

## Image Analysis

See also [Image Acquisition](#)

### *Calibration*

Accurate color rendition is achieved through calibrating to known standards. Images produced by both LRC cameras (DMT CoreScan Colour and Geotek Geoscan-III) are calibrated to known standards during acquisition. In this way, the colors in images closely approximate reality. Cores are imaged together with a Gretag-Macbeth Minichecker color card that contains 18 calibrated color patches and 6 calibrated grayscale patches. Images may be later adjusted to the known color values of the patches; thus perfect color rendition may be obtained.

### *Color profiles*

High-resolution color time series may be extracted from core images for revealing color-specific changes in core stratigraphy and for comparison with other core datasets. Matlab, or Photoshop and NIH Image/ImageJ (a freeware Java version of NIH Image, available for both Mac and PC) may be used to generate color profiles directly from the core images.

It is usually best to convert RGB values into the CIE (Commission Internationale de l'Éclairage) L\*a\*b\* color system, because it was designed to match human color vision, and because it separates lightness from color information. For these reasons, L\*a\*b\* color profiles are significantly easier to interpret and more reliably reveal changes in sediment character than profiles in RGB or other color systems. The L\* variable represents lightness, and varies between 0 (black) and 100 (white); a\* and b\* vary between -128 and +128 and represent the color, with a\* describing green (negative values) or red (positive values) and b\* describing blue (negative) or yellow (positive). Conversion is performed via the equations in the publications shown below.

The following publications provide greater detail regarding these and other image analysis procedures:

Pierre Francus, Ed., 2004

**IMAGE ANALYSIS, SEDIMENTS AND PALEOENVIRONMENTS**  
**Book series: Developments in Paleoenvironmental Research: Volume 7**  
ISBN 1-4020-2061-9, 338 pp.

Naderbragt et al., 2000

**COLOR RECORDS FROM THE CALIFORNIA MARGIN: PROXY INDICATORS  
FOR SEDIMENT COMPOSITION AND CLIMATIC CHANGE**

Proc. ODP, Scientific Results, v. 167.

[http://www-odp.tamu.edu/publications/167\\_SR/VOLUME/CHAPTERS/SR167\\_29.PDF](http://www-odp.tamu.edu/publications/167_SR/VOLUME/CHAPTERS/SR167_29.PDF)