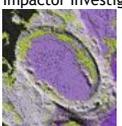


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Google Earth Community » Forums » Earth - Moderator Selected » Nature and Science (Moderated) You are not logged in. [\[Log In\]](#)  
 » [Geology \(Moderated\)](#) » Inferred Orientation of Distal Ejecta  
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Topic Options ▾ Rate This Topic ▾    Page 4 of 5 < 1 2 3 4 5 >

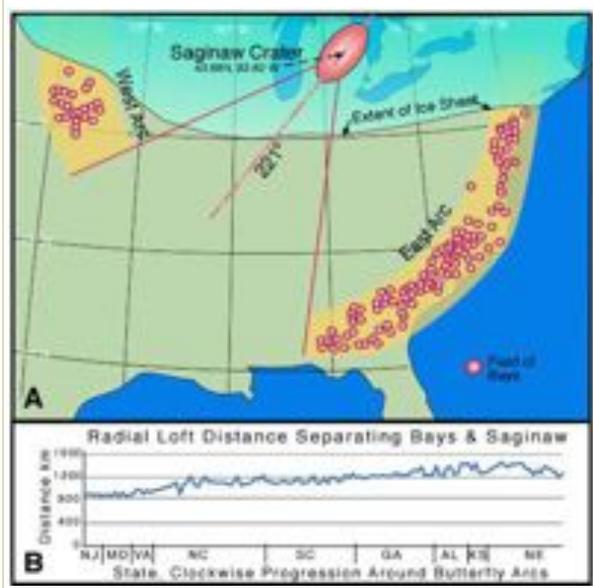
**Saginaw Hypothesis** ★★★★★ [Re: TechLady] #1347216 - 07/09/10 09:25 AM

**Cintos**   
 Impactor Investigator  
  
 Registered: 01/27/06  
 Posts: 131  
 Loc: Connecticut, USA

Greetings TechLady:  
 You are quite correct in your observation that much work needs to be done before any hypothesis offered by me could be considered proven. But I must suggest that the premise of this thread was not to attempt proof of the entire Saginaw Impact Manifold, but rather to share with the GE community the LiDAR images of Carolina bays and the development of the Bearing Calculator that so handily seems to predict their alignments for visualization in GE.

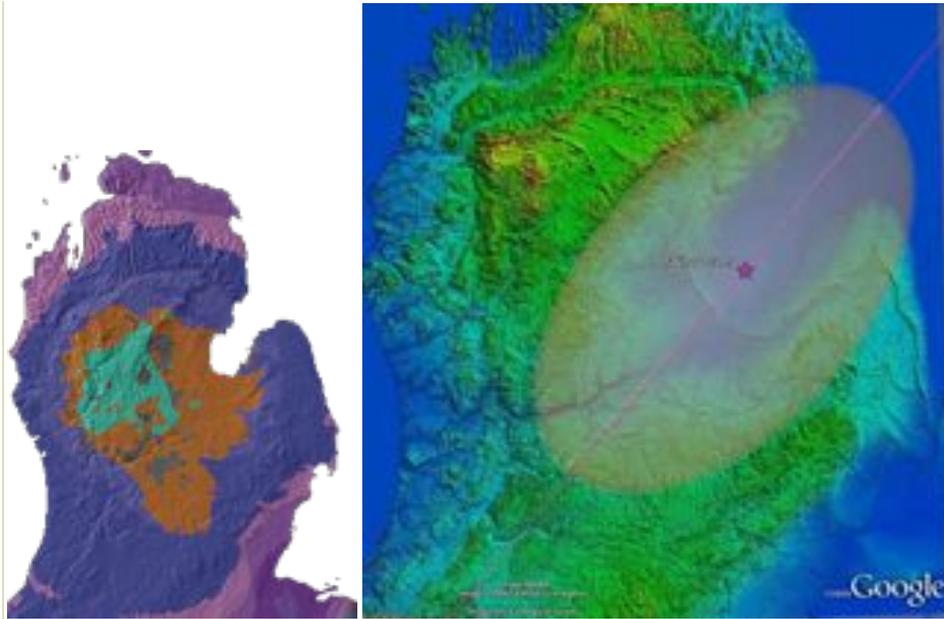
But, since you raise an appropriate objection, I'd be happy to provide some rationale here. From the outset (i.e., at the top of the thread) we had not yet triangulated to the Saginaw Area. At the AGU Fall Meeting, our poster tentatively considered the Lake Michigan area as a source for the 100,000 cubic kilometers of ejecta (much of it pulverized sandstone) that would be spread as a blanket across the US.

As the thread progresses, a diligent reader would note that we demoted that lake and implicated the Saginaw area, based on our triangulation results.



As you correctly note, the "Michigan Basin" is hundreds of millions of years old, and certainly not considered by us as an impact crater. It covers an area >10 times that of our crater's extent. While the USGS does not have a firm explanation of the genesis of the subsidence, thousands of well-logging strips have mapped the continual subsidence of the basin accompanied by persistent in filling by sedimentary deposits. This results in a layer cake of history. The on-going subsidence at the center of the basin has also resulted in a sort-of stack of bowls (one bowl per stratigraphic layer), and the protruding edge of those bowls has generated a set of rings around the basin, the best known of which is the Niagara Escarpment.

The existence of Lake Michigan's, Lake Huron's and Lake Erie's "wrap" around the basin is considered the result of glacial exhumation of older, softer strata on the periphery of the basin, while also following along individual bowl-rim edges (known as cuestas), which present more resistant strata in the sequence. Classical geology has no firm solution for why the "Saginaw Lobe" of the Wisconsinian ice sheet violated those cuestas and penetrated into the central basin, and then continued to excavate *uphill* along a NE-SE tract. The overall elevation profile also agrees with our proposed 221° arrival vector. I am aware of only one scholarly attempt at solving the riddle of "How Michigan Got Its Thumb". Like the Carolina bays, most scientists avoid such enigmas.



The [Saginaw Section](#) of our website highlights numerous anomalies seen across our proposed "crater", and several maps, as overlays, are available in our kml file [Research Overlays](#), which includes the graphic shown above.

So that is how we got to Saginaw. As for the "missing" impact signatures, you are again correct; none have been found. None have been searched for, either.... Our hypothetical impact is not a classic one. 5% of all impacts seen on the planets and moons are "oblique", arriving at near-tangential trajectories. These present entirely different characteristics than those that puncture the surface and come suddenly to a grinding and explosive halt. In the case of tangential "nicks", some of the impactor is expected to continue on its merry way, perhaps maintaining escape velocity.

Recent work by Schultz and Stickle (Lost Impacts) attempts to characterize the effects of highly oblique impacts into surfaces protected by a low-impedance layer, such as a 1km ice sheet. Their result shows minimal deformation to the underlying surfaces. The ice sheet existing over the Saginaw region (riding over it, not through it) at the time of our proposed impact not only protected, but also provided the enormous volume of water required to create our proposed hydrated slurry ejecta. In addition, it provided a vehicle to rework and cart away all the local ejecta deposited on top of the sheet.

The planform of ejecta from these events has been shown to be a "butterfly" shape, with ejecta thrown out laterally as the impactor ploughs through the earth's skin. We propose the Carolina bays to be geometrically wrapped around our crater to the East and the West, as shown in our thread posts here.



As you so correctly point out, using a Google Earth "staring" approach will not prove the hypothesis. Much "ground" work needs to be carried out. However, it is my goal here to leverage Google Earth to validate it as a viable GIS tool in mainstream science. By integrating the LiDAR images, and modeling the trajectories using Google Earth and our publicly-accessible Java calculator (hey, try it), I am comfortable that I have done more than stare.

In closing, I will reiterate my goal of using this thread to promote Google Earth as a viable exploration and visualization tool. In a recent post in the GEC Education/Tools Forum ( [Embedded Google Earth Viewer Widgets](#) ), I showed how a

user's kml data can be presented within a web page, such as the one embedded in our site's [Carolina bay discussion](#) page.

Best wishes,  
Michael

#### Attachments

[WebPlugin\\_Summary.kmz](#) (382 downloads)

[Preview this file with the Google Earth Plugin](#) (learn more)Description: Saginaw Impact Manifold kml Index file

Edited by Cintos (07/09/10 11:29 AM)  
Edit Reason: typos

*Men occasionally stumble over the truth ... but most of them pick themselves up and hurry off as if nothing had happened.*

..... Winston Churchill

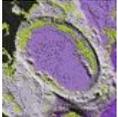
[Top](#)

#### Carolina Bays Overprinting Ancestral Landforms [Re: Cintos]

#1350991 - 07/23/10 08:58 AM

**Cintos** 

Impactor Investigator



Registered: 01/27/06

Posts: 131

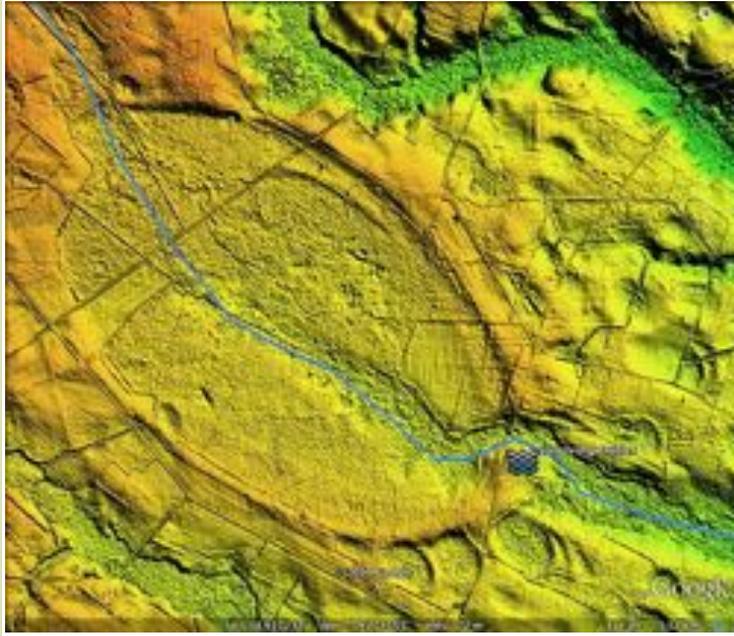
Loc: Connecticut, USA

Douglas Johnson, in his 1942 book "The Origins Of The Carolina Bays", made numerous observations about common bay planforms. Almost exclusively, Carolina bay formations "rest" within an anomalous sand stratum. It is neither stratified nor laminated, but rather shows a hummocky, turbulated appearance. While there is a "rim", it stands only a very short distance above the surrounding pediment, and that pediment consists of the exact same sand. It is known that the basins do not distort either the surrounding sand nor the underlying strata, but rather simply exist within that layer of course sand. Johnson made numerous observations which we feel supports our ejecta layer hypotheses. I have taken the liberty of including some of his text on our web site [HERE](#).

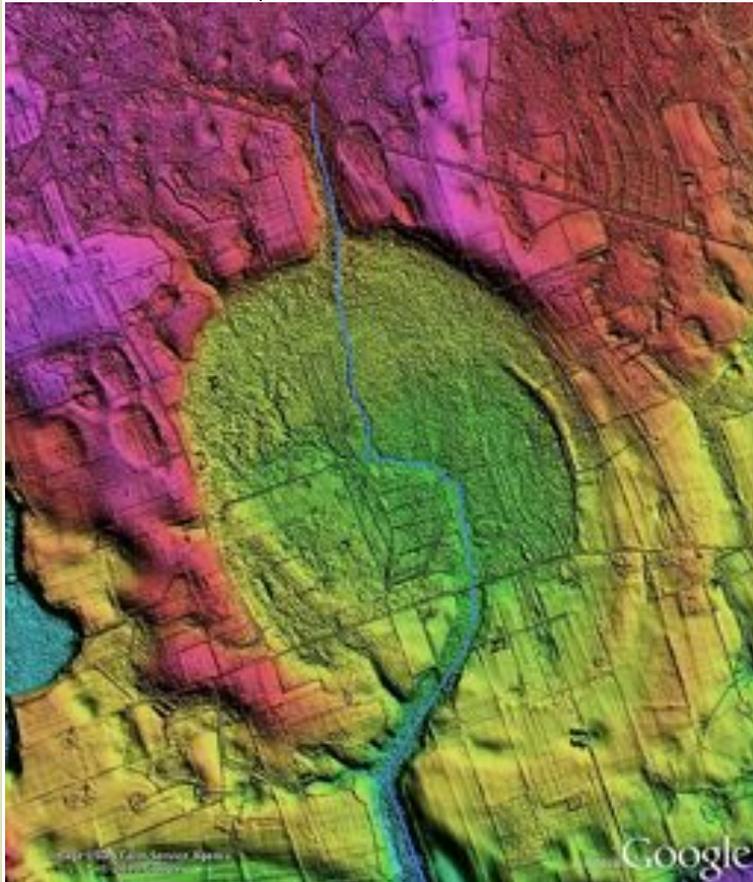
With regard to Dr. Johnson's observations about "Outlet Channels Frequently Traverse Rim Barriers", we have identified a few locales in which we see the bay formations as clearly overlying ancestral drainage channels, and those channels mask up through the bay stratum.

The KMZ file attached to this post contains placemark and overlays to recreate these examples in Google Earth.

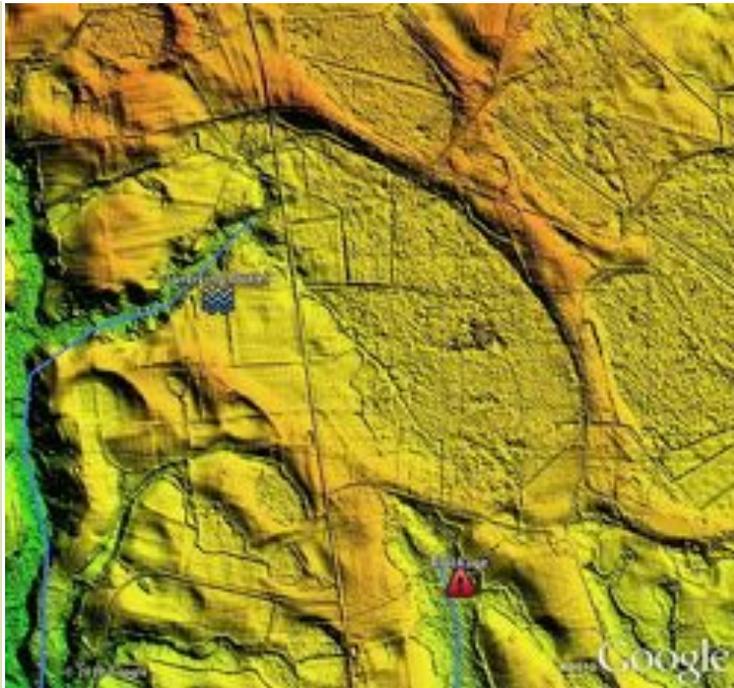
Here is one older drainage channel that continues to exist, even after the layer of ejecta blanketed it (in the Edinburgh, NC area):



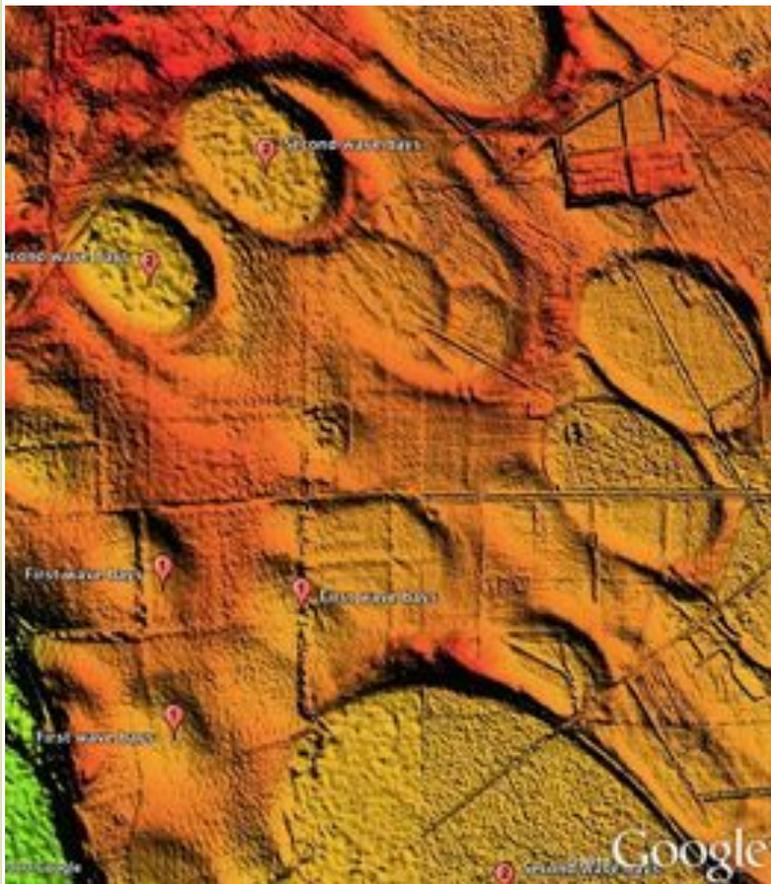
Here is another similar example in the New Zion, SC area:



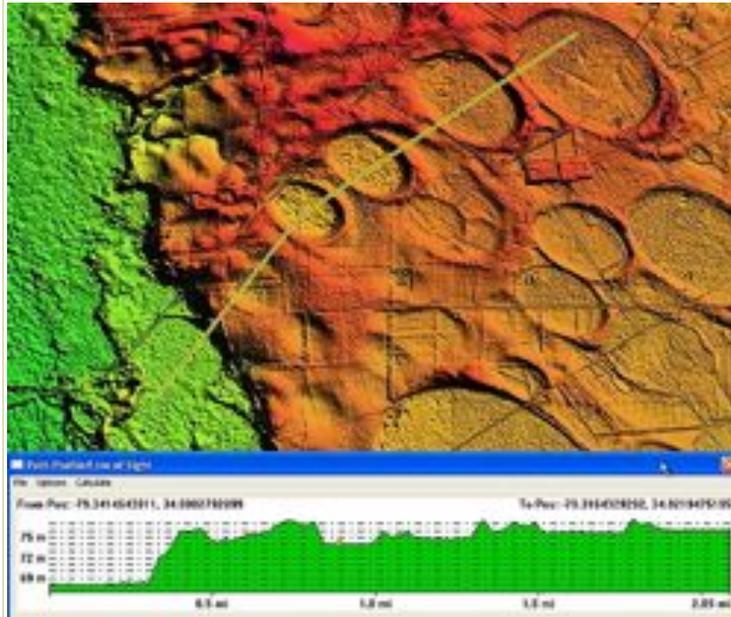
Another interesting example is also seen in the Edinburgh LiDAR. In this case, the bay rim actually "blocks" the underlying stream bed. We would expect that in these situations a "spring" would appear at the head of the channel.



The Edinburg LiDAR reveals the overprinting of one layer of bays by a second, presumably arriving moments after the first. The first set of bays are seen as "fuzzy" from the ejecta mantle, while the later set of bays have crisp rims. Also shown is the creation of newer bays wholly within the earlier ones.



In the final image, a elevation profile is presented, showing that the bays created on the nearby "valley" floor are 4 meters below the elevation of the nearby bays. The bay orientations and sizes are nearly identical, in spite of the elevation differences, again suggesting the ejecta blanket was simply draped over the original landscape.



Please reference the attached kmz file for a look at these features from within Google Earth.

Allow me to also note that a web page is available that lists all the "fields" of Carolina bays we have been discussing, and each location has a link for the relevant kmz file and one for a jpg of the general LiDAR image: [Location of Evaluated Carolina Bay Fields](#)

Best wishes,  
Michael

**Attachments**

[BayFeatures.kmz](#) (369 downloads)

[Preview this file with the Google Earth Plugin](#) (learn more) Description: Placemarks, paths and overlays to support discussion of Carolina bays as surface features in an ejecta blanket of sand.

*Edited by Cintos (04/07/11 08:27 PM)*  
*Edit Reason: link fixed*

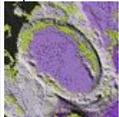
*Men occasionally stumble over the truth ... but most of them pick themselves up and hurry off as if nothing had happened.*  
..... Winston Churchill

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**Colorado's "Carolina bays" [Re: Cintos]**

#1353352 - 08/01/10 05:43 PM

**Cintos**  
Impactor Investigator



Registered: 01/27/06  
Posts: 131  
Loc: Connecticut, USA

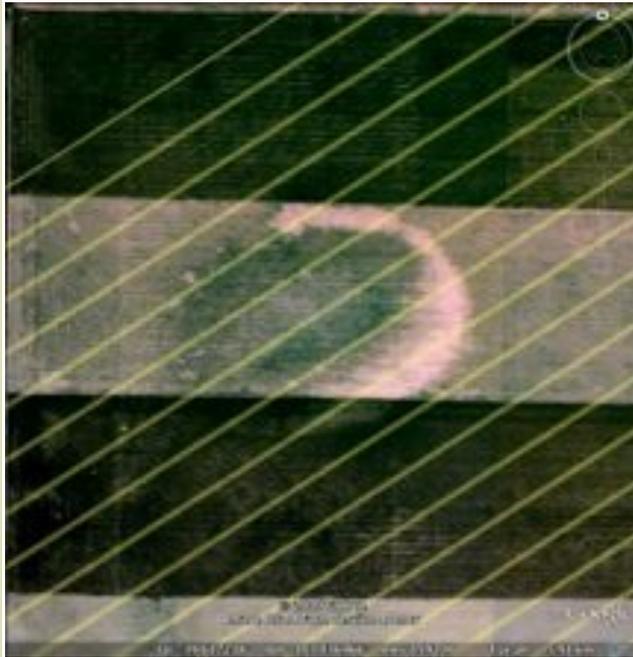
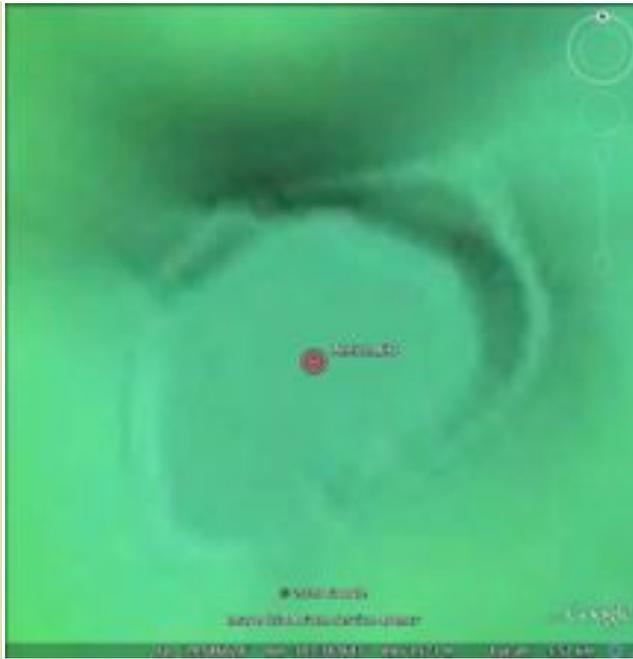
The high plains of North-Eastern Colorado is peppered with small aligned basins, similar in presentation to those of Nebraska. We again assume the original basins have been overlain by a thick blanket of late Wisconsinian loess. The orientations correlate well with the Saginaw crater. The USGS only provides 1/3 arc-second DEM data, so the level of detail is low. In spite of this, the basins are readily apparent, if a bit poorly defined. The Google Earth imagery is quite helpful here, as it led to their discovery, and as can be see below, do help define the orientation and confirm the "Carolina bay" planform.

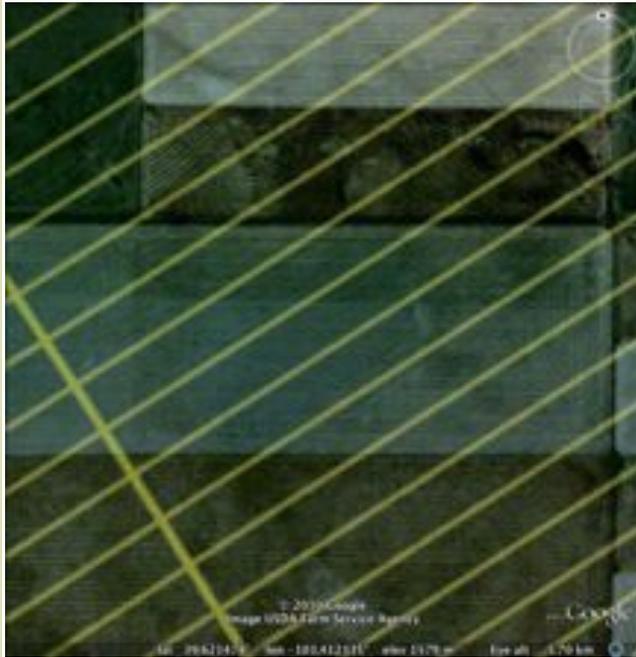
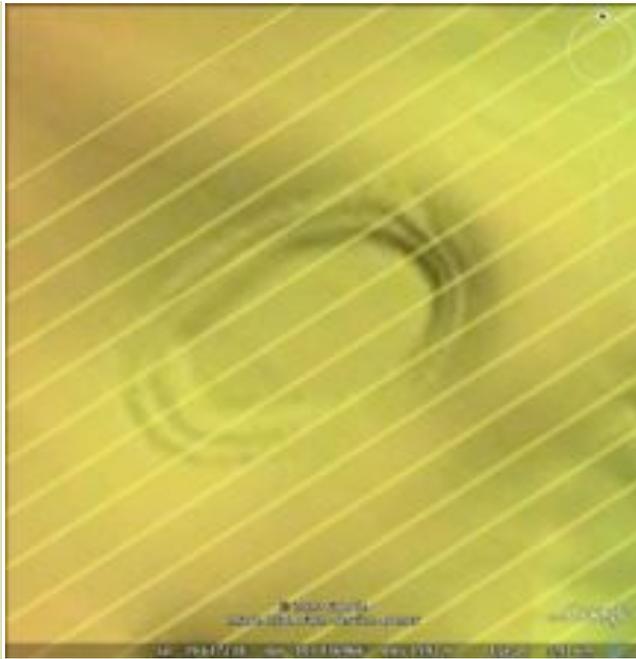


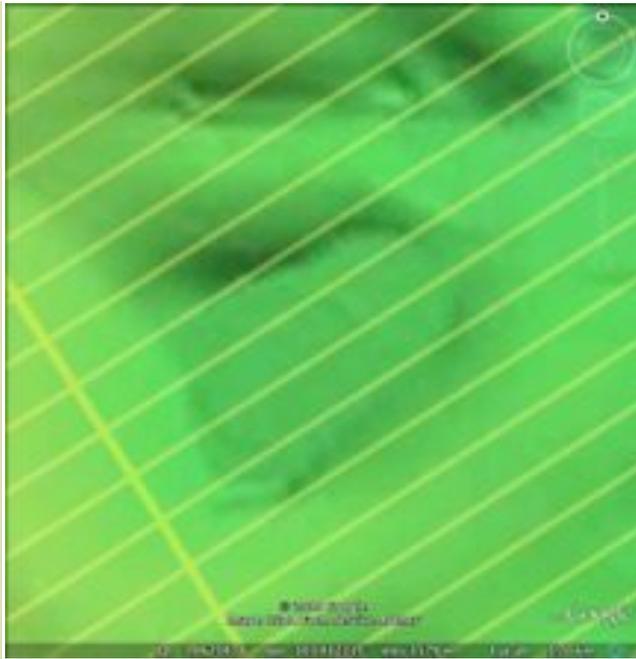
The attached kmz file contains placemarks defining these three current "fields" in Colorado. I encourage the reader to download the kml and make their own assesment of our interpretations.

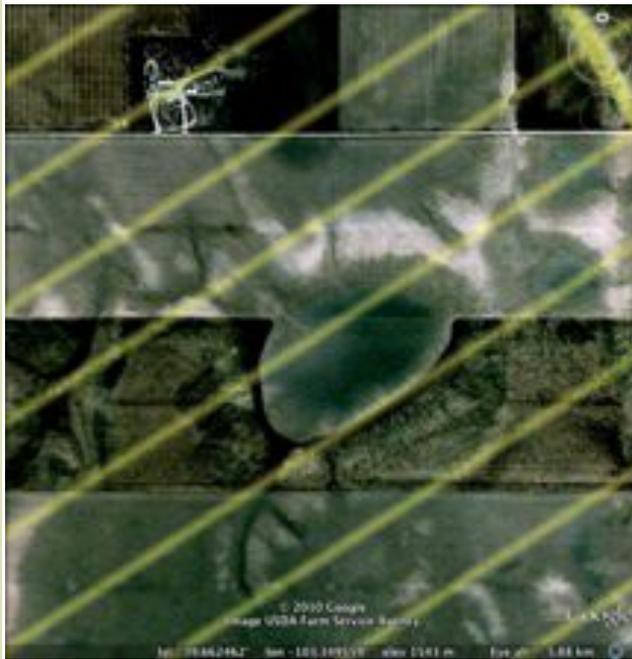
The overlay yellow lines in the graphics of 11 bays from the Anton, CO region, below, represent the Bearing Calculator's prediction of bay orientation in this area. Both the native Google Earth imagery and a color-ramp DEM image is shown for each location.

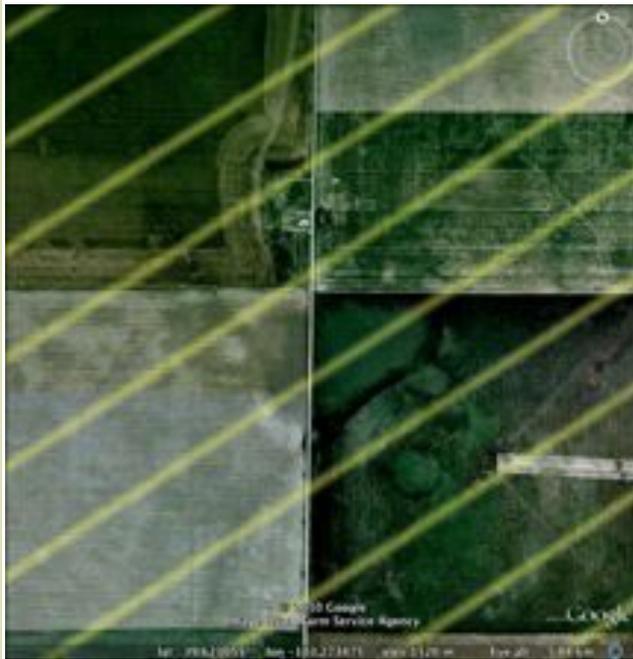


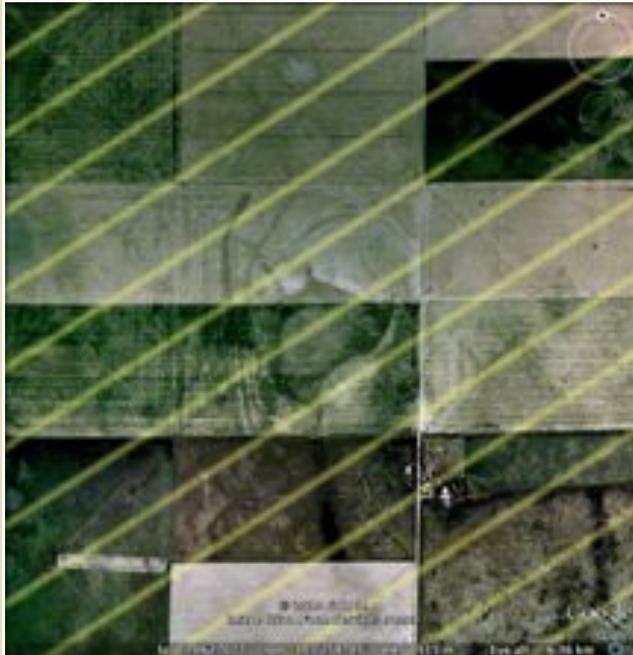


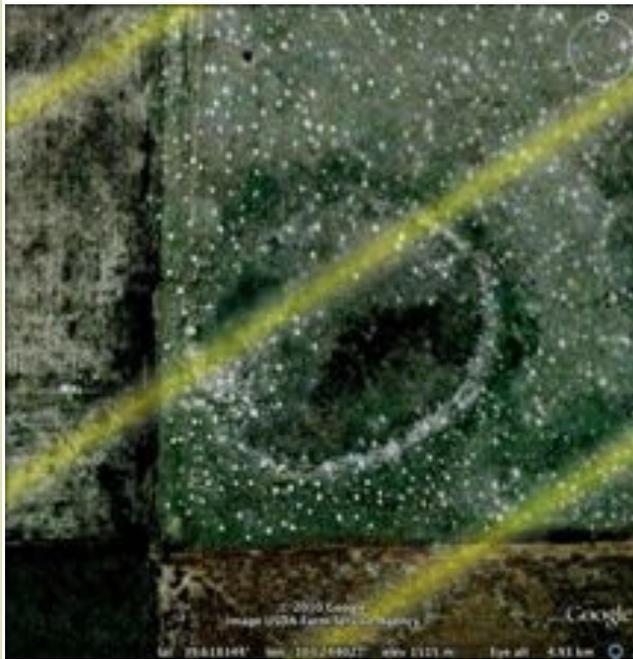






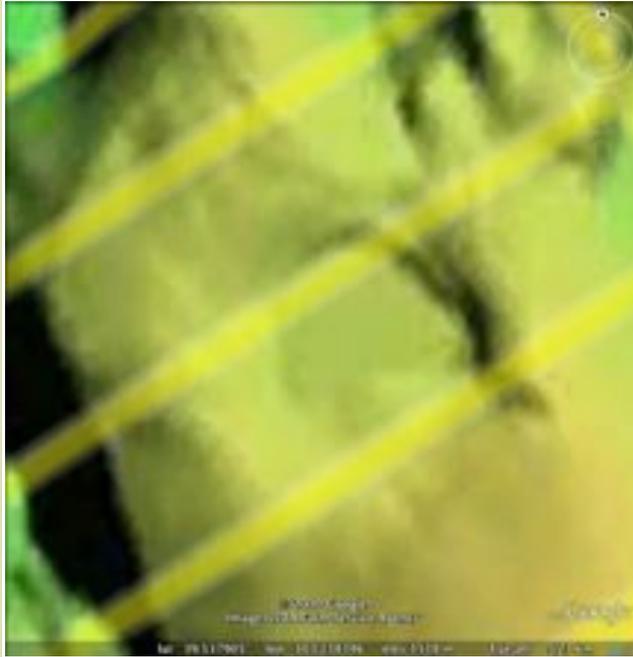












**Attachments**

[CO.kmz](#) (398 downloads)

[Preview this file with the Google Earth Plugin](#) ([learn more](#)) Description: Details of three fields of Carolina bay basins in the High Plains of Colorado. Includes network links to color-ramp DEM overlays.

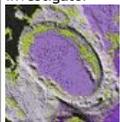
*Men occasionally stumble over the truth ... but most of them pick themselves up and hurry off as if nothing had happened.*  
 ..... Winston Churchill

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**Bean Dips vs. Carolina Bays** [Re: Cintos]

#1357996 - 08/20/10 10:06 AM

**Cintos**  
 Impactor  
 Investigator



Registered:  
 01/27/06  
 Posts: 131  
 Loc: Connecticut,  
 USA

Greetings:

Our discussion here is focused on the area inland of the coastal plain of North and South Carolina, where the bays are rare. We propose that this is due to the higher relief of the landscape, which had caused most of the deposited ejecta to drape over hills and wash into the valleys, prohibiting the formation of the burst-bubble landform. That is, excepting any area of level terrain. Using LiDAR imagery within Google Earth's virtual globe, we have extended the range of Carolina bays back into the Carolina "Sandhills", above the fall line, by locating those level areas. When located, these basins typically conform the the predictions made by our [Bearing Calculator](#).

The term "Sand Hills" has been applied to the area just above the Orangeburg Scarp, where the Middle Coastal Plain meets the Upper Coastal Plain. The bays are not numerous, but at least one researcher has noted the similarity of what is locally referred to as "Bean Dips" to the proper Carolina bay. And, again the sand is enigmatic: No fossils!

**Quote:**

"The geologic history of the Carolina Sandhills is regarded as one of the most complex in the United States. Despite the dedication of many geologists, key questions regarding the origins and development of the Upper Coastal Plain remain unanswered. Much of the mystery stems from the great antiquity of this landscape, which is considered to be among the oldest exposed surfaces in the United States. To a large degree, the characteristic sands that mantle the region are responsible for much of the uncertainty that surrounds the origins and development of the Upper Coastal Plain. Due to the extremely porous nature of these sands, the interstream divides in the Sandhills have remained relatively

stable and erosion-resistant, despite dramatic climatic fluctuations during the recent geological past. In addition, these sands are not conducive to fossil preservation, forcing geologists to rely, instead, on more imprecise dating methods based on relative stratigraphy." by Mary McRae James Stevenson\*

The following graphic depicts some of the bay fields identified along the NC-SC State line. Mark Twain once said "History Does Not Repeat Itself, But It Sure Does Rhyme". Much the same could be said about these oval basins.



Here are sample bays, both in standard Goggle Earth Imagery, and with the LiDAR DEM color-ramp image superimposed on the virtual globe. They are displayed in order of increasing altitude, eventually reaching 139 meters (460 feet) above sea level. Given the very shallow relief of these landforms, little of their structure can be seen in the visual imagery, although the LiDAR images the oval planforms, leaving little doubt about their relationship to the bays further towards the coastline. The **attached kml file** contains links to the LiDAR imagery for these areas.



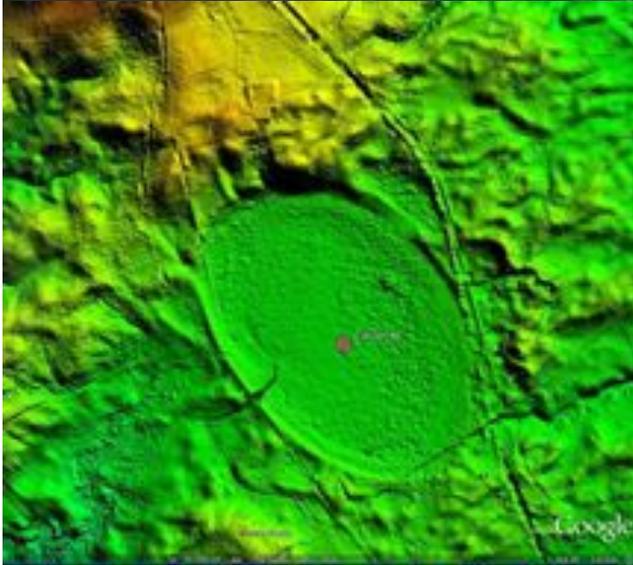
45 Meters Elevation Cheraw, SC



60 Meters Elevation Cheraw, SC



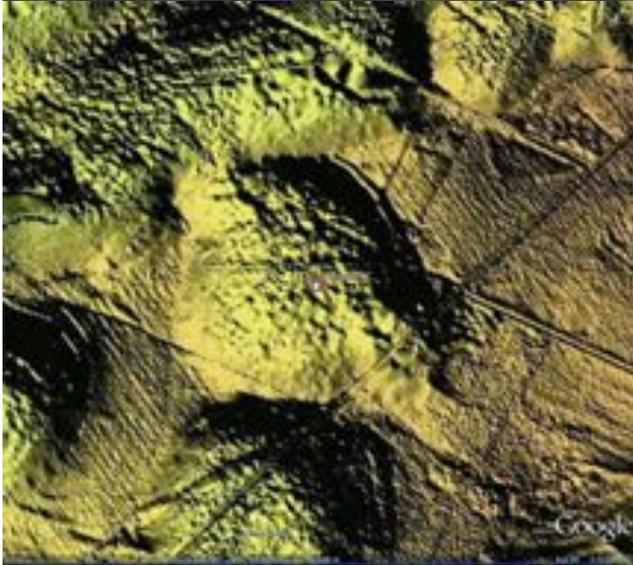
68 Meters Elevation Bennettville, SC



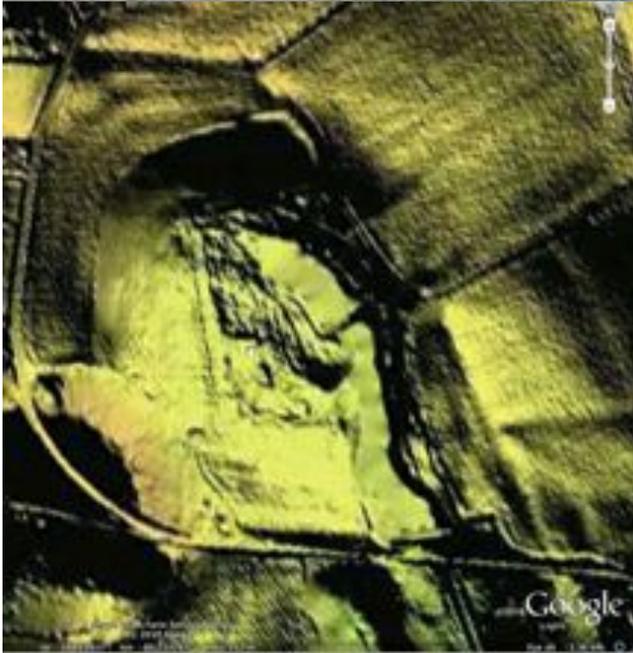
78 Meters Elevation Gibson, NC



93 Meters Elevation Wallace, SC



100 Meters Elevation Diggs, NC



112 Meters Elevation McBee, SC



139 Meters Elevation Jefferson, SC

*\* Legumes In Loamy Soil Communities Of The Carolina Sandhills Their Natural Distributions And Performance Of Seeds And Seedlings Along Complex Ecological Gradients*, Master's Thesis, UNC Chapel Hill, 2000

The full Carolina bay kml: [LiDAR INDEX](#)

**Attachments**

[Carolina\\_Sandhills.kmz](#) (349 downloads)

[Preview this file with the Google Earth Plugin](#) ([learn more](#))Description: kml file contains linked placemarks for eight "fields" of bays in the Carolina Sandhills region.

*Edited by Cintos (09/19/10 04:11 PM)*  
*Edit Reason: typos*

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*Men occasionally stumble over the truth ... but most of them pick themselves up and hurry off as if nothing had happened.*

..... Winston Churchill

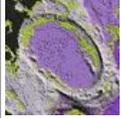
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 **Oval vs ellipse vs ovoid** [Re: Cintos]

#1366222 - 09/19/10 01:13 PM

**Cintos** 

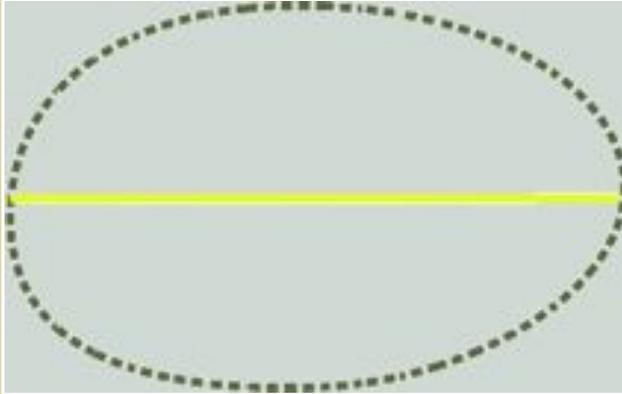
Impactor  
Investigator



Registered:  
01/27/06  
Posts: 131  
Loc: Connecticut,  
USA

Greetings:

Attempts to measure the inferred alignment of the Carolina bays requires quite a lot of "interpretation", as it were. It has been recognized that the bays are not truly ovals, but seen as ovoids or ellipses. (See Discussion on the [Bay Planform page](#) of our website). Certainly the crisp shapes of the Carolinas are standardized enough to build a shape that represents them. An overlay in this "prototype" shape would make it a bit easier to grab an orientation reference. In a process similar to the "Bearing Arrow", which is used to find the relative orientation of a *field* of bays, I now utilize a "bay Prototype" overlay to capture *individual* bay planform metrics.

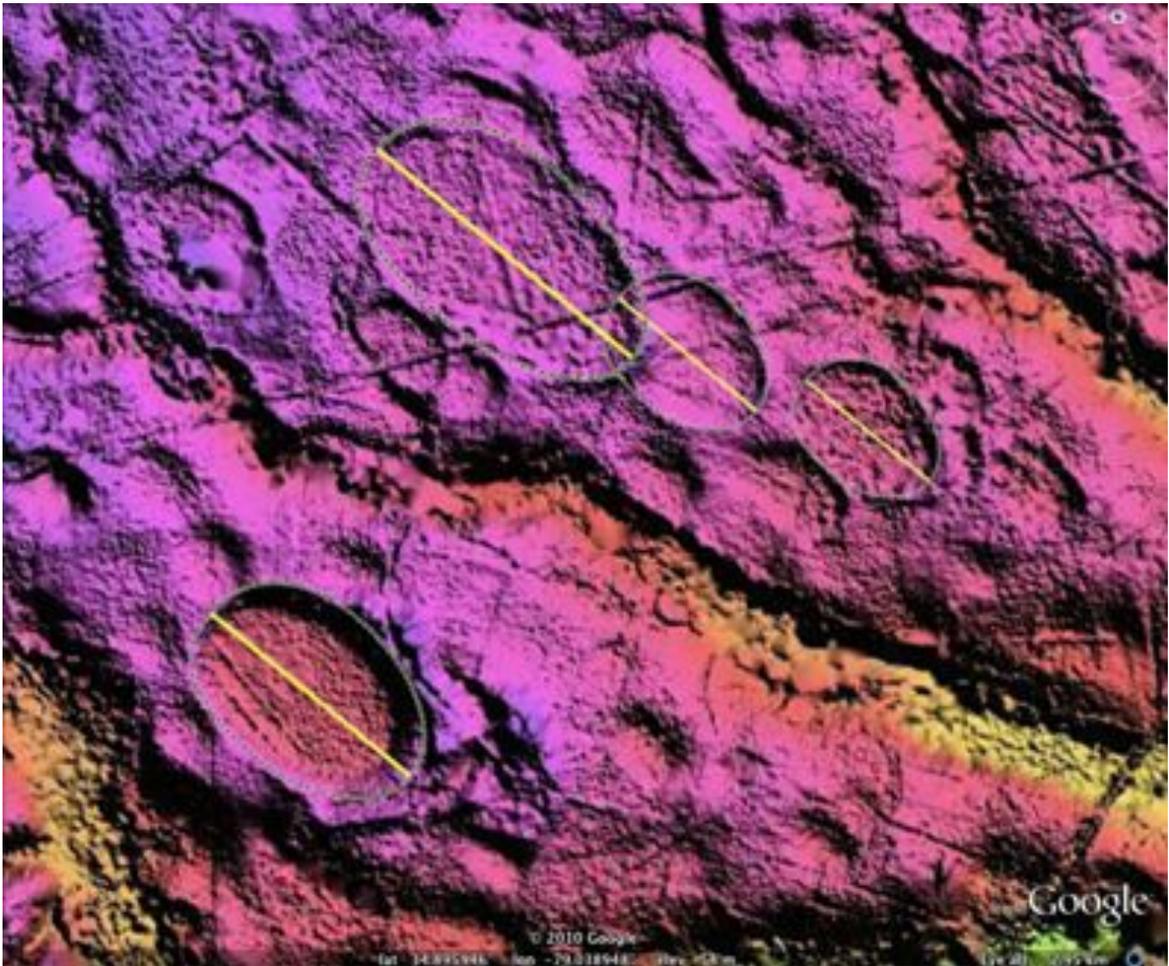


This shape was generated using a graphic program, and tracing from numerous bays to get a good rendition of the typical North and South Carolina bay planform. It is shown here rotated clockwise 90° for space consideration on the page here. A Java program is being developed to process these overlays. The goal will be to capture the ranges of sizes and orientation of bays within a given field. A beta version is available on [the Bay Planform Survey Tool page](#). The calculator's output is in tab-delimited fields, for import into a spreadsheet for additional manipulation. On goal is to build a histogram of bay sizes, for comparison to generic bubble-field distributions done in other realms.

The actual image is a transparent .PNG file. Here is an example of the overlay when used in Google Earth.



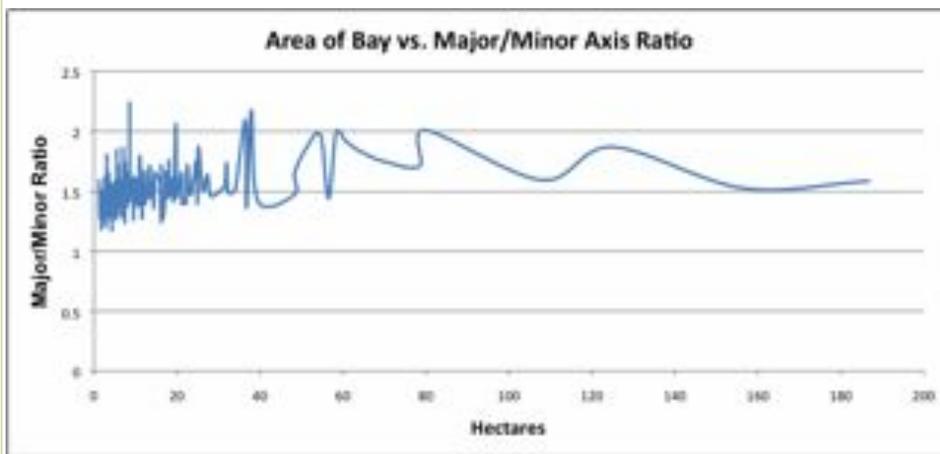
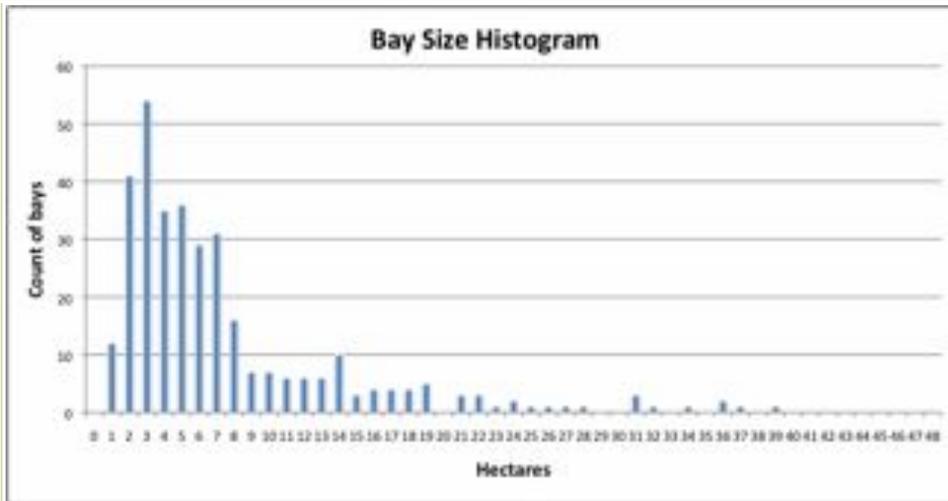
As you likely know, the imaging of bays has been enhanced by using LiDAR imagery. I have discovered a neat trick: if I create a set of image KMZ using Global Mapper, and then manually remove the "Level 5" images, I accomplish two things. First the file size is reduced substantially, allowing for quicker loading. (Some resolution is certainly lost, but for my purposes, that finer level 5 imagery was not all that useful). The second thing the removal does is create a situation where zooming in closer to the earth will eventually drop the LiDAR imagery out, allowing the underlying Google Earth standard imagery to be revealed. The result is the ability to simply rock back and forth between the LiDAR version of the landscape, and the visual version. For example, here is the area show above, backed out a bit, and bringing the LiDAR image into view:



I must say that this "shape" really does capture the general bay planform to a high degree of fidelity. Feel free to open the attached KMZ file and use Google Earth to create additional copies of the overlay. Click on one in the DOM and "copy/Paste" for a new instance, Then use the edit functions (or "get info") to move it over a different bay. After using the handles to rotate and resize, you will likely find it is a neat fit. Using this process, I hope to capture every bay across several "fields".

My ejecta proposal would suggest that the bay's distorted oval is a momentum artifact due to the Earth's rotational speed when the ejecta strikes the land. It remains to be determined just what the actual arrival bearing would lay, given the shape. My estimate - the yellow line - could be off by many degrees.

Adding to the post here: I have completed the first Bay Survey, identifying and capturing ~350 bays across a field of 270 square km in central SC. Two graphs are included here. The first one plots the size distribution of bays as a histogram, with one Hectare per bin. The second plots the length-width ratio of the ovoid bay planform against the area of the bay.



The KMZ file containing the LiDAR link and the individual bay overlays for "SC\_Survey\_B" is [Available HERE](#).

These metrics need to be generated for (potentially) all 250 "fields" of bays in the [field catalogue](#). Should anyone be in a position to lend a hand, I'd love to discuss a collaboration.

- Michael

PS: bragging rights here.... a high resolution image of the area represented in the KMZ attached to this post has been just awarded first place in the the GSA Annual Meeting 2010 Photo Contest & Exhibition. The entry is in the Abstract Images category (Depict patterns or form by way of photo-micrographs, satellite images, maps, or landscapes that capture a dynamic process or simply show the aesthetic patterns of geology at any scale.) A very high resolution jpg is available [HERE](#).

#### Attachments

[Robeson\\_NC\\_Survey.kmz](#) (274 downloads)

[Preview this file with the Google Earth Plugin](#) ([learn more](#)) Description: KML elements for discussion. Includes network link to a 10MB overlay of elevation data in form of a color-ramp LiDAR DEM. Also contains several overlays to outline bays and capture their platform.

*Edited by Cintos (12/06/10 08:38 PM)*

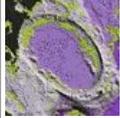
*Men occasionally stumble over the truth ... but most of them pick themselves up and hurry off as if nothing had happened.*  
 ..... Winston Churchill

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**HSV-Shaded DEM Overlays: USGS Index 100K** [Re: [Cintos](#)]

#1374378 - 10/19/10 07:58 AM

**Cintos**   
 Impactor  
 Investigator



Registered:  
 01/27/06  
 Posts: 131  
 Loc:  
 Connecticut,  
 USA

Greetings:

Our survey of Carolina bay landforms has been carried out thus far using a "field-based" approach, with the count of fields approaching 250. These can be viewed using the [Distal Ejecta Fields.kml](#) file. These fields are randomly-sized, done in an attempt to keep their sizes down to the absolute minimum, especially when the 1-9 arc-second data is used. But the random sizes are presenting challenges as we attempt to count all the bays...

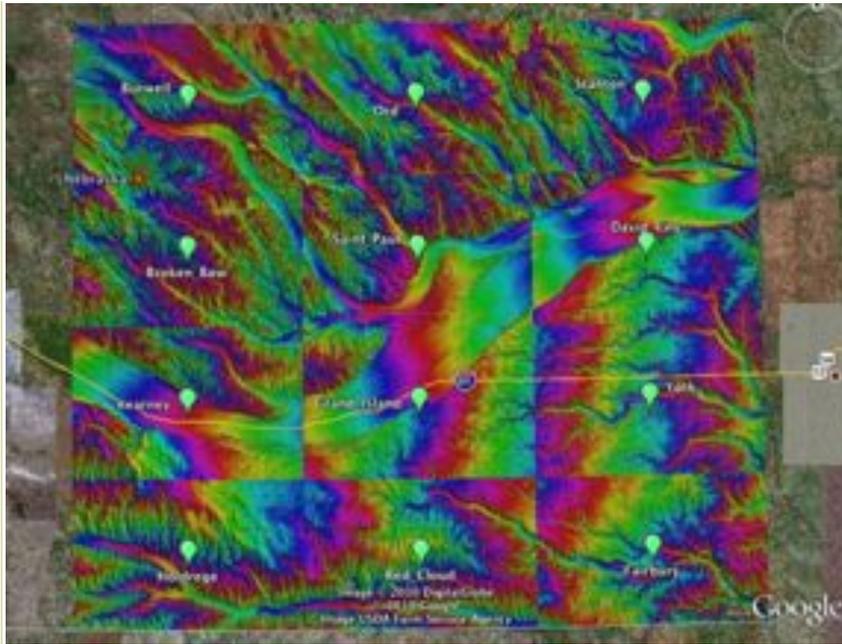
Most of the larger field DEM files have been recently further reduced by removing the tiles for the highest resolution, as they do not seem to have any additional information. It also allows for the user experience of toggling the DEM image off when zooming in very close to the earth - which then allows for viewing of the Google Earth imagery for comparison purposes.

To support an ongoing effort aimed at cataloguing all the visible Carolina bays, I have generated a set of HSV-shaded DEMs using the USGS's 100k index and 1/3 arc-second data. Each of the resulting tile sets are 1° of longitude in width, and 0.5° of latitude in height. By using a fixed-size regional view, perhaps we can correlate the differences seen in each of these areas. (OK, the areas are actually different areas as we move north to south due to Earth's curvature, but close enough...) A network-linked KML element for this new 100K Quadrant index is attached to the post. In addition, the html-based Google Earth Plug-in [LiDAR browser](#) has been updated to include a "100K Quad Index" button.

Here is a graphic showing the extent of our current Eastern Index:

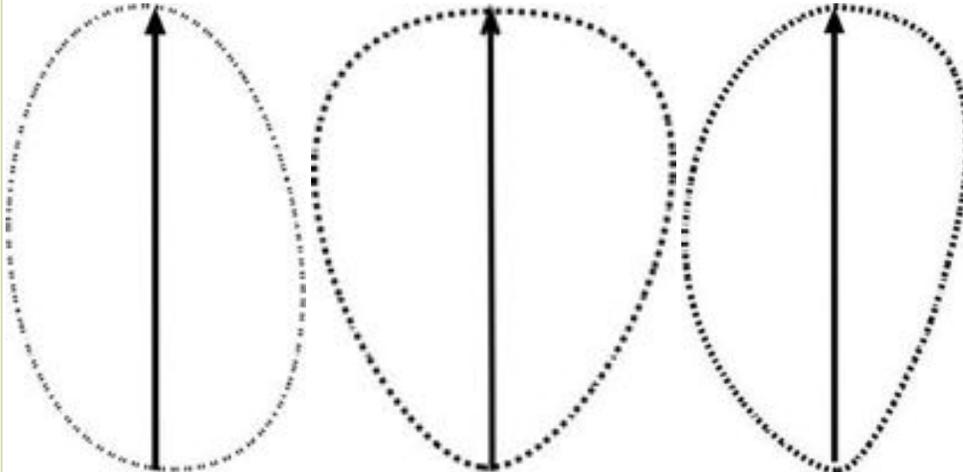


And here is the graphic for the Nebraska area:



In both cases, my index placemarks contain a "KMZ" graphic linked to the actual kml elements to be downloaded and displayed in Google Earth.

The new survey is being attempted with overlays which mimic the shape of the bays. While the bays in any given areas are strikingly similar in shape and length-width ratio, that shape changes from region to region. Here are some of the ones in use currently (the Carolinas, Maryland/NJ, and the Mid-West):



The "squashed" nature of the bay oval planform may be an artifact of the difference between the Earth's rotational speed at the ejection vs the landing site, or it may be due to re-working by overriding dunes and wind erosion, or perhaps both...

- Michael

**Attachments**

[Survey\\_Index.kmz](#) (246 downloads)

[Preview this file with the Google Earth Plugin](#) ([learn more](#)) Description: 100K USGS tiles with shaded DEM overlays for use in Carolina bay survey

*Edited by Cintos (10/20/10 10:56 AM)*

*Edit Reason: typo, add LiDAR viewer reference*

*Men occasionally stumble over the truth ... but most of them pick themselves up and hurry off as if nothing had happened.*  
..... Winston Churchill

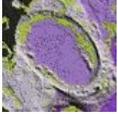
[Top](#)

 Give me LiDAR or give me ... B&W [Re: Cintos]

#1379253 - 11/07/10 08:56 PM

**Cintos** 

Impactor Investigator



Registered: 01/27/06

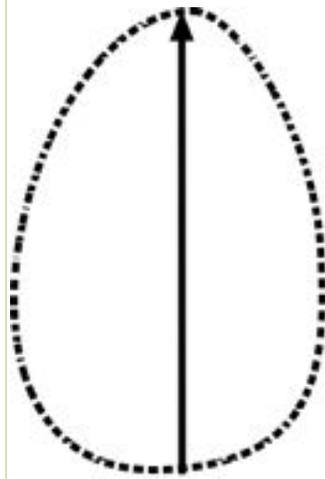
Posts: 131

Loc: Connecticut, USA

Greetings:

I had the pleasure of giving a talk at the 2010 GSA Meeting in Denver this past week. The subject was my use of LiDAR in this research. I demonstrated how the LiDARs were generated and integrated into Google Earth, and also showed how helpful the LiDAR is in visualizing bay planforms & measuring the inferred orientation of the bays.

But what to do when there is no LiDAR elevation data available? The historical Google Earth imagery of the east coast is quite helpful - especially the black and white from the 1990's. The area discussed here is the Sylvania 100K Quad, straddling the South Carolina - Georgia boarder. The KMZ file attached to this post has about 130 overlays using the "bay\_south\_prototype.png" version shown here, shown pointed due north (orientation 0°):



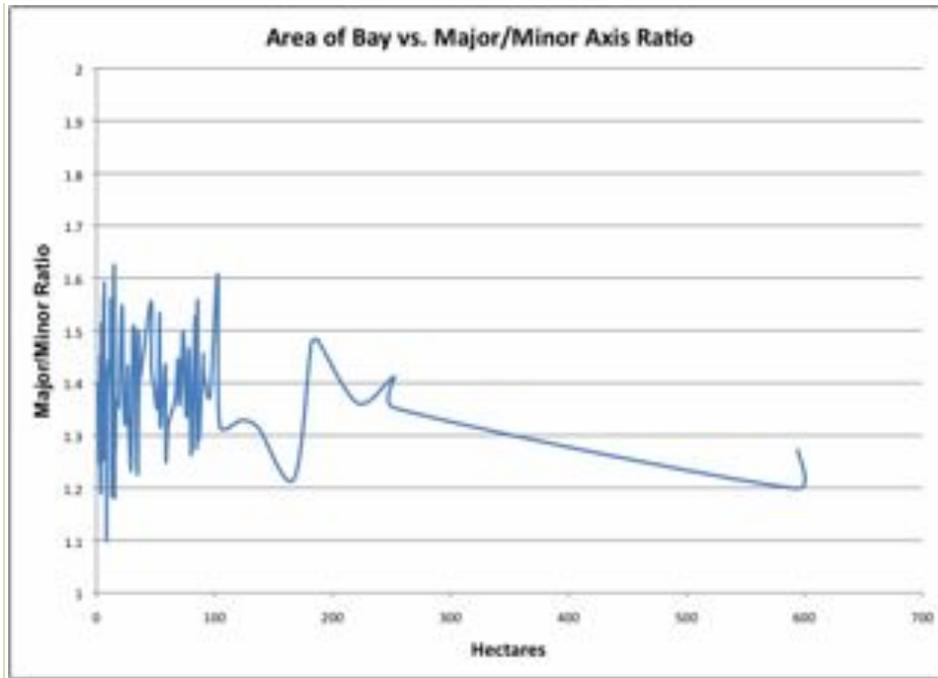
The DEM overlay in the KMZ is 1/3 arc second, and will drop out as you approach the earth. Less than 10% of the bays are obvious in the DEM alone.

My confidence in the overall hypothesis wains and wanes, but it is always a kick to drop this overlay over a smudge on the landscape and have it fit perfectly. (of course with a rotation and a scale to size...) Time after Time after Time after Time...

Here is a video of 20 of the bays in B&W, both without and with the overlay. Stills of these 20, along with the video, are available on the web site [HERE](#).



The average orientation seen across the quad is  $156^\circ$ ; rms  $3.36^\circ$ . Here is the Major/Minor axis ratio plot (slightly less oval than the Carolina archetype):



The neighboring Barnwell 100K Quad [Get KML HERE](#) has been annotated with 145 bays, using the same overlay. The average orientation is 156°.

The Laurinburg Quad is ~ 50% done. You can retrieve the KML [HERE](#).

Should anyone be interested in assisting, I have another 60 of these 100K Quads to do. One possible collaboration tool is the Google Fusion Tables. I have been creating and managing the placemarks for each overlay using that facility, using a Java web-application available [Here](#). You can see one of the sets using [This LINK](#).

A new tool is available to generate bay overlays from a folder of placemarks using [This LINK](#).

Best wishes,  
Michael

#### Attachments

[Sylvania.kmz](#) (213 downloads)

[Preview this file with the Google Earth Plugin](#) ([learn more](#))Description: Bay overlay planforms for ~130 Carolina bays seen in the USGS Sylvania 100K Quadrant. The DEM overlay is 1/3 arc second, and will drop out as you approach the earth.

*Edited by Cintos (12/02/10 08:07 PM)*

*Edit Reason: links updated*

*Men occasionally stumble over the truth ... but most of them pick themselves up and hurry off as if nothing had happened.*

..... Winston Churchill

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**Re: Inferred Orientation of Distal Ejecta** [Re: Cintos]

#1385140 - 12/03/10 09:19 AM

**popeyesmotto**   
New Poster

Greetings,

Registered: 12/03/10  
Posts: 1

The past three weeks have brought me no end of wonder at the idea of a changed planetary history of the recent geologic past. The idea is very interesting and would remain a curiosity, much like Atlantis, except the facts of landform

images newly revealed through google maps and similar geographic/geologic imaging tools. I enjoy objective facts and the possibility that the subjective reality we have previously believed may be changed by the introduction of new facts. Especially facts that re-illuminate the subjective theories that have been put forth as explanation. Ah the Carolina Bays, so beautiful and so NUMEROUS when seen with a lidar filter layer. The western continental landforms in the sands of the midwest and their mirrored geometry to the Bays is amazing. To explore a new theory with a new set of tools has me excited.

I have been drawn into this exploration through exposure to Cable TV while traveling, thankfully I do not have to suffer with it here at home, and through a program concerning of all things Atlantis, I was reminded of the differential between current sea level and ice age sea level. A difference of nearly 400 feet. Explorations on the net brought me to the Younger Dryas Impact theory and eventually to the existence of the Carolina Bay structures covering the entire coastal plain of the eastern seaboard. Google Maps in satellite mode and Google Earth have brought hours of entertainment. Posts on various blogs and articles on sites spurred me on to look for other land forms that could be identified as having been effected by impacts or ejecta from a theorized impact or impacts in late pre-history. I am attracted to Texas and it's environs since I have a fair acquaintance with the place and regularly pass to and through the state. Are there Bay shaped land forms there I wondered? Are there widespread evidence of impacts of recent vintage? I have been drawn to a web site which claims the western end of the North American continent and especially Central Mexico got whacked. Well maybe. Mostly I see volcanic features, heavily eroded. Uplift features heavily eroded. Perhaps a few bay structures in the coastal plain. I may go take a closer look at a few of them next month to see if the discontinuities and shapes can be seen close-up.

But eventually my eye was drawn to some enormous splash shaped features in West Texas and into the Panhandle. I have heard of the Monahans Dune Field and have friends who go there and ride down the dunes. I have never stopped in. I had no idea they were so darn big. And looking at them they appear to have just been laid upon the land, un-attached and un-related to any other feature nearby. The dune fields are tens of miles across and hundreds long. And they have an appearance of splatter. Big splatter. Like thrown out of a crater splatter.

I have investigated a bit on their geology and found a nice study of recent vintage which tries to claim them as having been derived from a formation that exists not too far away but in the wrong direction windwise. There are maps included showing the sand beds and sheet sands that are all associated with these holocene sand fields and darned if the maps don't show the Nebraska sites which have Bay structures to be a similar sand sheet and dune field. Gosh , the maps show all sorts of these sand sheets that are not easily explained. All of them are described as Holocene creations and have no easily correlated sources, but do share very similar descriptions of the sand grains and chemistry. The one map shows all sorts of these fields in the midwest.

Links to Article

PDF

<http://www.google.com/url?sa=t&source=web&cd=30&ved=0CEsQFjAJOBQ&url=http%3A%2F%2Fesp.cr.usgs.gov%2Finfo%2Ffeolian%2FmuhsHolliday2001GSABull.pdf&rct=j&q=monahans%20sand%20dunes%20geology&ei=0yX3TlnAIMH68Aadkti9BQ&usg=AFQjCnFteDSMuBkgcu8HtUcPyFqWd43tA&cad=rja>

Quick Read

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It took me a while to realize that the theory being put forth was that of an ejecta blanked coming up out of the impact, and that the ejecta due to its likely high moisture content was coming down as a deep wet blanket of material with large voids of water or dense vapor distributed in some parts of the ejecta's volume resulting in the formation of the Bay shapes. Maybe like very wet sand.

It could be theorized that if the western wing of the ejecta blanked was not entrained with water to the same extent as the eastern blanket, or that the dynamics prohibited the voids to form in the wet sand in the same fashion as occurred in the eastern blanket, the Bay shapes might not form. Or perhaps the sand dried out in the arid climate and then the wind reformed the sand thus obliterating the Bay shapes. I was fascinated to learn that the deep sands on the eastern seaboard do not contain any fossils and the sources for the sand deposits are unknown.

There was also a link to the Monahans Dunes reporting that a skeleton of a paleo-indian female had been found and excavated in 1953 from a site in the dunes and dating had possibly been as far back as 11-12 kya. The remains are not on display and are instead held at a museum at SMU in Dallas. I would just hate to think that this woman was out as the impact to the north hurled this big splat of wet sand at her which instantly killed and buried her. Just if the theory were to have some basis in reality.

URL

[http://www.google.com/url?sa=t&source=web&cd=25&ved=0CC0QFjAEOBQ&url=http%3A%2F%2Fwww.mywesttexas.com%2Fnews%2Fopinion%2Fcolumns%2Fburr\\_williams%2Farticle\\_a50abb3a-b7c0-53a8-8238-58820ebf15b3.html&rct=j&q=monahans%20sand%20dunes%20geology&ei=0yX3TlnAIMH68Aadkti9BQ&usg=AFQjCNEZbLy0hJh13mKZgplTjalDSG0FVw&cad=rja](http://www.google.com/url?sa=t&source=web&cd=25&ved=0CC0QFjAEOBQ&url=http%3A%2F%2Fwww.mywesttexas.com%2Fnews%2Fopinion%2Fcolumns%2Fburr_williams%2Farticle_a50abb3a-b7c0-53a8-8238-58820ebf15b3.html&rct=j&q=monahans%20sand%20dunes%20geology&ei=0yX3TlnAIMH68Aadkti9BQ&usg=AFQjCNEZbLy0hJh13mKZgplTjalDSG0FVw&cad=rja)

I have been exploring more in Google Earth and believe that your scope is too small. I will soon post google earth kmz links to a whole bunch of suspicious shapes which fall into an expanded arc that links the Bays in the East to the sand

sheets in the west. I will attempt to remain conservative in my choices as there is a remarkable amount of human worked land throughout the US.

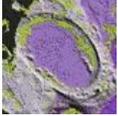
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**Re: Inferred Orientation of Distal Ejecta** [Re: Cintos]

#1385364 - 12/04/10 02:21 PM

**Cintos** 

Impactor Investigator



Registered: 01/27/06

Posts: 131

Loc: Connecticut, USA

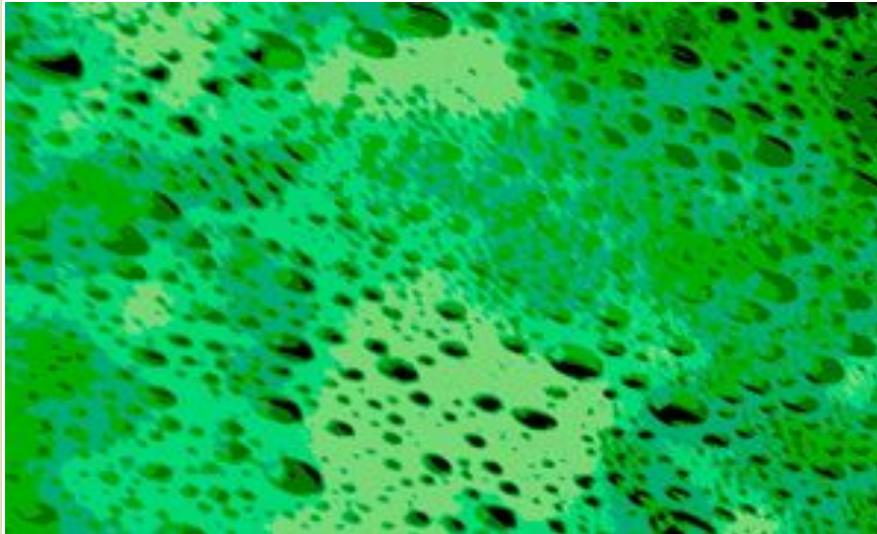
Greetings *I yam what I yam!* :

Thank you for your expressive observations. You have successfully decrypted our message: Its all about the *SAND*.

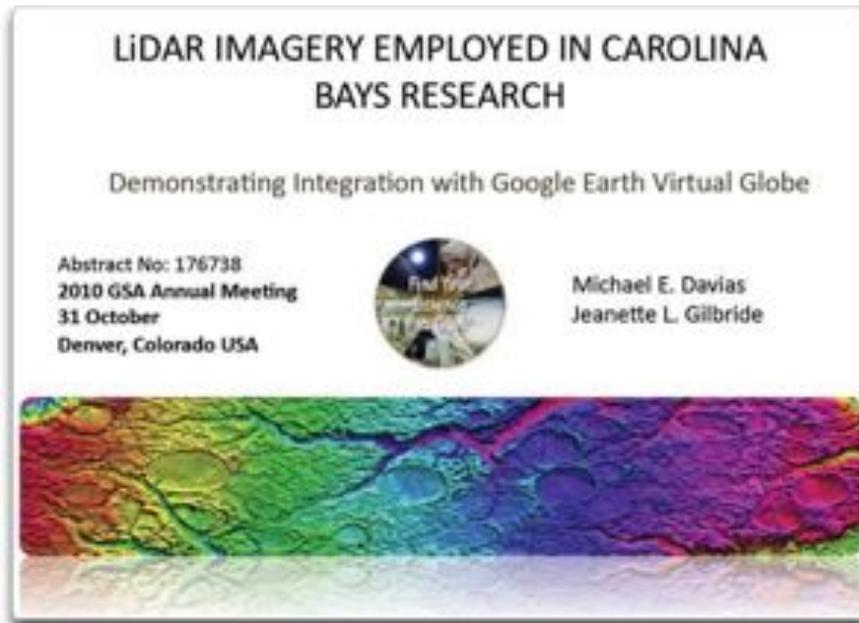
The hypothesis suggesting a distal ejecta blanket of pulverized rock ( i.e., sand) demands a whole new frame of reference for the cosmic impact concept, one which the overwhelming majority of the academics and scientists I have communicated with can *NOT* seem to grasp. They are all hung up on something big coming in and blasting out the bay. Then, *appropriately*, they point out that the bays are not impact craters... duh! Right, they are not.

Furthermore, you got the concept of a fluidized deposition, one in which the bays are merely voids ( I call them popped bubbles, see image below). You astutely recognize that other ejecta may not have had as much fluid in them - what would that look like? Perhaps sand dunes? And again, perhaps there were bays at the start but the high desert locations did not offer the required water table to keep them stabilized as bays, and they simply blew away. (one other mechanism further north is that the sand fell on top of the glacial shield; there we propose ice-walled-lake-plains as the result).

So, you are likely correct that the extent of the ejecta distribution extends well beyond the sub arcs of the annulus surrounding the proposed Saginaw impact site. However... it remains important to us that we can correlate any landforms documented by identifying the inferred alignment obvious in the Carolina bay depressions. Sand dune depositions will obviously be oriented according to the prevailing winds. ( wind-driven dunes are visible in all the LiDAR, and those dunes are *NOT* aligned with the bays by any stretch of the imagination).



Allow me to use this post to provide a [LINK](#) to the presentation I gave at the 1010 GSA Meeting in Denver. This version has my lecture text in each slide - the original was delivered with bigger graphics and much less text.



The attached file contains the index to our collection of Carolina bay "fields". Each placemark contains a popup with a link to the LiDAR.

Best wishes,  
Michael

#### Attachments

[WebPlugIn\\_Summary.kmz](#) (204 downloads)

[Preview this file with the Google Earth Plugin](#) ([learn more](#)) Description: Saginaw Manifold overview KNZ file - has index to ~250 fields of bays & their LiDAR

*Edited by Cintos (03/29/11 03:03 PM)  
Edit Reason: link errors corrected*

*Men occasionally stumble over the truth ... but most of them pick themselves up and hurry off as if nothing had happened.*

..... Winston Churchill

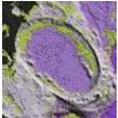
[Top](#)

**Pee Dee River: Dammed by a Bay?** [Re: Cintos]

#1390517 - 12/29/10 07:54 AM

**Cintos**

Impactor Investigator



Registered: 01/27/06

Posts: 131

Loc: Connecticut, USA

Greetings:

Our Survey of all bays is moving along, albeit a bit slowly as there are simply so many of them. 1000+ bays have been mapped in the [Elizabethtown 100K Quad](#) , and over 2,000 in the [Laurinburg 100K Quad](#) .

While working on the Florence 100K Quad area, I was drawn to the state of the Pee Dee River Valley in the area east of Quinby, SC. At some time in the past, the river created a tortured series of meanders, oxbows and relic channels as it struggled across a narrowing of the channel at 34.3, -79.6.

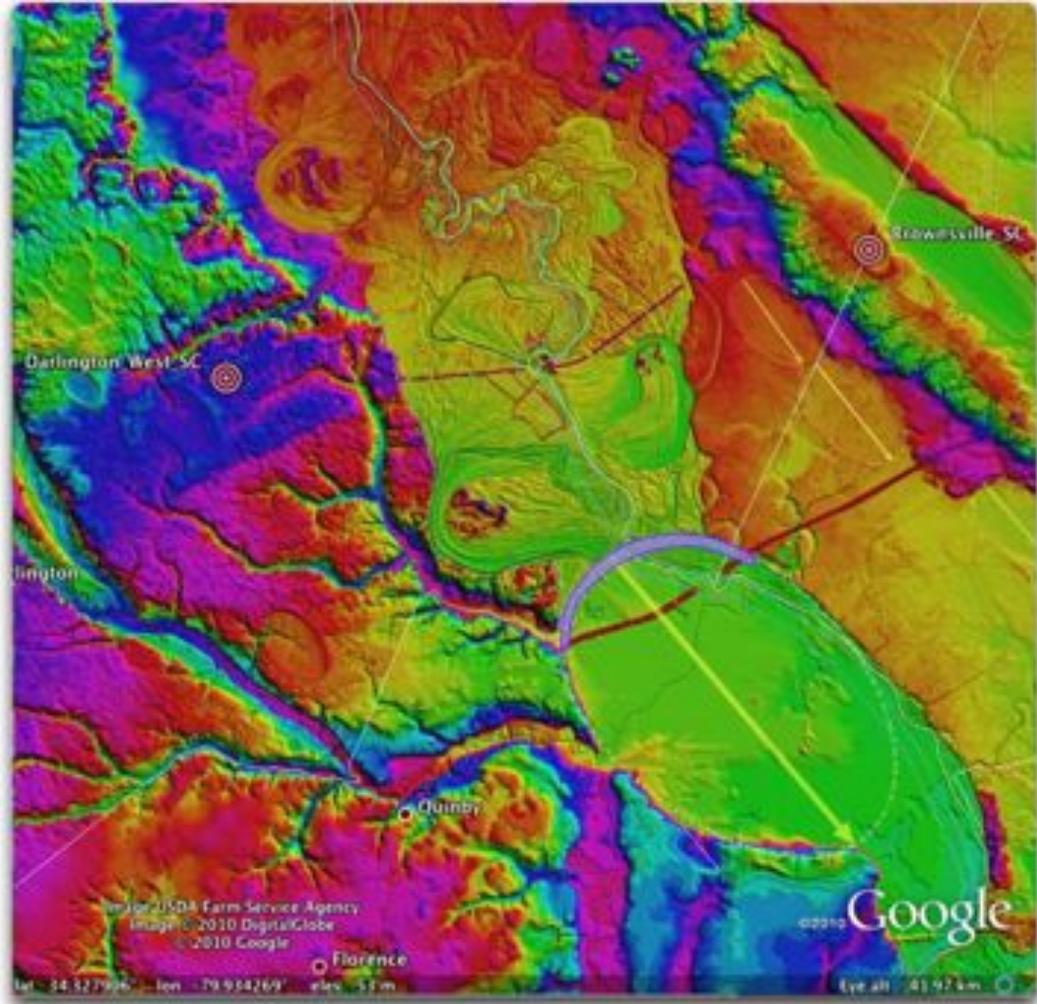
Coincidentally (?) this location marks the NW end of a large "Carolina bay" planform basin, aligned similarly to all the other bays in the area.

Could the "arrival" of my proposed ejecta blanket of sand created a bay, whose NW rim dammed the Pee Dee at that point? If so, perhaps the Pee Dee backed up, forming a flood plain, which quickly filled in with sediment as the river

meandered about. As the river finally crested the bay rim "dam", the meandering stopped as the river cut through the recently-deposited sediments upstream along an increasingly more direct path.

If there were any truth to this hypothesis, the upriver sedimentary record might well provide a hint for the timing of the event. Then again, this whole scenario may be driven by the lack of LiDAR-quality NED data in the county of Florence, which is in the lower left of the image, and includes the "bay" shaped feature.

The attached kmz file contains elements to display the proposal in Google Earth.



- Michael

#### Attachments

[PeeDeeDam.kmz](#) (174 downloads)

[Preview this file with the Google Earth Plugin](#) (learn more) Description: KMZ elements to recreate view in discussion

Edited by Cintos (12/30/10 07:58 AM)  
Edit Reason: LIDAR detail lacking in bay

*Men occasionally stumble over the truth ... but most of them pick themselves up and hurry off as if nothing had*

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*happened.*  
..... Winston Churchill

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