



17th INQUA Congress, Cairns, Australia
(28th July-3rd August 2007)
Poster presentation:

Image Processing for Continuous Digital Bore-hole Core Images from Lake Suigetsu, Japan

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High resolution bore-hole core images play an important role in the elucidation of palaeoenvironment and depositional environments. There are several methods to obtain digital core images. Core scanning provides high resolution core images and it is possible to obtain depth information with a high degree of accuracy. Digital cameras also record high resolution core images. However, several image processing techniques are needed to acquire precise composite images. High resolution and continuous core images were acquired in Lake Suigetsu, Japan. The core was obtained as a part of the project, “Pan-hemispheric synchrony/asynchrony of D/O events: replication of Suigetsu chronology and extension of Japanese Late Glacial event stratigraphy”, funded by [NERC \(Natural Environment Research Council\), UK](#), of which TN is the PI.

The continuous core photographs were taken across intervals of 30 cm. We attempted to make composite images from several core photographs. Composite core images made from original photographs indicated warped core image and different colour tone, though the core was homogenous clay. The core images were rotated because the long side of the photograph and depth direction of the core were not exactly parallel. The rotated photograph was the reason for the warped core image. The photographs were taken with auto focus and auto exposure outdoors. The auto exposure caused differences of colour tone between continuous photographs. In order to make precise composite photographs, geometric transformations and colour corrections were performed. Continuous colour changes down the core give significant information, although the relationship between colour and depositional environment is complicated. High resolution core images indicate colour change over short intervals. We derived colour values in Lab space from corrected images based on other image processing

techniques. In the poster presentation, we will indicate composite images of the Lake Suigetsu (SG06) core and indicate quantitative colour variations.