronology of the development and the collapse of the assumed magma enclosure, caused by outflow from the CYC, is shown on page 7. Different smaller secondary impact structures, probably caused by the CY-impact, are also located along the NE-coast of Australia. Two interesting structures are the 8 x 7 km elliptical Warwick Impact Crater whose long ellipse-axis is pointing towards the CY-Crater. And the other structure is Mt Warning, which isn't just a collapsed shield volcano, but rather a collapsed shield volcano formed on top of a \varnothing 30 km secondary crater caused by the CY-impact.

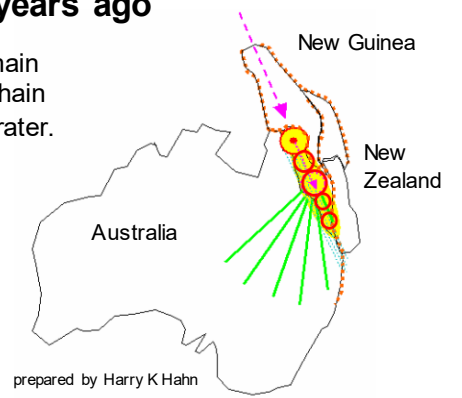


Manipulated Gravity Anomaly Map showing the \varnothing 320 km Cape York Crater



The Ø 320 km Cape York Crater in NE-Australia is a secondary crater of the PT- Impact ~ 253 Million years ago

The geological map of the NE-coast of Australia indicates that this enormous impact event occurred at the **PT-boundary** and that it had two main chapters. The first chapter was written by the impact itself, which produced a Ø 320 km Crater, that probably belongs to a secondary crater chain caused by the PT-impact. The second chapter was initiated by a flood event, starting ~200 Ma ago, caused by a magma eruption of the CY-crater.



The Cape York Impact Event :

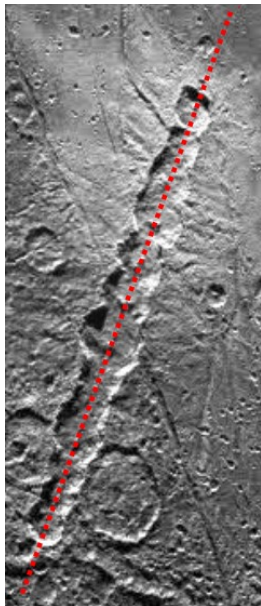
The following images show, that there was either one (red), or a chain of successive large impacts (blue) which have caused the break-off of New Zealand and New Guinea from the Australian Plate. (see an example of a chain of impact craters on the left image below)

An impactor chain would provide an explanation for the cause of the large crack in Earth's crust required for such a break-off of big crust fragments ! Further it would also explain the cause of the different ray systems visible on the **gravity anomaly** map. The impactor or the chain of impactors were either ejecta of the **PT-impact** or part(s) of the PT-impactor, which broke apart before impact.

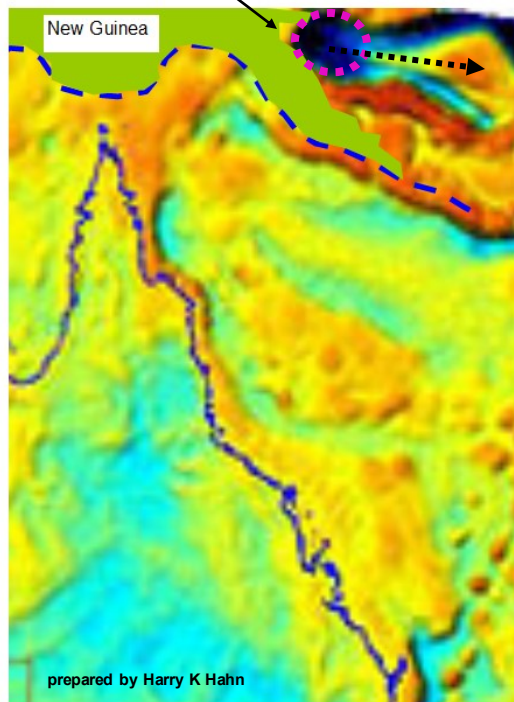
Modification of a Gravity Anomaly Map of Australia's East Coast shows the original Impact scenario

The image on the left shows the unchanged gravity anomaly map, with New Guinea marked in green on the map. (→ New Guinea's coast line is marked in blue) In the right image, the section in the top right area of the map was rotated by a 45° angle towards the north-east coast of Australia. The result of this "reconstruction" shows the original state of the impact structure shortly after the impact event took place ! The circular crater structure with a diameter of around **320 km** is clearly visible ! And the border structures with high gravity intensity indicate that the impact structure may have been caused by a chain of impactors. (probably by a number of secondary impactors from the PT-impact) Each of the further 3 to 4 big impacts having a diameter of 200 to 300 km !!

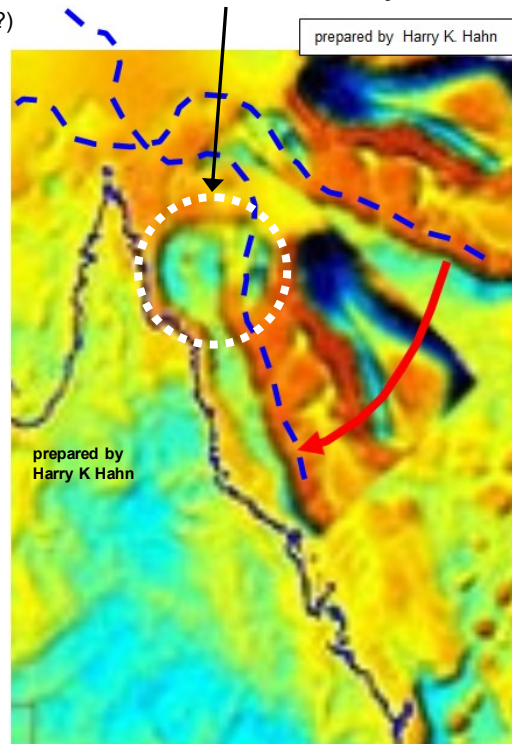
Example of a chain of craters on the Jupiter moon Ganymede caused by an impactor which broke apart before impact :



Also note the magma flow (yellow) which obviously came from the dark blue area (an outflow channel in the crust ?)

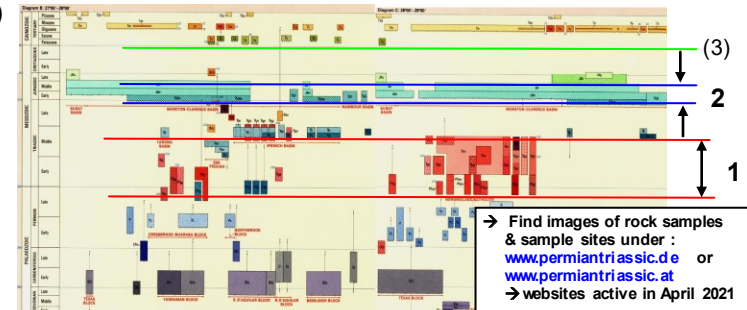


Note the circular crater structure of a large 320 km crater which is clearly visible now !



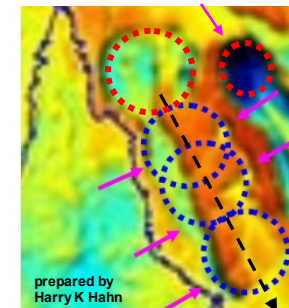
The geological map of the SE-coast of Queensland indicates two main chapters associated with the large impact event :

- 1.) Ejection of the red-colored rock types along the East Coast of QLD at ~253 Ma. → Crystallization of this "ejecta ranges" until ~ 225 Ma
- 2.) A gigantic flood event triggered by magma eruption 1, ~200 Ma ago and affecting the low-lying sedimentary areas until around 160 Ma
- 3.) Volcanic activity initiated at around 65 Ma and lasting until ~25 Ma → probably related to magma eruptions No.5 to 8 of Cape York Crater

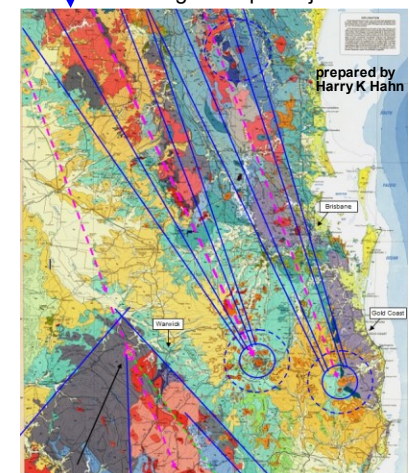


Map : -Moreton (Warwick) Geology-Geology Maps → type in : **WARWICK**

the lines on the geological map indicating the impact ejecta areas



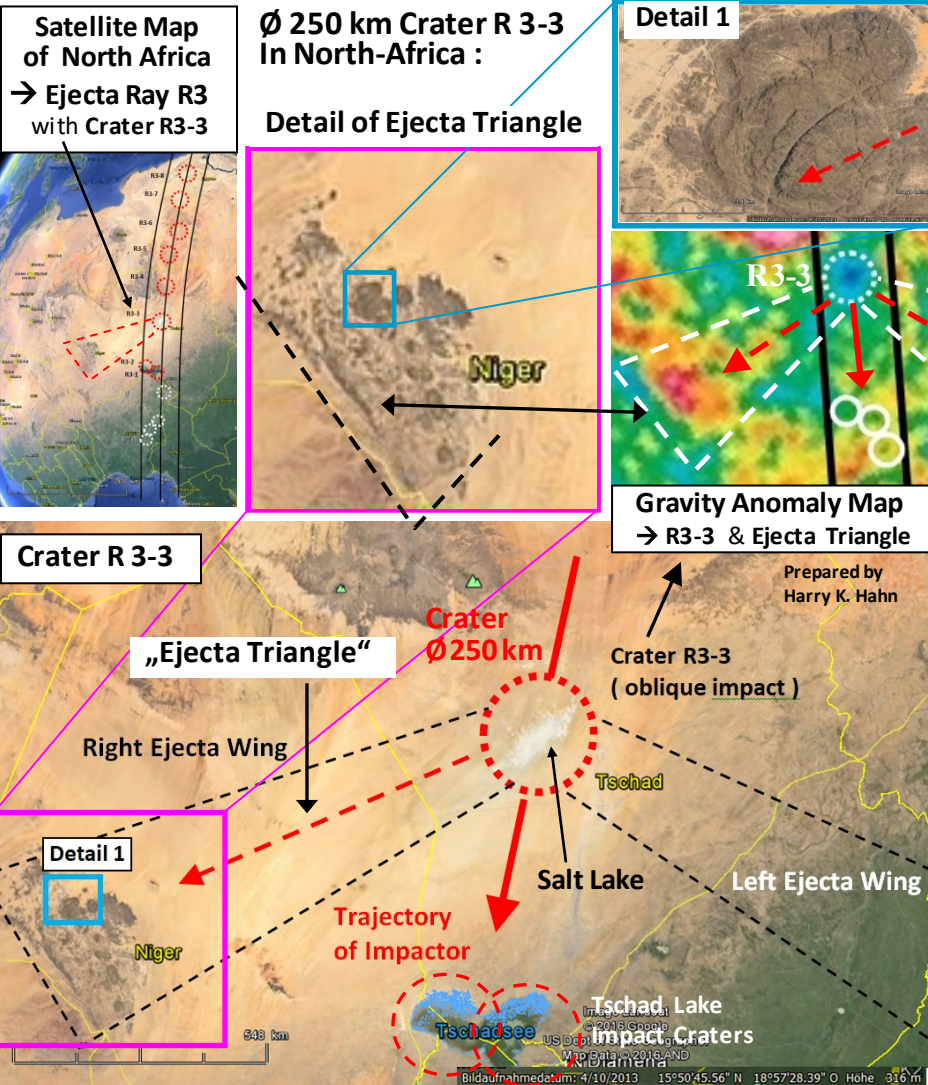
The bow-shaped border structures with a high gravity intensity could indicate that the impact event was indeed caused by a chain of impacts.



The Gulf of Carpentaria in the North of Australia was formed by Ejecta from another Ø 300 km Crater north of the Cape York Peninsula

I have found more evidence for a secondary Impact-Crater-Chain, caused by the PT- Impact, which has formed the North-East-outline of the Australian Continent. The New-Horizons space probe made an image of a crater on Pluto in 2015, which has formed a triangular ejecta-impact-structure very similar in shape as the **Gulf of Carpentaria in the North of Australia**. This is proof for another $\geq \text{Ø } 300 \text{ km}$ Crater that belongs to the already described Cape York Impact Event. A gravity anomaly map already provides evidence for at least two big craters which formed the NE-outline of Australia. The images shown here provide evidence for another Crater belonging to the same Impact Event! A similar triangular ejecta-impact-structures is visible near **Crater R3-3** from **Ejecta Ray R3** (Africa) and near the **Ajuy Crater** on Fuerteventura (Canary Islands) see **Part 2** of my study.

A big $\approx \text{Ø } 250 \text{ km}$ Crater in Ejecta Ray R3 shows an „Ejecta Triangle“
The gravity anomaly map and the satellite images show a similar “Ejecta-Impact-structure” as on Pluto and in N-Australia, caused by the Crater **R3-3**

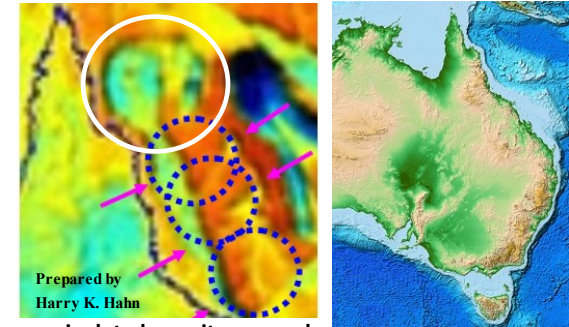
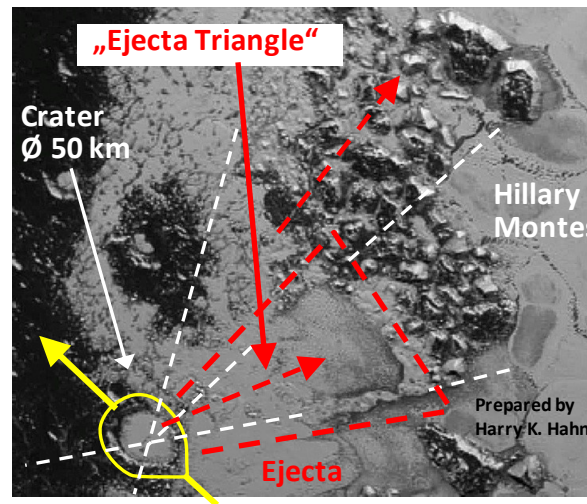
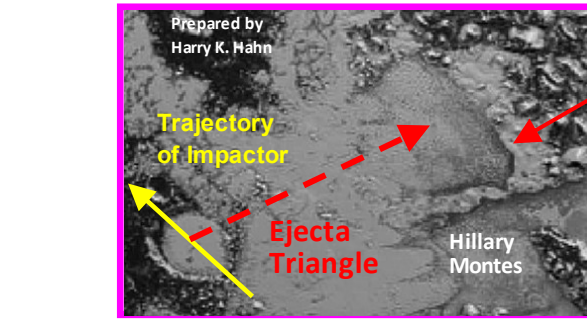


A Ø 50 km Crater on planet Pluto caused a large „Triangular Ejecta Impact Structure“

An oblique impact event on Pluto, less than 100 million years ago, formed Hillary Montes at the border line of Sputnik Planum.

An ejecta-lobe from this crater produced a precise triangular Ejecta Impact Structure !!
(→ see : [Pluto Images](#))

A Ø 50 km Crater on Pluto caused a Triangular Ejecta Impact Structure



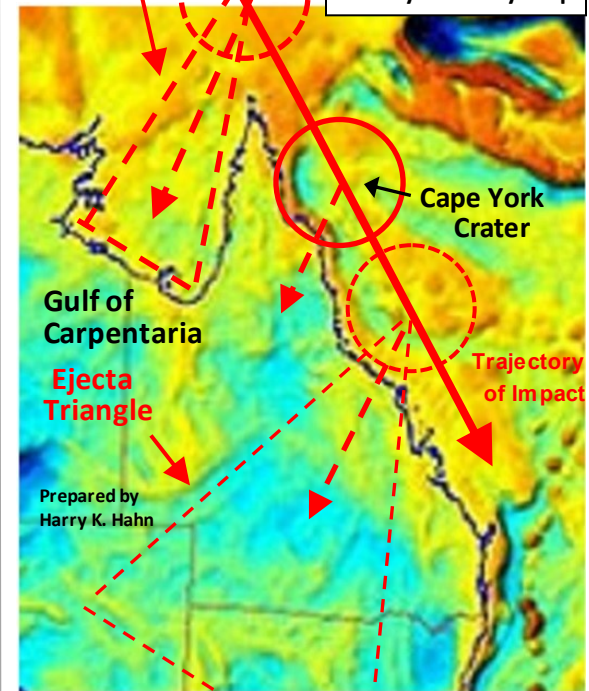
manipulated gravity anomaly Map showing the Cape York Crater and evidence for a Crater Chain caused by the PTI

East-Australia

„Ejecta Triangle“

Compare !!

East Australia
Gravity Anomaly Map

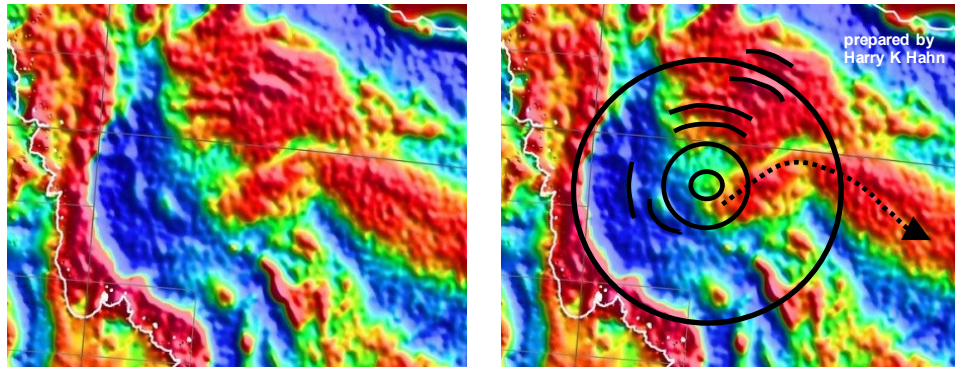


Cape York Crater \varnothing 320 km (NE-Queensland / Australia)

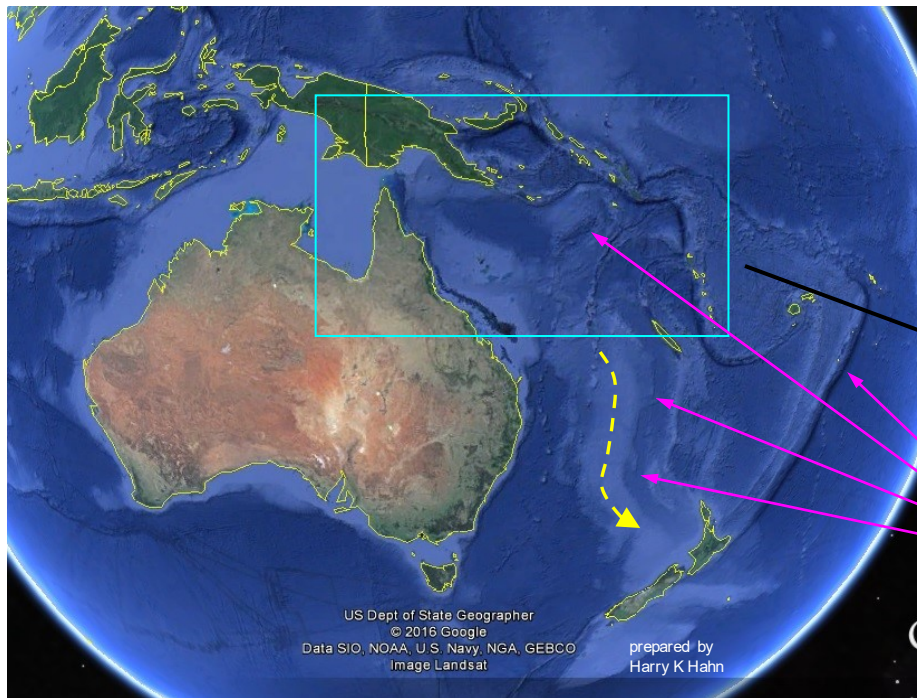
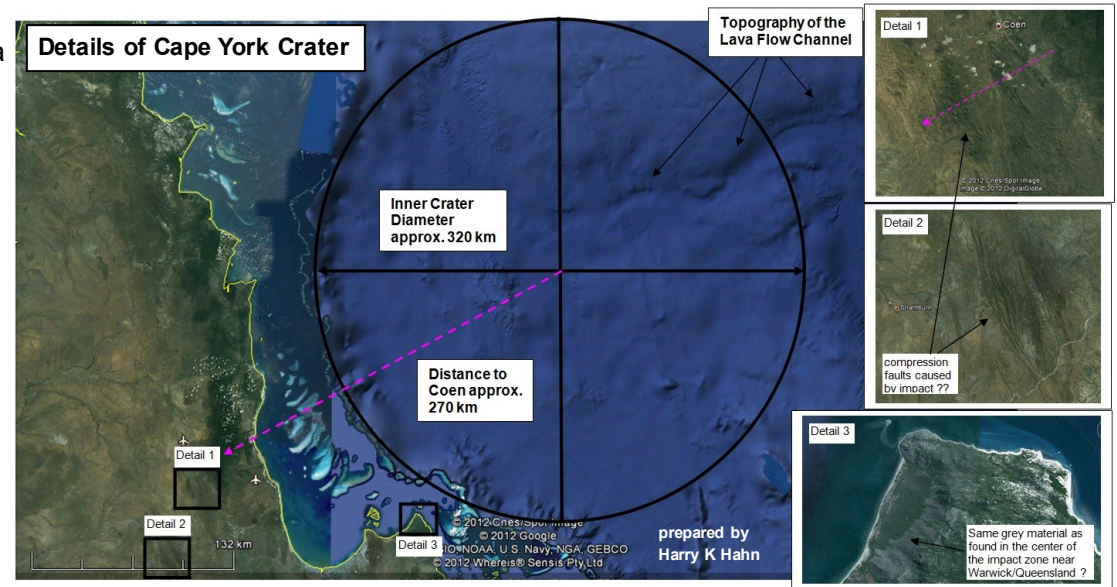
Detail view of the large Impact Crater near Cape York :

This crater which is clearly visible on different [gravity anomaly](#) maps of Australia initiated the break-off of New Guinea & New Zealand from the Australian Plate !
 (And if there was a chain of craters, then this was probably the biggest one !)

Gravity Anomaly Map :



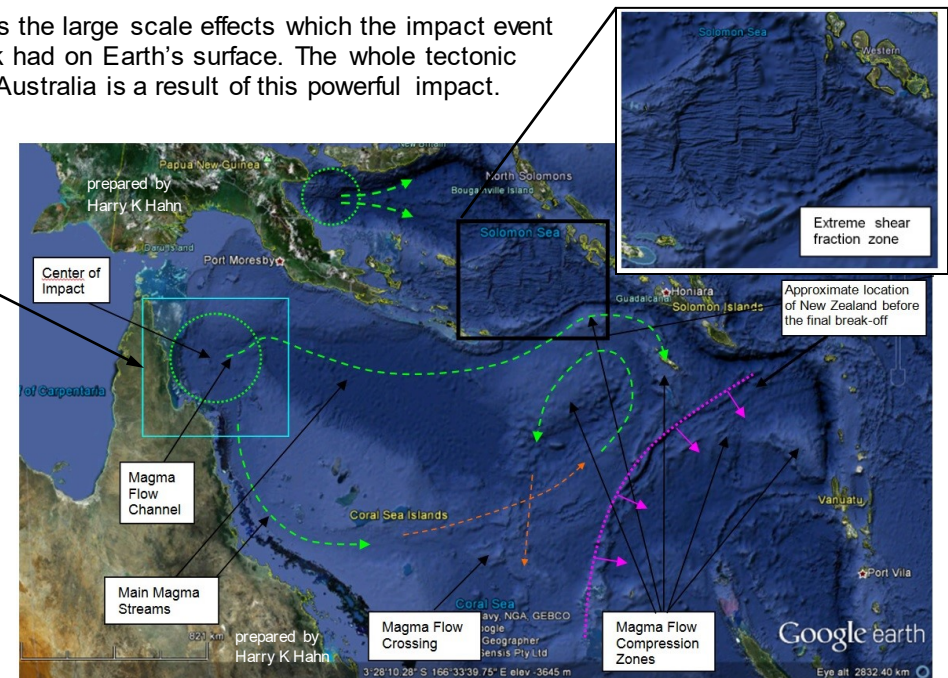
Cape York Crater on a Topographic Map : (→ Detail from the image below



Detail of Magma Flow Traces visible on a topographic map :

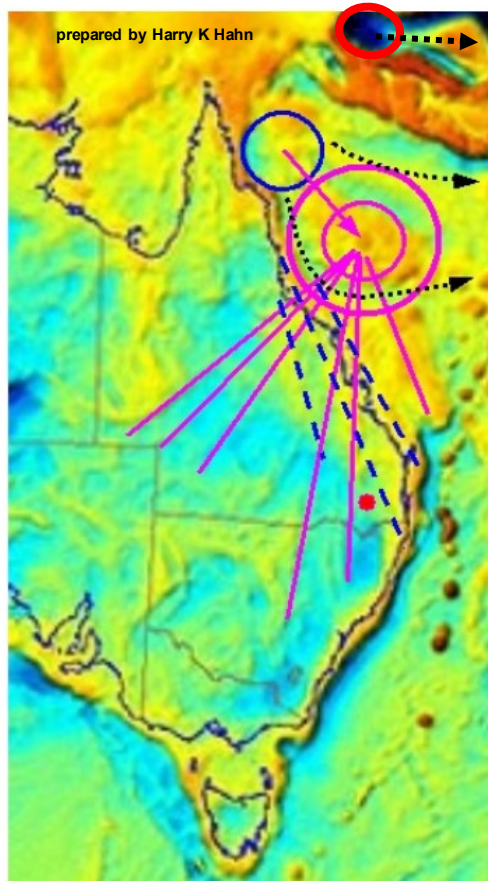
This map shows the large scale effects which the impact event near Cape York had on Earth's surface. The whole tectonic activity east of Australia is a result of this powerful impact.

Details of Crater see above
 large scale magma flow traces

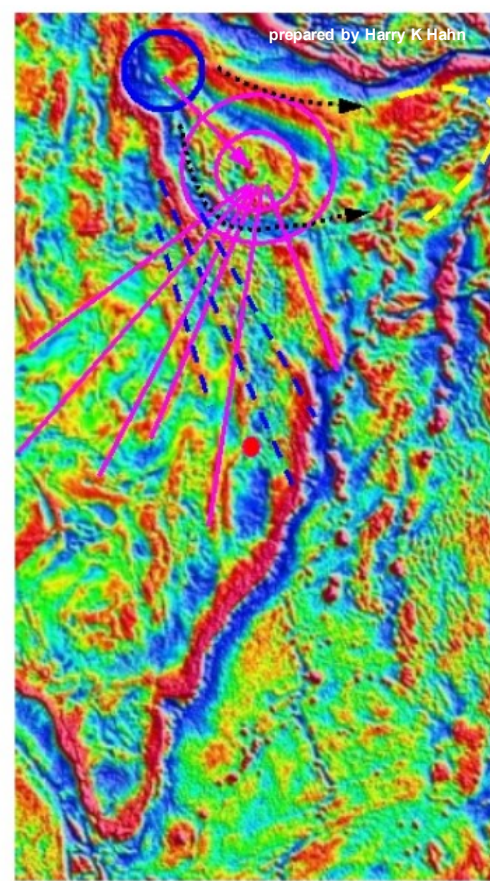


Two different gravity anomaly maps showing large-scale Impact Structures in the eastern part of Australia

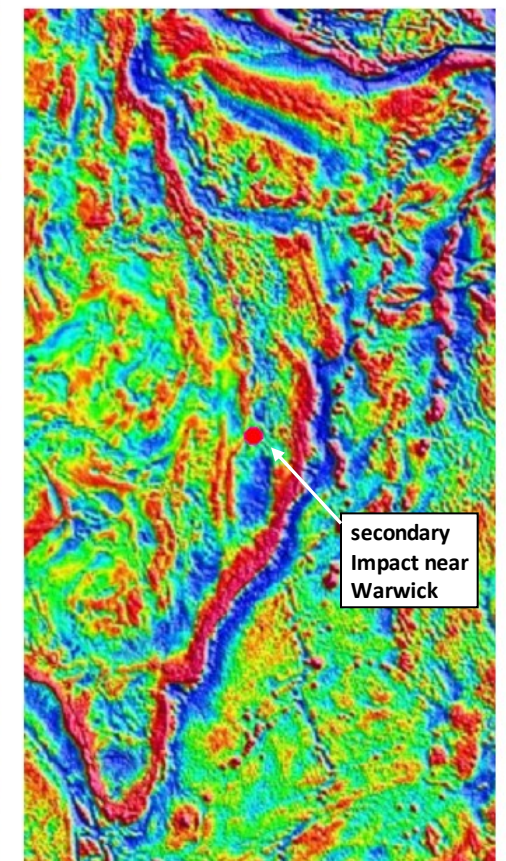
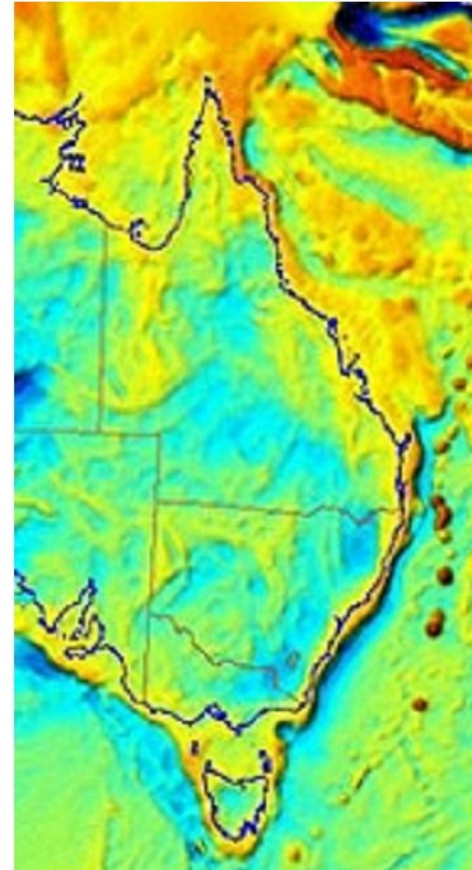
Gravity Anomaly Map 1



Gravity Anomaly Map 2



Maps without markings (for comparison) :

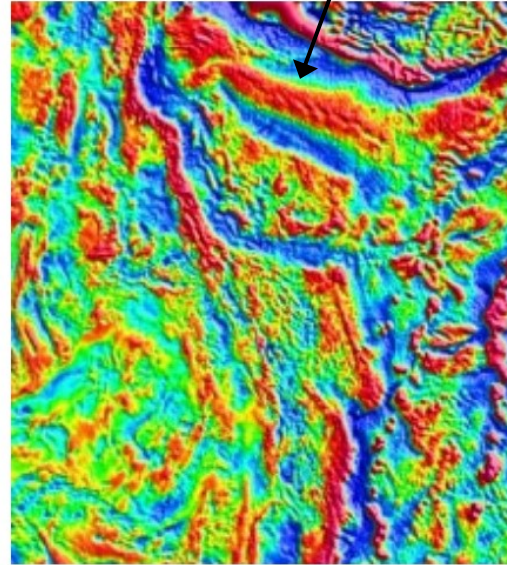
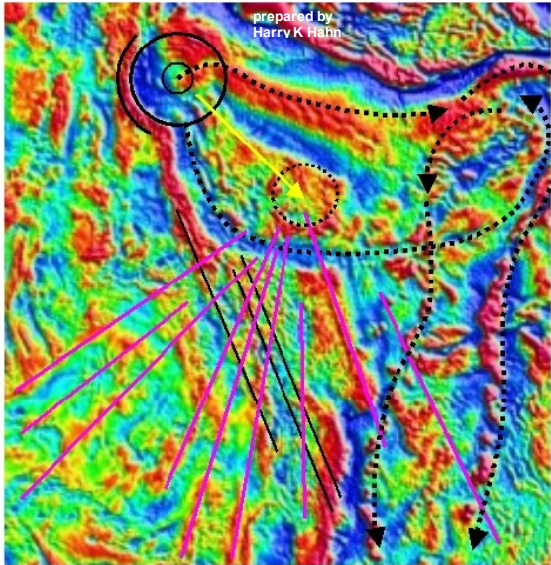


The gravity anomalies of the ocean floor in the North-East of Australia show traces of magma flow caused by the Impact

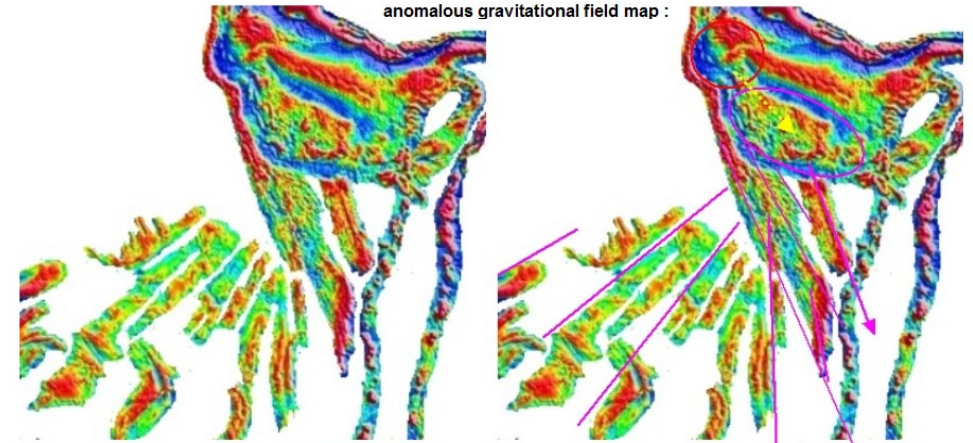
The dotted lines show that in all probability there were two main "magma flows" coming from the CY-Crater, which are responsible for the ocean floor structure in the NE of Australia

Note the traces of a massive and powerful magma outflow, which came from the center of the Cape York Crater

CYC



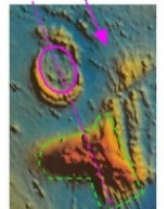
Main structures of the large Impact Event near Cape York / in NE-Australia



anomalous gravitational field map :



The two pink colored arrows shown in the smaller rectangular image indicate the interdependence between the assumed large impact in the North of Queensland and the assumed smaller elliptical Impact Structure in South-East Queensland. The main impact direction of the smaller elliptical structure is identical to the direction of the thin ray structure of the larger impact structure



The pink and black lines indicate different ejecta ray systems caused by the Impact Event

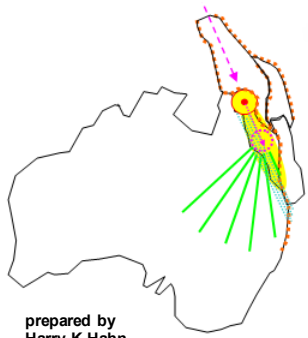
→ for comparison of the orientation also the small elliptical structure in SE-Queensland is shown (approx. 50 times enlarged !)

→ secondary impact near Warwick

→ see description of the Warwick Impact & Mt Warning Impact on the last page

Impact Chronology of the Cape York Impact

1



prepared by Harry K Hahn

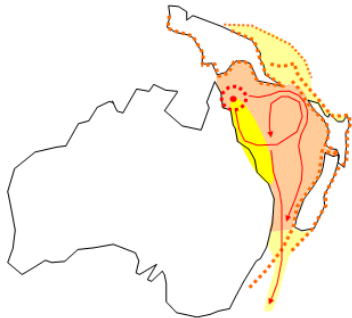
- yellow – main ejecta area ;
- green – ejecta rays
- orange – magma flow areas
(dark orange → thicker or more compressed magma flow s,
light orange → thinner or less compressed magma flow s)

→ Find further information and images of rock samples & sample sites under : www.permiantriassic.de or www.permiantriassic.at (→ websites should be active in April 2021)

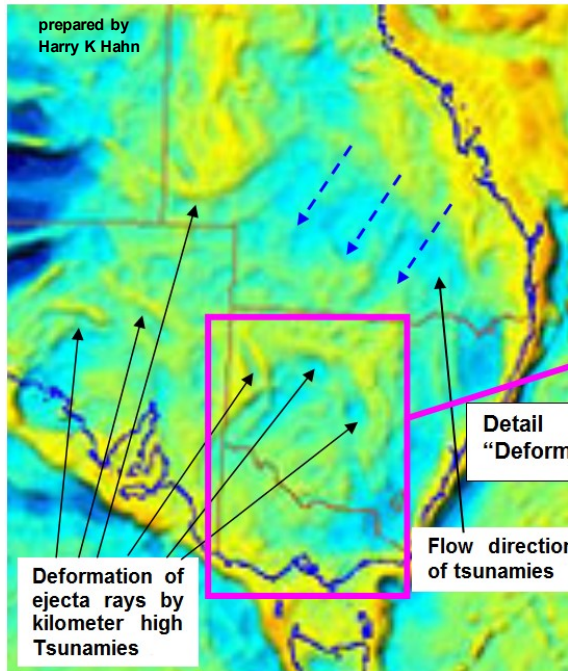
2



3



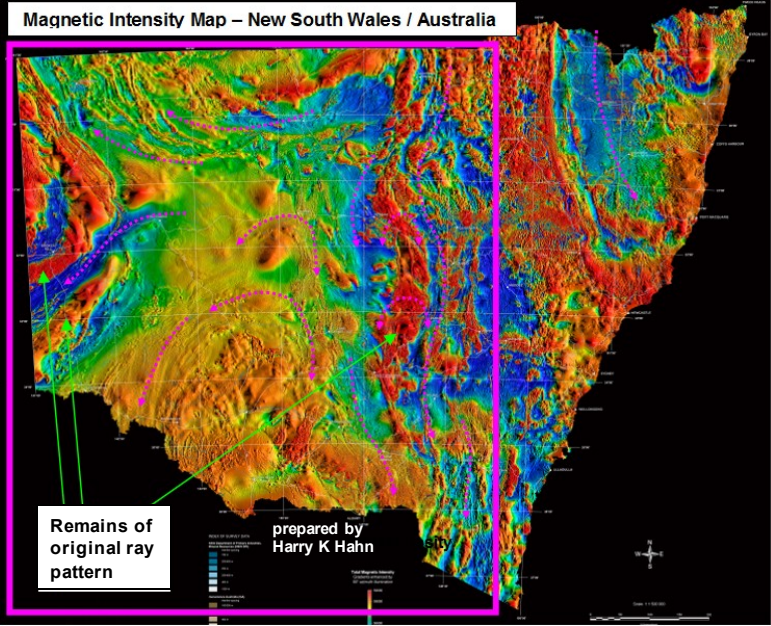
Possible Deformation of Ejecta Rays by Tsunami Waves → probably caused by the collapse of a magma enclosure



Deformation of ejecta rays by kilometer high Tsunamis

Detail "Deformed Ejecta Rays"

Flow direction of tsunamis



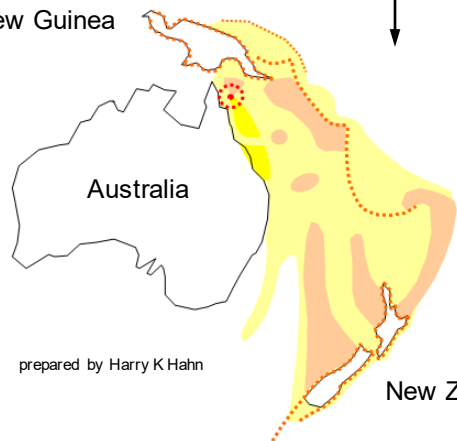
Magnetic Intensity Map – New South Wales / Australia

Remains of original ray pattern

prepared by Harry K Hahn

The Magnetic Intensity Map of New South Wales clearly shows that the surface of the whole state was altered by one gigantic flood event. The distribution of all magnetic material, which probably came from the same Impact Event, and which originally had a precise ray-like distribution pattern, was defined by this flood event.

4



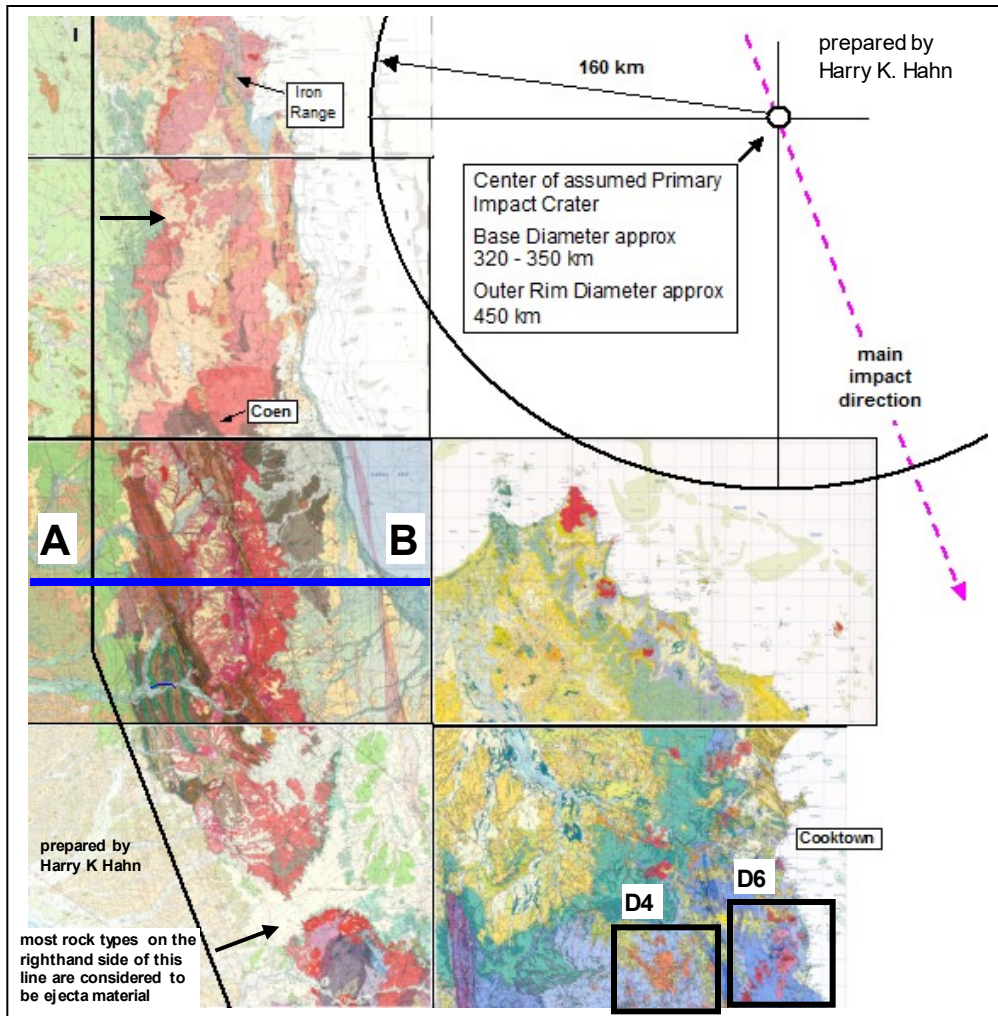
prepared by Harry K Hahn

New Zealand

It seems that directly after the impact, ejecta rays were thrown out of the impact crater in the main ejecta area in precise straight lines. Then in Phase 3 of the assumed Impact Chronology, when the crust fragments (now called New Zealand) broke free and the enclosed "magma ocean" spread out quickly over the "Pacific Plate", gigantic amounts of ocean water flow back into the collapsed "magma enclosure" because its floor was at a lower level than the sea level of the pacific ocean

This probably caused gigantic Tsunamis which flew in the indicated direction over the Australian Continent (see above). These Tsunamis probably reached heights of several hundred meters and they were strong enough to deform (bend) the thrown-out ejecta rays (→ which didn't have a rigid connection to the bed rock), as visible in the above shown maps.

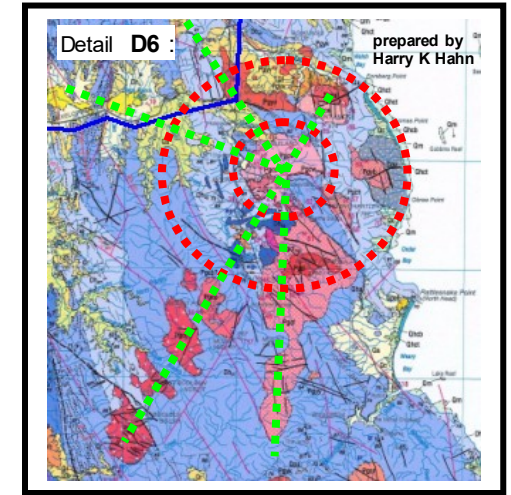
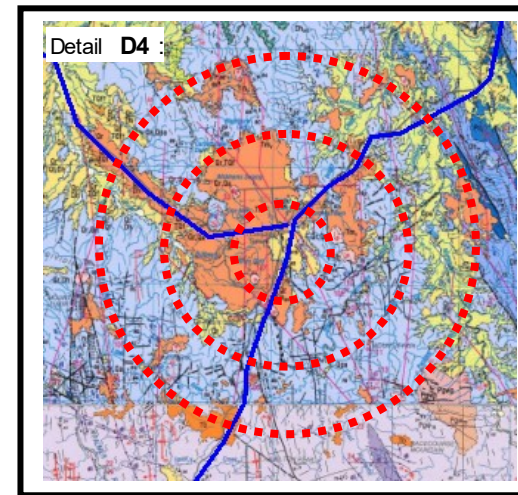
Geological map showing the position of the Cape York Crater and part of the Cape York Peninsula & Cooktown area



The map on the left is a map-combination of 6 geological maps, which shows the area south & west of the Cape York Impact Crater

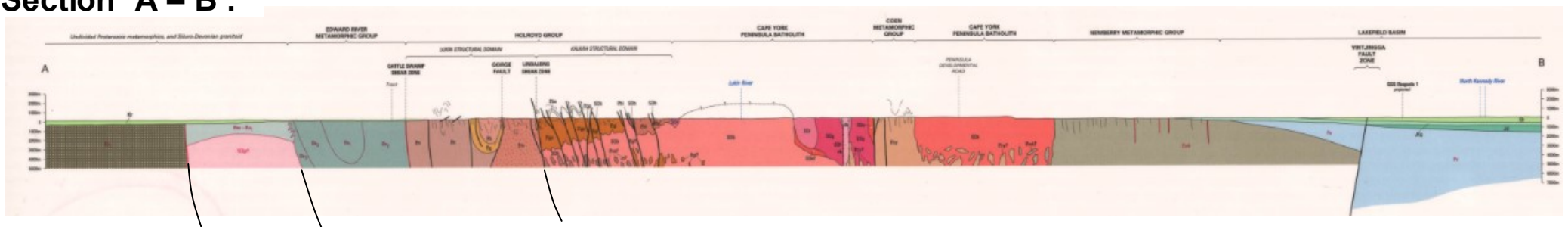
Weblink to the geological Maps : → [Geological Maps](#)

Note the indicated ejecta-like distribution-pattern of different rock types in **Details D4 & D6** (→ patterns indicate secondary impact structures !)



Section A – B going through the assumed impact-affected area, indicates that an extremely large impact event has taken place.

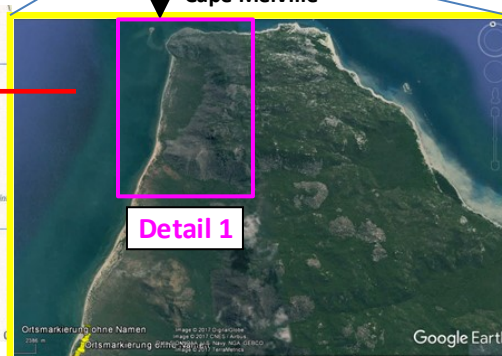
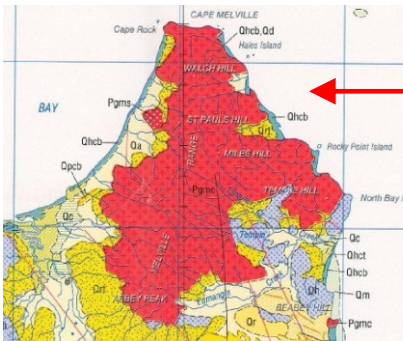
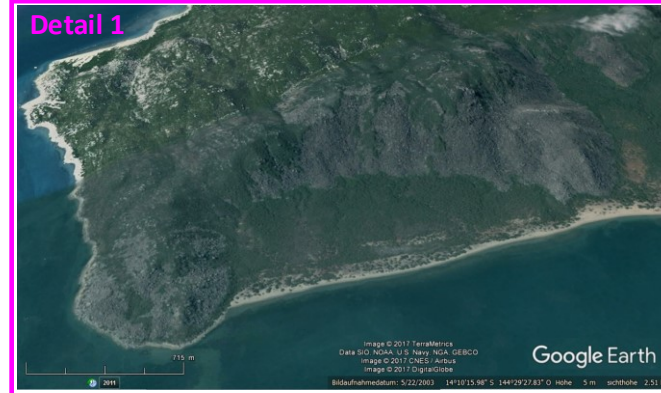
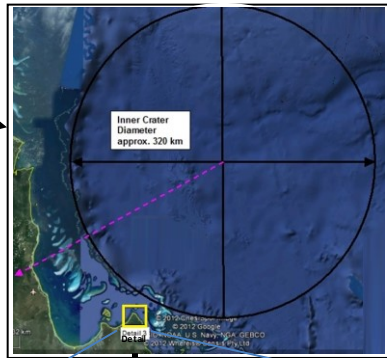
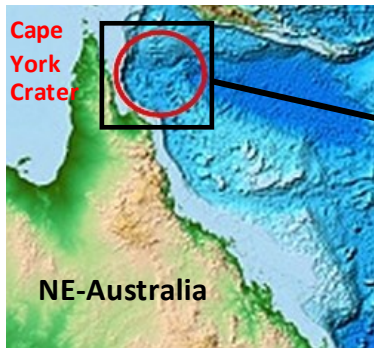
Section A – B :



The Ejecta from the Ø 320 km Cape York Crater consists of boulders with up to Ø 20 m

The closest point on land near the Ø 320 km Cape York Crater is the difficult accessible **Cape Melville** (see Images)

On the satellite images large grey **boulders of up to Ø 20 m** are visible, which form the grey hills at Cape Melville. These grey boulders which consist of Cape-Melville-Granite with an Early-Permian Age seem to be material that has formed the crater-walls of the Cape York Crater. Cape Melville is a last remain of this original crater-wall on land. Further away from the Cape York Crater there are also other large hills of Ejecta-Boulders noticeable on other places which either were ejected from the CYC or from one of the other Ø 200-300 km craters which belong to the Cape York Crater-Chain. The Black Mountains 20 km south of Cooktown represent such Ejecta-Boulder-Hills, which are easy accessible. And there are many other sites along Australia's NE-coast where ejecta-boulder-hills exist which were caused by the CYC-chain, mostly covered by vegetation, for example the **CY-sample sites : 16, 17, 48B, 49A-C, 56-58, 63 & 64**



Ejecta-Boulders near Cooktown

The following images show mountains that consist of the same kind of "Ejecta Boulders" like Cape Melville, but they are located 160 km south of Cape Melville and they are easy accessible for research

**Note the age of the boulders !
It is close to the P/T-boundary age !**

Trevethan Granodiorite (259 ± 1 Ma) Pg_{1v}

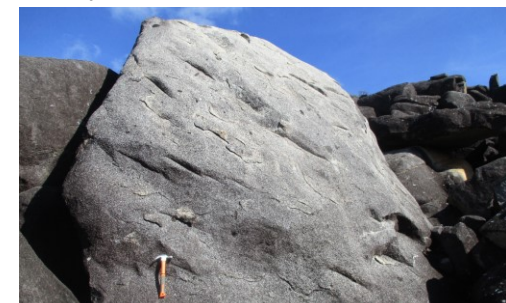
Sample Site 49-C: "Black Mountains" → a mountain of "Ejecta-Boulders"



Sample Site 49-C: the Black Mountains 20 km south of Cooktown consist of Ejecta Boulders with up to ≈ Ø 10 m



Sample Site 49-A : It seems that the surface of this boulder was exposed to an explosive "Blast Event" !!



EARLY PERMIAN Cape Melville Granite Cape Melville Supersuits
Pg_{1m} Mainly white to pale grey, medium to coarse-grained, variate to moderately porphyritic (hornblende-) biotite adamellite and granite

The geological map of Cape Melville shows that the Cape essentially consists of granite boulders with an Early-Permian Age. This boulders form the bed-rock of the Cape.

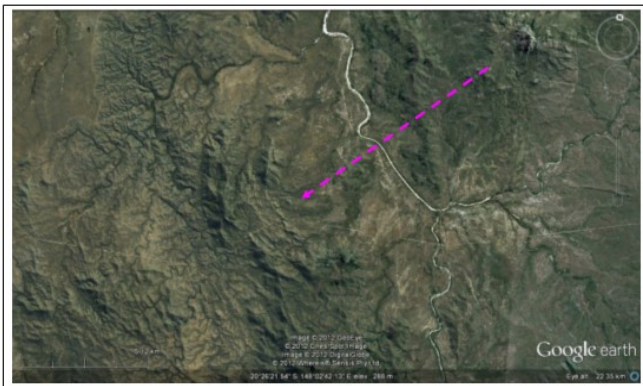
→ See **geological map : sd5509**
[weblink to : www.geoscience.gov.au/...](http://www.geoscience.gov.au/)

Other secondary impact structures in the NE of Australia, probably caused by the Cape York-(PT) Impact Event

The following maps show where other secondary impact structures are located, near the NE-coast of Australia. Most of the identified impact structures which are probably a result of the Cape York impact event, have an elliptical shape and their impact direction can be read out of the topography of the impact structure. The impact structures are probably a result of ejecta material coming from the Cape York Crater Chain. (→ see next page !)



1 20° 25' 00.00" S - 148° 06' 00.00" E



2 24° 52' 00.00" S - 151° 25' 00.00" E



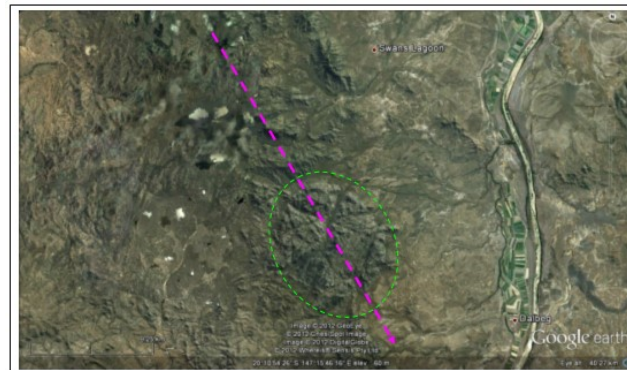
3 19° 28' 00.00" S - 147° 00' 00.00" E



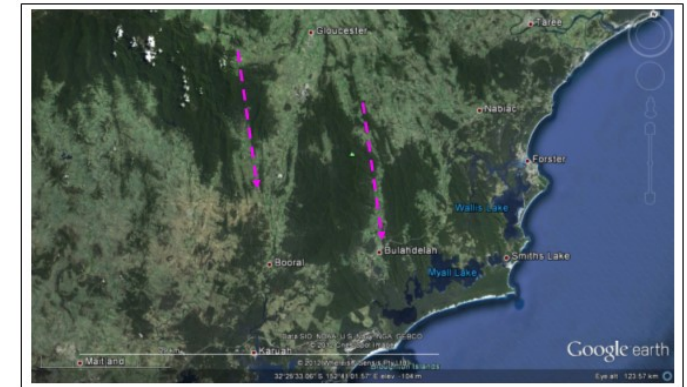
4 17° 20' 00.00" S - 145° 00' 00.00" E



5 20° 12' 00.00" S - 147° 09' 00.00" E



6 32° 15' 00.00" S - 152° 10' 00.00" E



7 15° 45' 00.00" S - 145° 18' 00.00" E

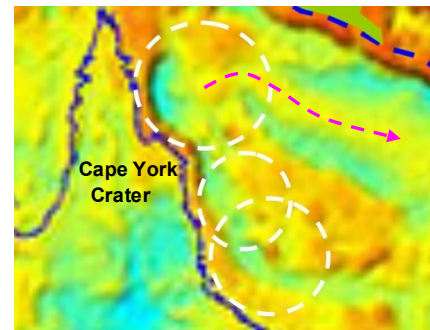


8 24° 40' 00.00" S - 151° 00' 00.00" E



Detail A & B :

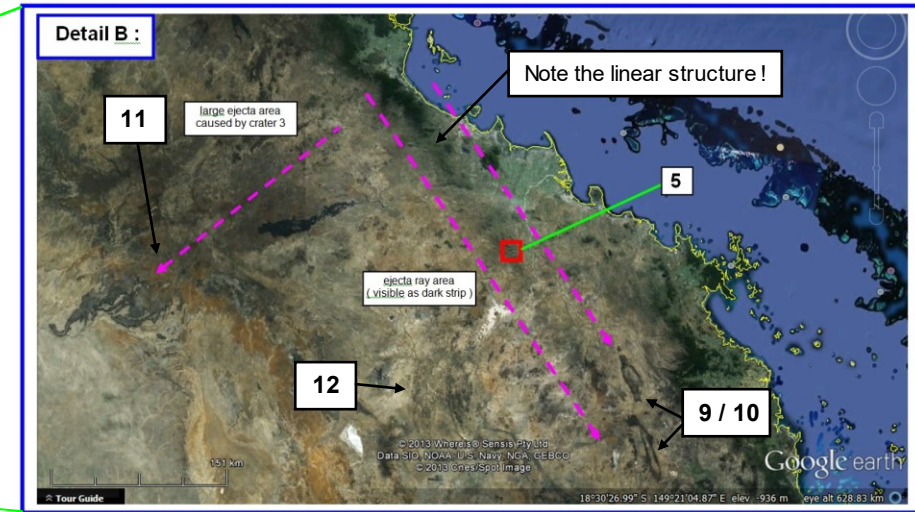
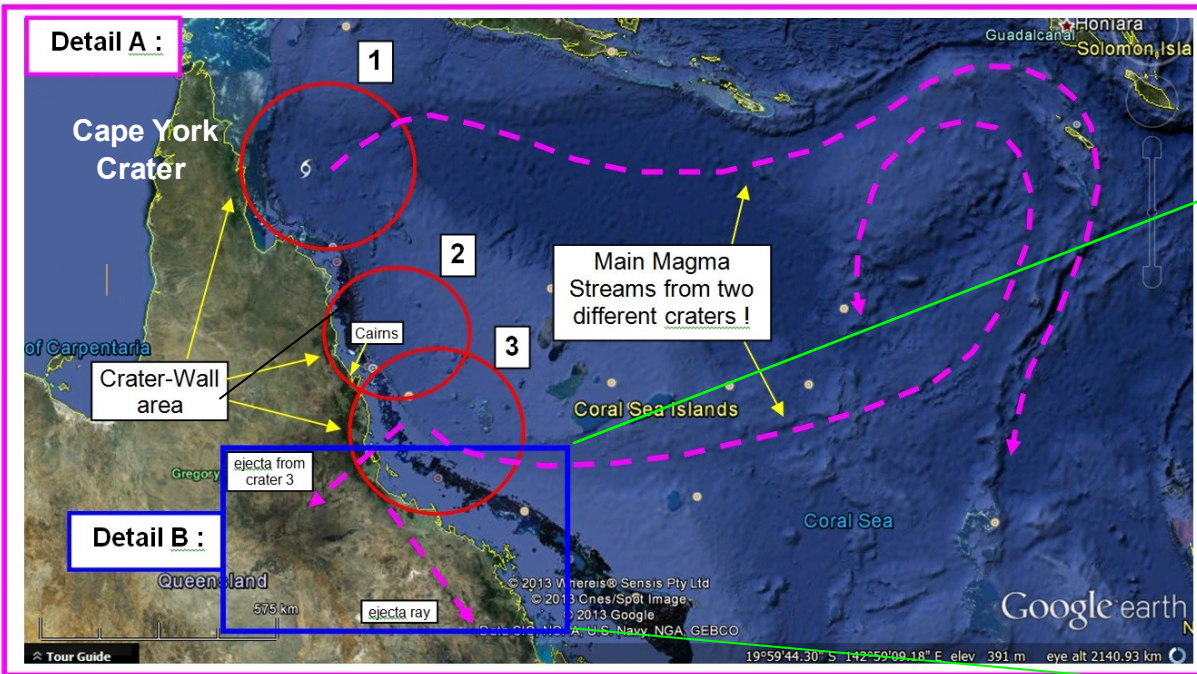
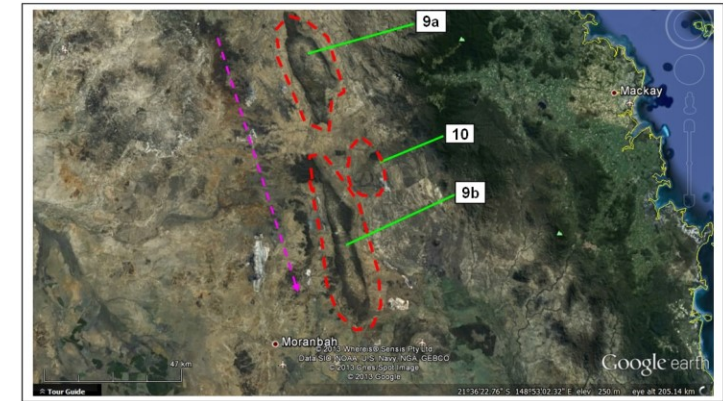
Gravity Anomaly Map :



Secondary Impact Structures No.: 9 –12 :

Detail A : shows the probable positions of three impact craters which may be responsible for the Cape York impact event off-shore of the NE-coast of Australia, and magma stream structures probably caused by eruptions caused by Crater 1. **Detail B** shows some secondary impact structures caused by the Craters 1 to 3.

9a : 21° 06' 00.00" S - 148° 05' 00.00" E
 9b : 21° 45' 00.00" S - 148° 16' 00.00" E



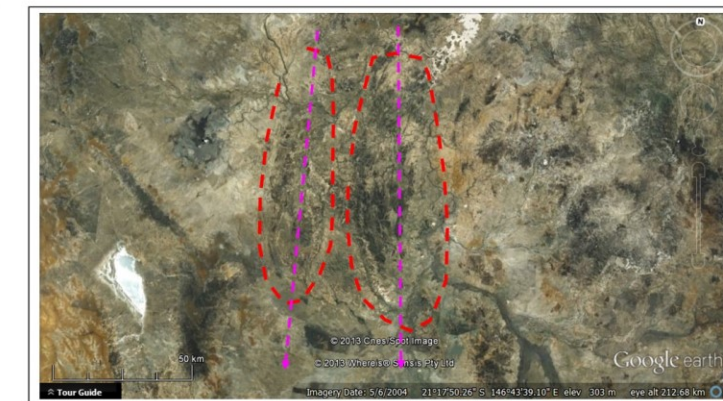
10 21° 28' 00.00" S - 148° 19' 00.00" E



11 20° 00' 00.00" S - 144° 40' 00.00" E



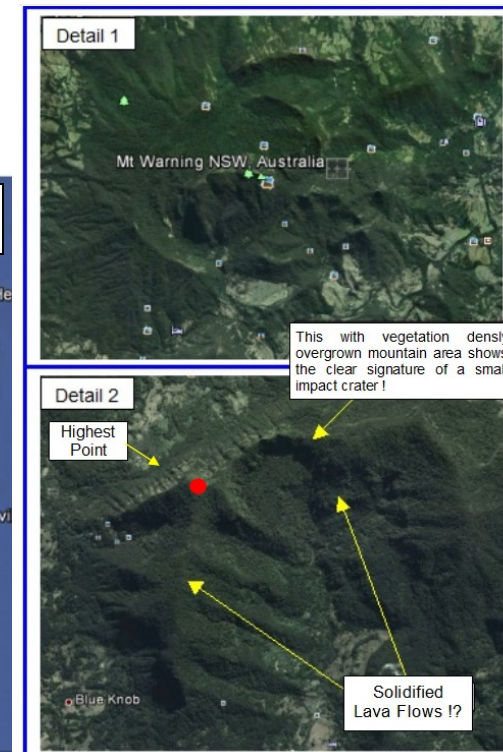
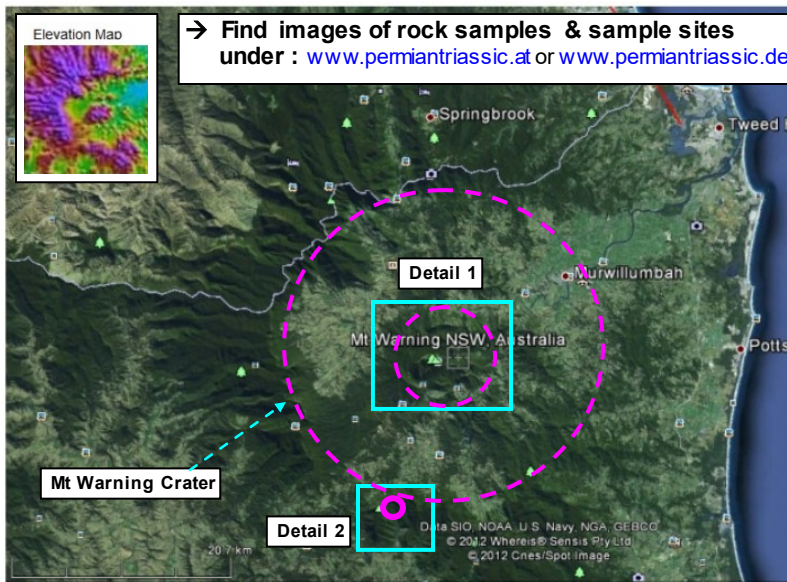
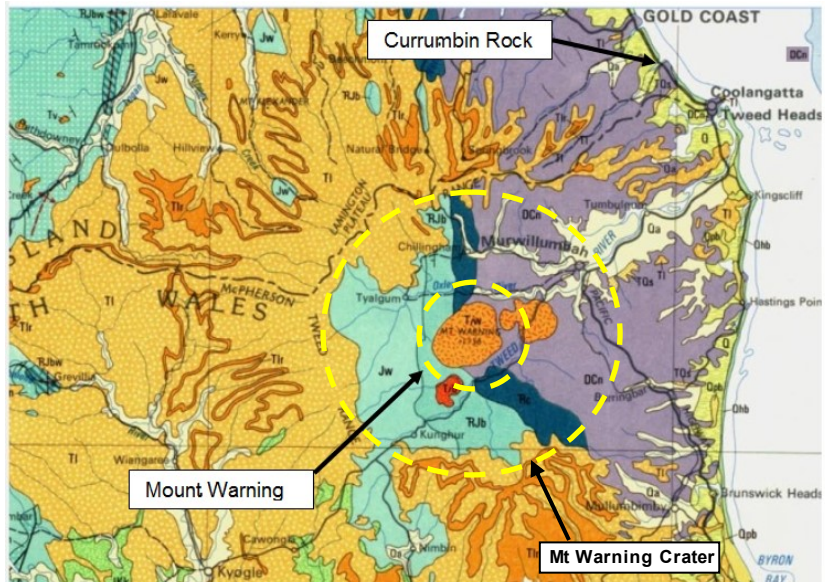
12 21° 25' 00.00" S - 146° 26' 00.00" E



A Secondary Impact Crater with \varnothing 30 km south of Brisbane / on East Coast of Australia

Prepared by Harry K. Hahn

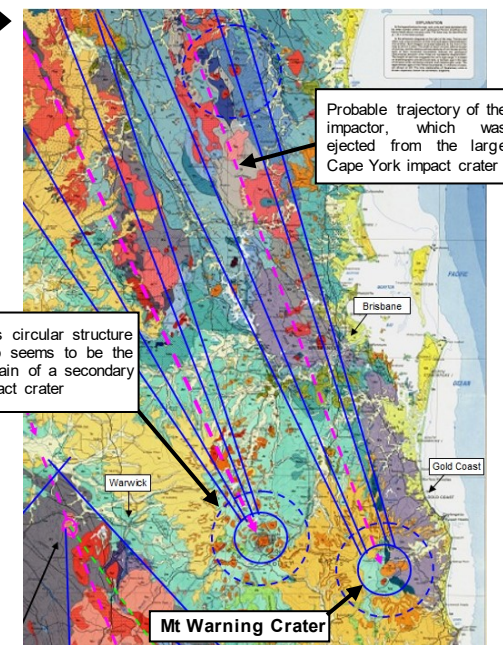
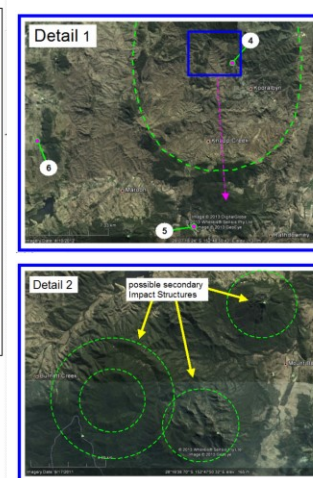
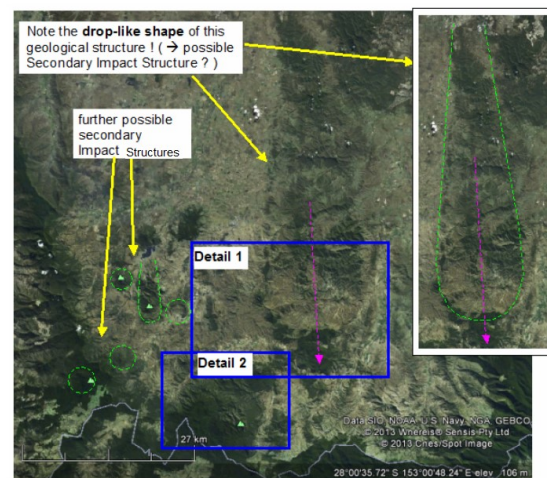
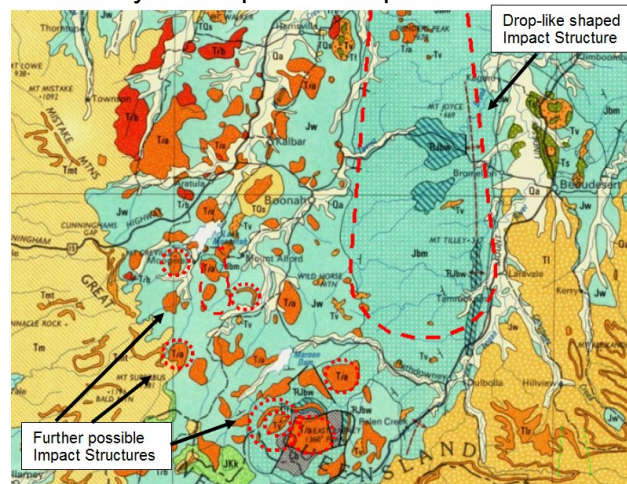
Mount Warning is probably the result of a large **secondary impact** caused by the Cape York impact event, and is not the rest of an eroded shield-volcano as currently believed ! Therefore the age of the Mt Warning crater should be ~ 253 Ma. The chaotic looking central area of the Mt Warning crater is probably the result of a central uplift where volcanic activity was going on inside (similar to a volcano). When the volcanic activity ended, this central uplift collapsed into a chaotic structure.



Further secondary impact structures north-west of Mt. Warning :

Map : Moreton Geology : [Geology Maps](#) → type in : **WARWICK**

North-West of Mount Warning there are further structures which also seem to be secondary impact structures which are caused by the Cape York impact event. These impact structures probably also formed 253 Ma ago, at the **P-Tr boundary**

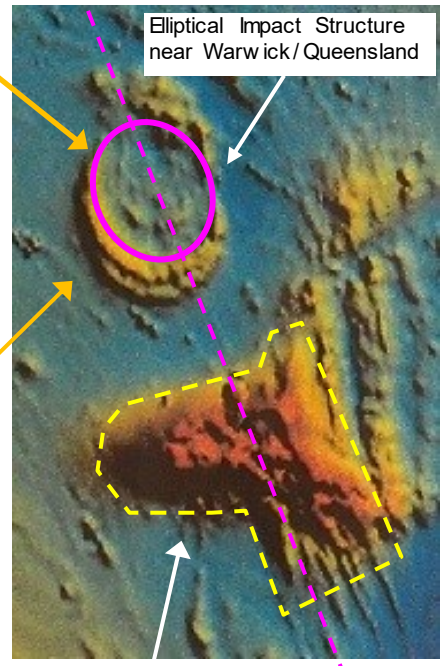
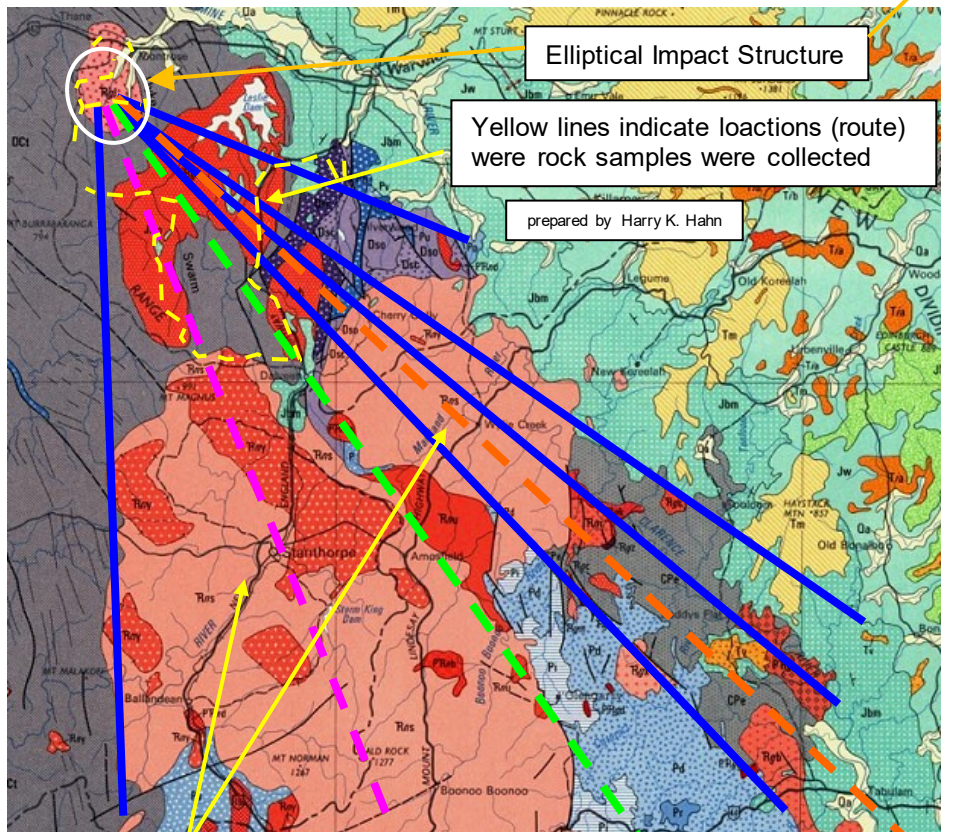


Oblique (elliptical) Impact Structure 8 x 7 km, near Warwick / Queensland → probably caused by ejecta from Cape York Crater

There is a precise **Elliptical crater structure** noticeable on the **Magnetic Intensity Map**. This structure is located around 30km west of Warwick (QLD). This **elliptical ring structure** is not completely closed, which is an indication that the impactor arrived in a shallow angle. The orientation of the elliptical ring structure corresponds with the orientation of the (assumed) ejecta blanket. The age of the oblique impact is probably **253 Ma**. (see explanation for the estimated age in Part 2 of my study → Cape York Crater)

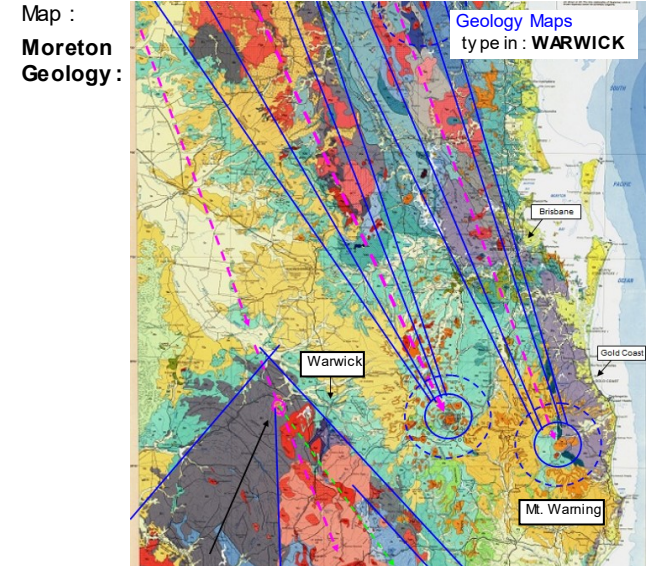
The geological map of the surrounding area shows a very striking distribution of certain rock types along sectors, which are limited by „rays“, which all seem to come from the same starting point. And it seems that all rays have their starting point within the elliptical impact structure! Only the rays which limit the sector of the grey colored rock type (see next page !) seem to have their starting point shifted a bit towards the direction where the impactor came from. It seems that the pink & red colored rock types, and also the grey colored rock type, were scattered during the impact towards the south-east, in a cone-shaped pattern.

„Ejecta Blanket“ & Geological Map of the surrounding area of the Impact Structure

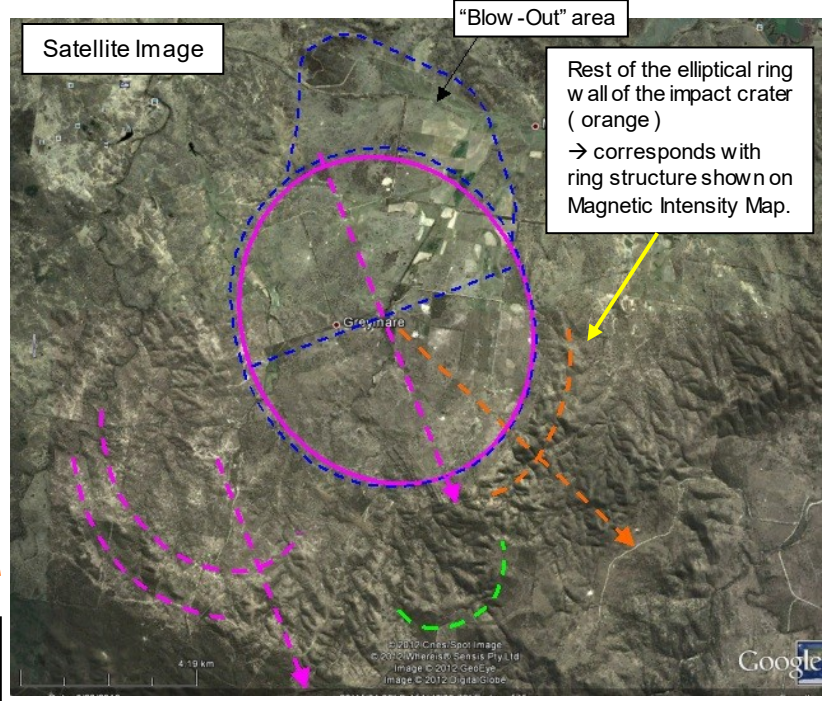


The image below shows the geological map of the wider surrounding area of the assumed Impact Event near the city „Warwick“. Beside the cone-shaped distribution of the different rock types south of the elliptical impact structure near Warwick, there is also a striking stripe-like (or ray-like) distribution visible of similar colored rock types, parallel to the suggested „main impact direction“. Here the main impact direction corresponds to the direction of the pink arrow in the first image on the previous page. And at the end of the two visible „stripe-like (or ray-like) “ejecta blankets“ there are circular geological structures noticeable.

With high probability these circular geological structures are also the remains of secondary craters, which were caused by material ejected from the primary (Cape York) impact crater further north! I now want to examine one of these circular structures a bit closer. This circular structure is named „Mount Warning“



magnetic signature of ejected material main impact direction



I have marked the form of the assumed impact structure (as shown on Magnetic Intensity Map) in this satellite image.

Dimensions of the small elliptical impact structure approx. : **8 x 7 km**.

The age is probably 253 million years. (PT-1)

The scattered rock types give indication that this small secondary impact structure, together with the Cape York Crater is connected to the largest mass extinction in Earth's history, at the **Permian-Triassic boundary**

Ejecta blanket of the elliptical impact structure

main impact direction

→ Find images of rock samples & sample sites under : www.permiantriassic.de (this website should be active in **April 2021**)

References :

Part 5 of my Study : Global Impact Events are the cause for Plate Tectonics and the formation of Continents and Oceans_Part 5

Part 1 : The 1270 X 950 km Permian-Triassic Impact Crater Caused Earth's Plate Tectonics of the Last 250 Ma

Part 2 : The Permian-Triassic Impact Event caused Secondary-Craters and Impact Structures in Europe, Africa and Australia

Part 3 : The Permian-Triassic Impact Event caused Secondary-Craters and Impact Structures in India, South-America and Australia

Part 4 : The Permian-Triassic Impact Event and its Importance for the World Economy and for the Exploration- and Mining-Industry

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- 1.) Introduction : **Impact Metamorphism** , by Dr. Ludovic Ferriere
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- 2.) **Numerical modelling of basin-scale impact crater formation**; R.W.K. Potter
→ <http://www.lpi.usra.edu/lpi/potter/publications/RossThesis.pdf>, **see also:** [Orientale impact](#)
- 3.) **Cycles in fossil diversity** : R.A. Rohde, R.A. Muller, 2005, www.nature.com
→ <http://muller.lbl.gov/papers/Rohde-Muller-Nature.pdf> → see Introduction in my study
- 4.) **Asteroid/Comet Impact Craters and Mass Extinctions** , Michael Paine
→ <http://users.tpg.com.au/users/tps-seti/crater.html>
- 5.) **A Breakup of Pangaea and plate kinematics of the central Atlantic and Atlas regions**, A.Schettino, E.Turco → <http://gji.oxfordjournals.org/content/178/2/1078.full>