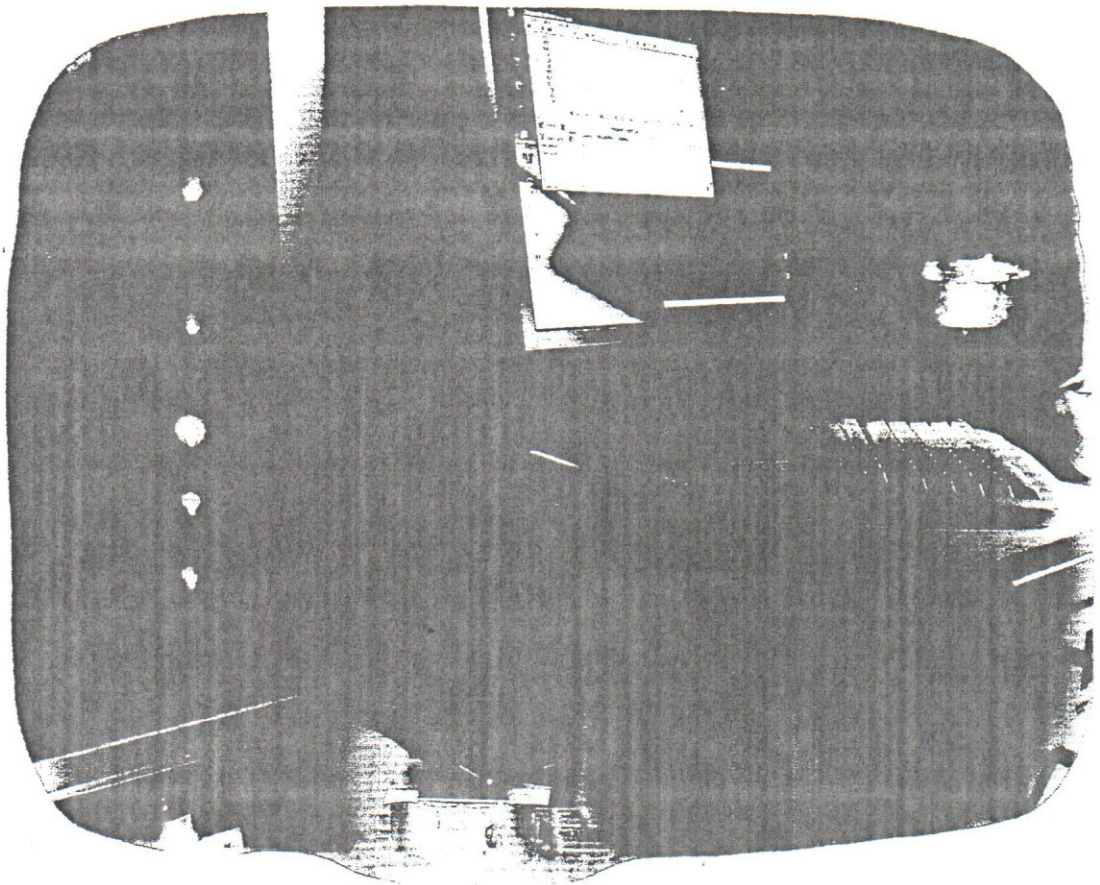




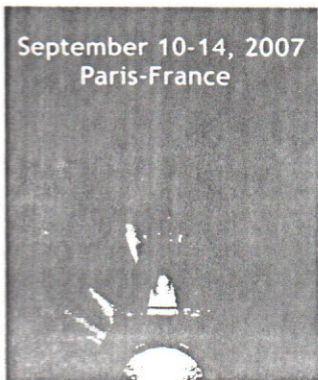
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LIBS, from research to Industry



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P044. Total Carbon Measurement in Unbroken Soil SampleR.M. da Silva^{1,2}, D.M.B.P. Milori², E.C. Ferreira², E.J. Ferreira², F.J. Krug³, L. Martin-Neto²

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The soil represents an important component in the biogeochemistry cycle of carbon, storing about four times more carbon than the vegetal biomass and almost three times more than the atmosphere [1]. The total soil carbon measurement in field conditions is an important subject for studies of the carbon cycle related to global climatic changes. LIBS can be used in qualitative and quantitative analyses without previous treatment of the sample and in short periods of time while conventional methods of analysis, as dry combustion, requires long periods of time for sample preparation and long periods of time for the analyses. In this work, a portable LIBS system was used to measure total carbon content in whole soil samples. It was used the carbon line in 193 nm [2] which does not have iron interference, because this element is abundant in Brazilian soils. Calibration curve for different soil samples were made using the element yttrium as internal standard and a factor of normalization. The dry combustion technique was used as reference. The results indicate that LIBS is a very promising method to estimate total amount of carbon in the soil being able to be used for field analyses.

[1]. Climate Change 2001: The Scientific Basis, (Intergovernmental Panel Climate Change, 2001), available in http://www.grida.no/climate/ipcc_tar/wg1/index.htm

[2]. M. H. Ebinger; M. L. Norfleet; D. D. Breshears; D. A. Cremers; M. J. Ferris; P. J. Unkefer; M. S. Lamb; K. L. Goddard ; C. W. Meyer; *Soil Science of America*, 67 (2003) 1616.