

CLC2006 Support Package

# LUCAS photo viewer 1.0

User Manual



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# 1. LUCAS photo viewer

## 1.1. CLC2006 Support Package

### Background

**CLC2006 Support Package** is a significantly modified and improved version of CLC2000 Support Package. The CLC2000 software has been developed for Remote Sensing Centre of Hungarian Institute of Geodesy, Cartography and Remote Sensing (FÖMI), in order to help the implementation of the European CLC2000 project managed jointly by the European Environment Agency (EEA) and Joint Research Centre (JRC). The CLC2000 software was also used by many European national teams, 15 out of 30 participating countries used it for interpreting changes in CLC2000 project. CLC2006 Support Package is distributed by **MLOG Instruments Ltd.**, Budapest, Hungary ([www.mlog.hu/CLC2006/](http://www.mlog.hu/CLC2006/), fax: 36–1 416 56 50).

### Main features

CLC2006 Support Package operates under **ArcView** environment. ArcView software is designed primarily for viewing GIS databases with tools for creating maps, menus for handling databases and graphical editing tools. At the same time, ArcView includes only limited and less effective tools for creating and filling new polygon databases or modifying existing polygon databases. As a solution, CLC2006 Support Package under ArcView provides a cheap tool for quick and comfortable editing and handling of CORINE Land Cover databases. CLC2006 Support Package is a macro package written in *Avenue*, ArcView's own macro language. The software is a supplement to ArcView 3.2/3.3 GIS. Working with CLC2006 Support Package requires a basic knowledge of using ArcView GIS. The use of the CLC2006 Support Package significantly facilitates updating, change detection, quality control and correction of land cover databases by means of computer-assisted visual photointerpretation.

### Minimum system requirements

- IBM PC compatible computer,
- 2 GHz processor,
- 512 MB RAM,
- 17" monitor, at least 1024x768 pixel resolution,
- Windows 95/98 or Windows NT/2000/XP operation system,
- ArcView GIS 3.2/3.3 software.

**CLC2006 Support Package** consists of three interrelated programs, all which can be used independently.

### InterPrepare for the national central team

InterPrepare can be used for the preparation of source files and work directories for change detection to be carried out with InterChange. For interpreting changes with InterChange program, a pre-described directory structure has to be built for the interpreters. The directory structure should contain all files needed for change detection. The source data must have a pre-set record structure. All the above tasks can be simply solved with InterPrepare. CLC code table editor allows substitution of standard English CLC nomenclature category names and descriptions with national language nomenclature in InterChange program. Nomenclature can be edited and can also be extended with fourth and fifth level categories if required.

### InterChange for interpreters of land cover changes

InterChange program provides a tool for the revision of CLC2000 land cover database and supports the interpretation of land cover changes in order to create the CLC2006 database. The program provides a convenient and easy-to-use interface for editing polygons in CLC2000 and CLC-Change databases, for viewing and modification of polygons' data and for finding and correction of errors generated during interpretation and editing. InterChange program was designed specially for revision of existing land cover databases and interpretation of land cover changes. It is unsuitable for primary interpretation of satellite images and for building up an independent land cover database. For

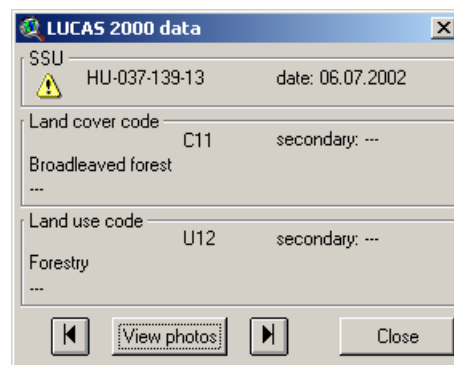
these purposes a separate program called InterView was developed, which has been used in the production of national CLC2000 databases in Croatia, Hungary and Serbia-Montenegro.

### InterCheck for checking final databases

InterCheck program serves the checking of revised CLC2000 and CLC-Change map sheets (working units). InterCheck program has been prepared primarily for supporting the *CLC2006 Technical Team*, although national central teams might apply it as a tool for final checking of the completed CLC2006 and CLC-Change databases. InterCheck can be used for checking CLC2006 and CLC-Change databases in any file format that can be added to ArcView program as a theme (ArcView shapefile, ARC/INFO coverage, AutoCAD drawing etc.), i.e. not only those that has been prepared with InterChange.

## 1.2. Main features

**LUCAS photo viewer** program is an extension of the **CLC2006 Support Package**. Although it is an independent executable program, it can use LUCAS data only of a specific format prepared for purposes of CORINE change mapping and only JPG files named according to the naming convention specified in the appropriate LUCAS manuals. LUCAS data can be converted from the original ArcView shape format national LUCAS databases to the format usable by this program with help of **InterPrepare** program. **LUCAS photo viewer** program can be started in **InterChange** and **InterCheck** programs with the *View photos* button of **LUCAS data window**.

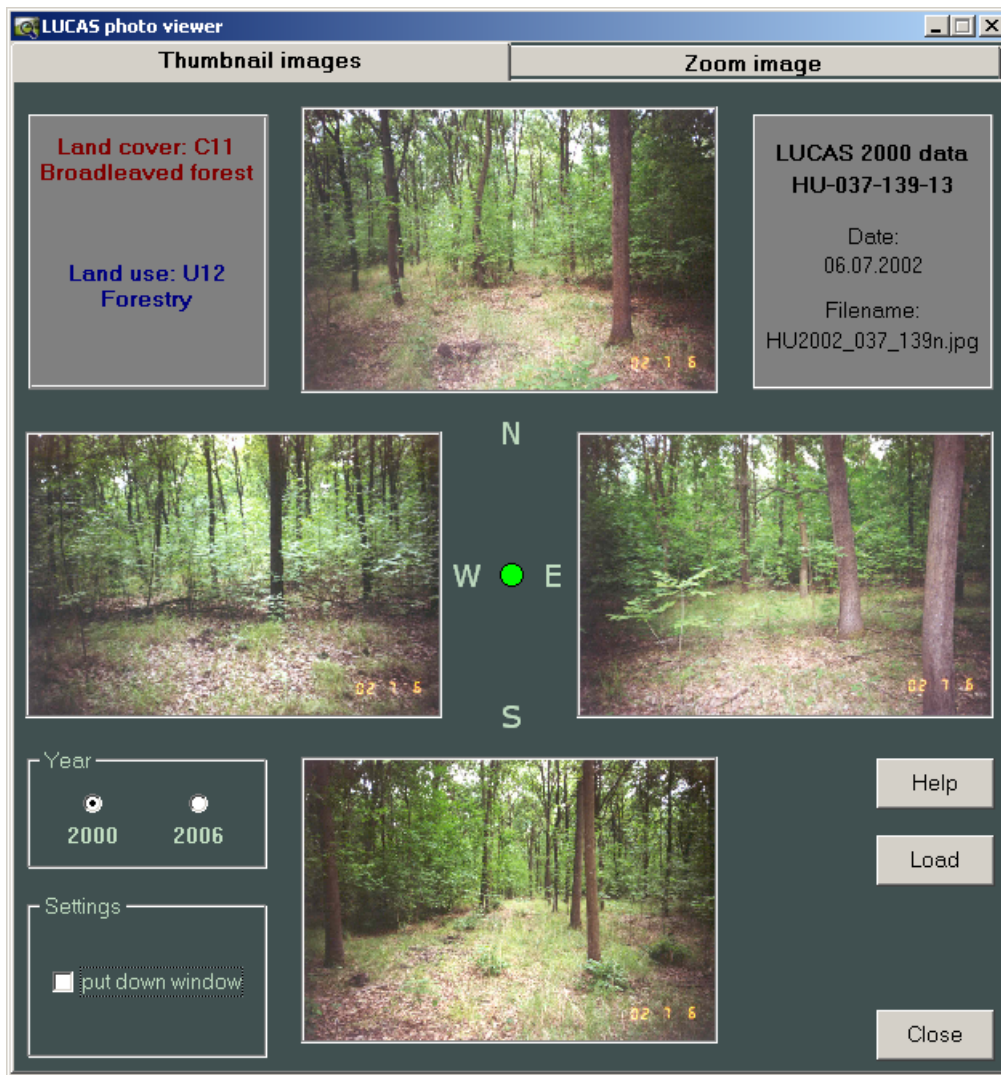


As long as **LUCAS photo viewer** window is not closed, it displays the main data and field photos (if any) of the LUCAS point last selected in **InterChange** or **InterCheck** program. The window contains two pages, among which you can switch by clicking their page tab on top of the window or with keyboard shortcut **Ctrl+Tab**.

- On page **Thumbnail images** field photographs taken into the four main directions (North, East, South, West) are displayed besides main data. The control features for operating the program are also found here.
- On page **Zoom image** the enlarged view of the image taken to the selected direction is displayed besides the main data. The image can be further enlarged if there is a need to examine it more in detail.

### 1.3. Thumbnail images

On page **Thumbnail images** field photographs (if any) taken into the four main directions (North, East, South, West) from the LUCAS point selected in **InterChange** or **InterCheck** program are displayed besides the main data of the selected point. The control features for operating the program are also found here.



Selected LUCAS point is symbolized with a coloured circle in the middle of the window. The photographs taken into the four directions are located around this circle according to conventional map directions. Directions are also marked by the initial letter of the corresponding cardinal point. The frame of missing images remains empty if photographs were not taken into all four directions, meanwhile the colour of symbolic circle in the middle becomes yellow. The circle turns red if all four images are missing.

The primary land cover code and its description are displayed in red and the primary land use code and its description are displayed in blue in the upper left text frame. The upper right text frame contains the following further data: LUCAS point ID and date of surveying.

*Help* button opens this help. With help of *Load* button a manually selected LUCAS image series can be loaded directly. *Close* button closes the window.

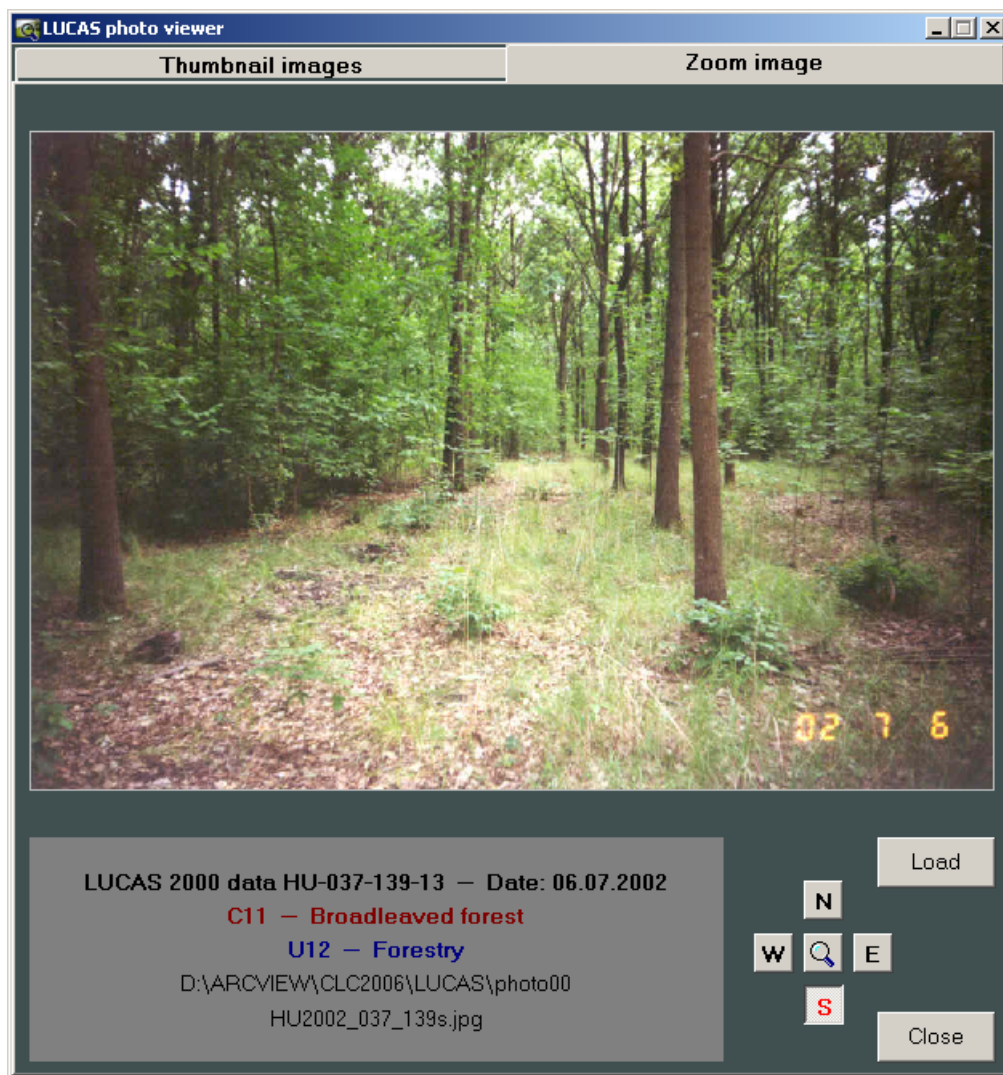
In frame *Year* the reference year of the LUCAS database in use is displayed. During ordinary use, when **InterChange** or **InterCheck** program initiates loading, the reference year is set automatically. However, before manually loading individual images with *Load* button, you must select the directory where **Loading LUCAS photo** will appear. Among these directories **\LUCAS\photo00** and **\LUCAS\photo06** you can choose with radio buttons *2000* and *2006* respectively.

If *put down window* check box within *Settings* frame is checked, the **LUCAS photo viewer** window in inactive state jumps to the bottom right corner of the screen so that it covers the least possible part of the ArcView working area. In this state only the upper left text frame with the LUCAS codes and the frame of the northern images is visible. If you activate this window again, it jumps back to its former position. If *put down window* check box is not selected the windows stays on its place also in an inactive state and you can locate it manually.

Double clicking any of the four thumbnail images or pushing on the keyboard the initial letter of the appropriate cardinal direction (**N**, **E**, **S**, **W**) the window changes into page **Zoom image**, where selected image is displayed enlarged.

## 1.4. Zoom image

On page **Zoom image** the enlarged view of the image taken to the selected direction is displayed besides the main data of the LUCAS point currently selected in **InterChange** or **InterCheck** program. The image can be further enlarged if there is a need to examine it more in detail.



With *Load* button you can load selected LUCAS image series immediately. *Close* button closes the window.

In bottom text frame main data of the selected point are displayed:

- LUCAS point ID and date of surveying;
- primary land cover code and its description in red letters;
- primary land use code and its description in blue letters;
- name of current LUCAS image directory;

- file name of currently displayed image.

If you wish to load another image out of the four click the button corresponding to the selected direction in the window or push on the keyboard the initial letter of the appropriate cardinal direction (**N**, **E**, **S**, **W**). If photographs were not taken into all four directions, the frame remains empty when requesting a missing image.

Pushing the *Zoom* button, marked with a magnifying glass icon or pushing letter **Z** on the keyboard the image is displayed enlarged. This displays all information contained in the image as one screen pixel corresponds to one original image pixel. Repeatedly pushing *Zoom* button or letter **Z** on keyboard displays the whole image within the frame.

Enlarged image can be dragged within the frame several ways:

- with help of scroll bars;
- by dragging and dropping the picture with mouse;
- using the keyboard:  
**Left/Right/Up/Down** buttons move enlarged picture with small steps,  
**Home/End/PgUp/PgDn** buttons move enlarged picture with large steps.
- button **C** on keyboard puts the middle of enlarged image into the frame.

## 1.5. Keyboard shortcuts

<b>Ctrl+Tab</b>	toggles <b>Thumbnail images</b> and <b>Zoom image</b> page
<b>N</b>	displays <b>N</b> orth view photo on the Zoom image page
<b>E</b>	displays <b>E</b> ast view photo on the Zoom image page
<b>S</b>	displays <b>S</b> outh view photo on the Zoom image page
<b>W</b>	displays <b>W</b> est view photo on the Zoom image page
<b>L</b>	loads photos from <b>\LUCAS\photoxx</b> directory
<b>Z</b>	<b>(Z</b> oom) toggles normal and enlarged view of the zoom image

### Handling enlarged image

<b>Left/Right</b>	moves horizontally with small steps
<b>Up/Down</b>	moves vertically with small steps
<b>Home/End</b>	moves horizontally with big steps
<b>PgUp/PgDn</b>	moves vertically with big steps
<b>C</b>	<b>c</b> enters image

## 1.6. LUCAS database

Structure of special tab separated text format LUCAS databases **\Program\LUCAS00.dat** and **\Program\LUCAS06.dat**, created by **InterPrepare** and required by **LUCAS photo viewer** program.

SSU_ID	DATE	LC1	LC2	LU1	LU2	PHOTO	GPS_PREC	OBS_TYPE	OBS_DIST
HU_47902658	10.04.2006	C13	8	U12	8	47902658	7	1	1
HU_47942662	10.04.2006	C11	8	U12	8		6	2	1
HU_47962668	22.05.2006	B23	8	U11	8	47962668	4	1	3
HU_47982666	10.04.2006	C12	8	U12	8	47982666	6	1	1
...									

## 1.7. End user license agreement

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