TerrSet
MANUAL

CLARK LABS

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Welcome to the TerrSet Geospatial Monitoring and Modeling System. TerrSet incorporates the IDRISI GIS and Image Processing tools and offers a constellation of vertical applications focused on monitoring and modeling the earth system for sustainable development. The full constellation includes:

- The Land Change Modeler (LCM) for analyzing land cover change, empirically modeling its relationship to explanatory variables and projecting future changes. LCM also includes special tools for the assessment of REDD (Reducing Emissions from Deforestation and forest Degradation) climate change mitigation strategies.

- The Habitat and Biodiversity Modeler (HBM) for habitat assessment, landscape pattern analysis and biodiversity modeling. HBM also contains special tools for species distribution modeling.

- GeOSIRIS – a unique tool for national level REDD (Reducing Emissions from Deforestation and forest Degradation) planning, developed in close cooperation with Conservation International. With GeOSIRIS one can model the impact of various economic strategies on deforestation and carbon emissions reductions.

- The Ecosystem Services Modeler (ESM) for assessing the value of various ecosystem services such as water purification, crop pollination, wind and wave energy, and so on. ESM is based closely on the InVEST toolset developed by the Natural Capital Project.

- The Earth Trends Modeler (ETM) – a tool for the analysis of time series of earth observation imagery. With ETM one can discover trends and recurrent patterns in fundamental earth system variables such as sea surface temperature, atmospheric temperature, precipitation, vegetation productivity and the like. ETM is an exceptional tool for the assessment of climate change in the recent past (e.g., the past 30 years).

- The Climate Change Adaptation Modeler (CCAM, pronounced “see cam”) – a tool for modeling future climate and assessing its impacts on sea level rise, crop suitability and species distributions.

- The IDRISI GIS Analysis tools – a wide range of fundamental analytical tools for GIS analysis, primarily oriented to raster data. Special features of the IDRISI tool set include a suite of multicriteria and multiobjective decision procedures and a broad range of tools for statistical, change and surface analysis. Special graphical modeling environments are also provided for dynamic modeling and decision support. IDRISI also provides a scripting environment and an extremely flexible application programming interface (API) that allows the ability to control IDRISI using languages such as C++, Delphi and Python. Indeed, all TerrSet components make very extensive use of this API.
- The IDRISI Image Processing System – an extensive set of procedures for the restoration, enhancement, transformation and classification of remotely sensed images. IDRISI has the broadest set of classification procedures in the industry including both hard and soft classification procedures based on machine learning (such as neural networks) and statistical characterization.

The relationship between TerrSet and IDRISI is thus quite intimate. IDRISI provides two of the major components of the system (GIS Analysis and Image Processing) as well as the foundation for all components. All components use the IDRISI API and the IDRISI data file structures. While IDRISI was once a standalone product, it is now incorporated within the TerrSet system.

Exploring TerrSet

For those generally familiar with raster geospatial software such as a Geographic Information System (GIS) with raster capability or an Image Processing System (IPS) for analysis of remotely sensed imagery, the Quickstart discussion in the next chapter may be adequate to get started. However, the TerrSet System Overview chapter provides a more complete description of the TerrSet system including the organization of data, map and image display, file structures and georeferencing conventions. Perhaps the easiest introduction to TerrSet is through the Tutorial which can be accessed through the File|Help menu.

Following this general orientation, specific chapters are provided regarding the operation of each member in the TerrSet system. While they can be read in any order, we generally recommend becoming familiar with the IDRISI GIS Analysis tools early since they provide fundamental tools that are useful to other components.

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About Clark Labs

Clark Labs is dedicated to the research and development of geospatial technologies for effective and responsible decision making for environmental management, sustainable resource development and equitable resource allocation.

Clark Labs is best known for development of pioneering geospatial software products. IDRISI was the first GIS software system specifically targeted at a microcomputer platform. Since its introduction in 1987, it has grown to become one of the most widely used raster systems of its type. More recently, Clark Labs has introduced major new products such as the Land Change Modeler and the Earth Trends Modeler. TerrSet continues this trend and consolidates them into a single integrated system.

Based within the world-renowned Graduate School of Geography at Clark University, Clark Labs is known for pioneering advancements in areas such as decision support, uncertainty management, classifier development, change and time series analysis, land change modeling and dynamic modeling. Partnering with such organizations as the Gordon and Betty Moore Foundation, Esri Inc., Google.org, USDA, the United Nations and Conservation International, Clark Labs leverages its academic base to develop innovative and customized research tools, provide software solutions to organizations in need and apply geospatial expertise to a range of real-world problems.

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If you are experiencing a technical problem with a specific module or you are receiving unexpected results, the problem resolution may be found within the Help System. Check the context-sensitive Help for the module you are running. Information concerning the module’s limitations may be found in the respective Notes section.

If the update and the Help System information have not resolved your problem, contact our Technical Assistance Staff via email at clarklabs@clarku.edu. You must provide the following in your initial contact with us:

- Your Customer ID number, name, phone and e-mail address (if available).
- The name and version number of the Clark Labs product you are using.
- A description of your hardware and operating system.
- A detailed description of the problem you are experiencing.

This should include a list and description of the data sets involved, a description of the operation you are trying to accomplish, and a step by step description of what you have tried so far (with the specific values you entered into the module’s dialog box). You should also include the exact text of any error messages you receive.