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TECHNICAL SERVICE RESPONSE NO.: UT059

Subject: Analysis of Soil that May be Related to a UFO Landing Site (Roanoke Texas, October 2, 2008)

Date: 15 January 2009

Requested By: William Puckett
UFOs Northwest

Reported By: P. A. Budinger
Analytical Scientist

Background/Objective:

At approximately 3:00 a.m., October 2, 2008, the witness got up and noted that it was “real light” outside, but didn’t look out. A black circle about 15 feet across in the direction of the bright light was noticed the morning after the event. The black residue around the circle was “kind of frosted” and glowed somewhat. A photograph of the circle follows. The objective is to examine the circle soil for any anomalies.



Image 1 of 1 + previous || next + Close
Photograph of the circle (via www.ufosnw.com site.)

Conclusions:

- No unique materials were detected in the circle soil. All samples contain the usual soil components: silicate (mostly quartz mineral); calcium carbonate (calcite mineral); probable calcium sulfate (gypsum mineral) and fulvic acid (humate derived from the soil organics). There is also inorganic nitrate in all the samples. Literature (footnote) suggests possible sources of nitrate in soil as fertilizers, manures, mineralization and nitrification of plant and crop residues, conversion of nitrogen in the atmosphere by bacteria.¹ However, we can rule out fertilizer because the owner related: "We never fertilize the pasture."

- There does seem to be more crystallinity in the circle soil and control soil which was obtained only 2' from the circle components (quartz) compared to the control soil obtained 50' away. Also, there is less water in the circle and control soils than in the control soil 50' from the circle. This may be due to exposure to higher temperature. However, this is very highly speculative and not confirmed. Possible additional XRD analysis may determine if this is true.²

- The circle soil was mistakenly diluted with the control sample when it was collected. So it is unknown if this rendered any unique materials below the limit of detection of the analysis. Also, the ring soil was collected 18 days after the event. So it is highly possible that anything present may have been weathered away.

Procedure:

Samples: Three samples were submitted in plastic Zip Hefty bags with the following information:

- Landing trace soil sample was collected from the circle and submitted via William Puckett. He received it on 11/3/2008. It was collected 9/20/2008.³ It was received by this laboratory on 11/12/2008.

- Control soil sample was collected 2' from the ring. It was also submitted by William Puckett. He received it on 11/3/2008. It was collected 11/4/2008. It was received by this laboratory on 11/12/2008.

- Control soil sample collected 50' west of the circle. It was sent by Judy Pennington, the witness's wife. It was received by this laboratory on 12/5/2008.

The samples were allowed to dry for a few days, and then put under an infrared lamp for 45 minutes at very low heat to get rid of as much water as possible.⁴ Duplicate

¹ <http://www.ca.uky.edu/pubs/agr/agr147/agr147.htm>

² A recommended laboratory for this analysis is Technology of Materials, Dr. Sampath Iyengar 951-471-8194.

³ Note: Some of the control soil collected 2' from the ring was included in this sample by mistake.

⁴ Water absorption interferes with pertinent bands from the soil materials in the infrared spectrum.

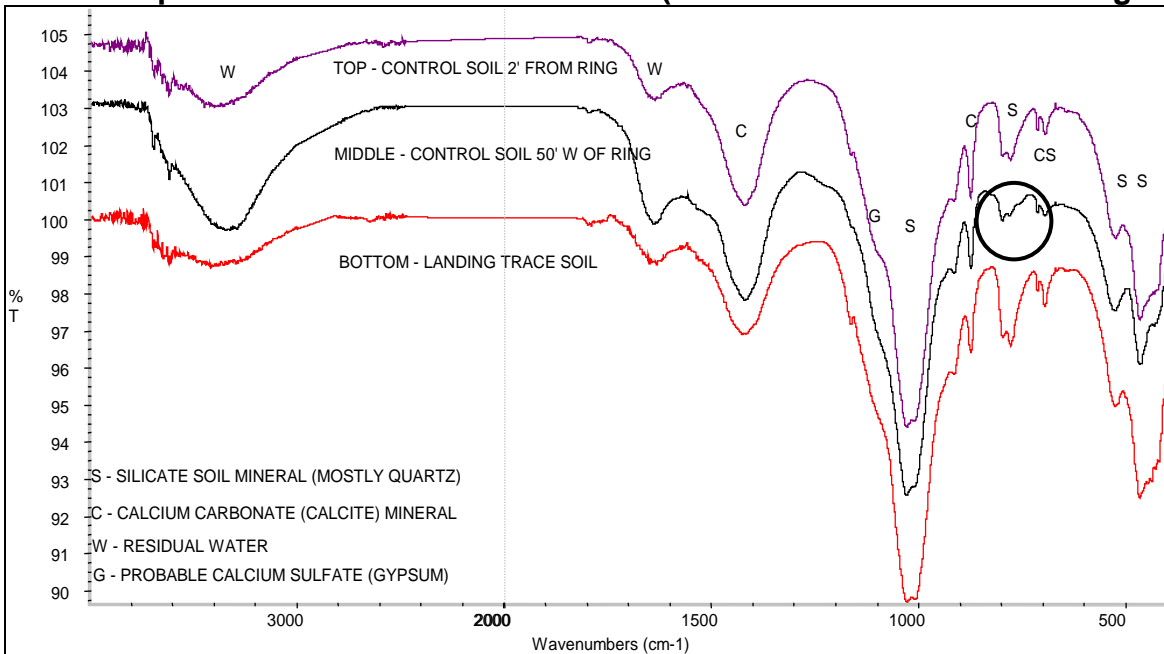
infrared spectra were then obtained from all samples. The samples were then extracted with distilled water. The water was removed at ambient temperature. As with the 'as received' soils, duplicate spectra were taken from each extract. All spectra were acquired on the Thermo Electron Avatar 360 spectrometer using the diamond Harrick SplitPea[®] sampling accessory.

Results:

Analysis of the 'As Received' (Dried) Soils

Infrared analysis of the soils 'as received' identify the same components, i.e. no unique materials are present in the circle sample. The spectra show typical soil components such as silicate (mostly quartz), calcium carbonate (calcite), and possible calcium sulfate (gypsum) minerals. Also, there is some residual moisture (water) in all the samples. The only difference noted is the resolution of weak 800 cm^{-1} and 775 cm^{-1} infrared bands from the quartz. They are resolved nicely in the circle and 2' control soils. They are not very well resolved in the control soil 50' from the circle. This may indicate the minerals in the ring and control 2' from the circle are slightly more crystalline than in the control 50' from the circle. Also, even though all samples were allowed to dry further on receipt under identical conditions, a lower amount of residual water remains in the circle soil and 2' control soils compared to the 50' control soil. The crystallinity and water differences could indicate the soil was exposed to a high temperature. However, this is highly speculative and would have to be confirmed by another technique such as X-ray diffraction. Following are the best selected spectra from each soil, with pertinent peaks labeled.

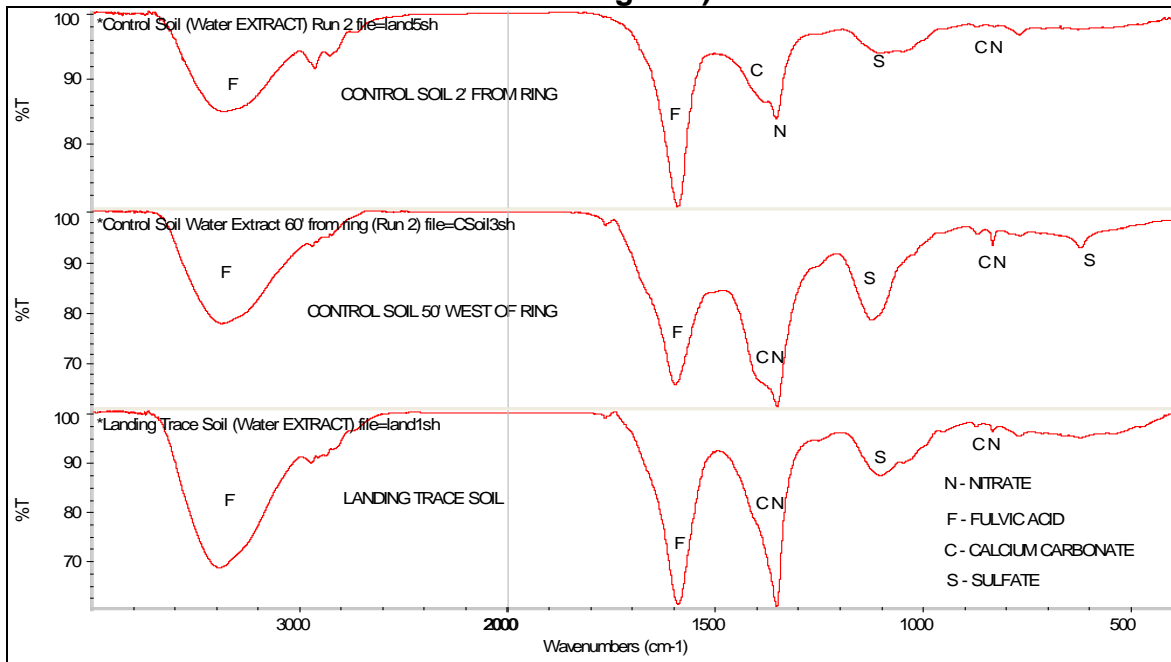
Infrared Spectra of the 'As Received' Soils (Two Controls and the Landing Site)



Analysis of the Water Extracts from the Soils

The water extracts from the three soils also contain the same components. No unusual material is obvious in the ring soil extract. The infrared spectra show typical materials common to soil, such as fulvic acid (a humate from organics in the soil), and minerals such as calcium carbonate (calcite) and calcium sulfate (gypsum). Additionally detected is inorganic nitrate. There are a number of possible sources for the nitrate. These include: fertilizers, manures, mineralization and nitrification of plant and crop residues, conversion of nitrogen in the atmosphere by bacteria. The concentration of these materials appears to vary. However, duplicate spectra obtained of all extracts also show a variance within the individual extracts. Following are selected spectra of each sample.

Infrared Spectra of the Water Extracts from the Soils (Two Controls and the Landing Site)



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Phyllis A. Budinger