

The Rwenzori Trekking GIS

An history of trekking routes survey and management, from Italy to the **mountains of the moon.**

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A short presentation:

- ❖ STEP 1
THE ITALIAN EXPERIENCE
- ❖ STEP 2
THE NETGIS project:
NEPAL TREKKING GIS
- ❖ STEP 3
THE RWENZORI TREKKING GIS



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- ❖ The survey of a trekking route has not as main focus only the definition of geometry of the path by the registration of the trekking route by an operator or by cartographic control.
- ❖ The main aspects, besides to the excursion one, are linked to the management planning and to the fruition of trekking route, to its conservation and maintenance, to realize by data acquisition and processing on large scale, but in an organic way and maintaining the global control of the data at central level.



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- ❖ The Italian Alpine Club provides [...] to the contouring, to the realization and the maintaining of trekking routes, alpine works and alpine facilities
- ❖ Despite the paths have often extended regional or even inter-regional only in a few cases, the management has been scheduled on a non-closely local criteria but in an overview.



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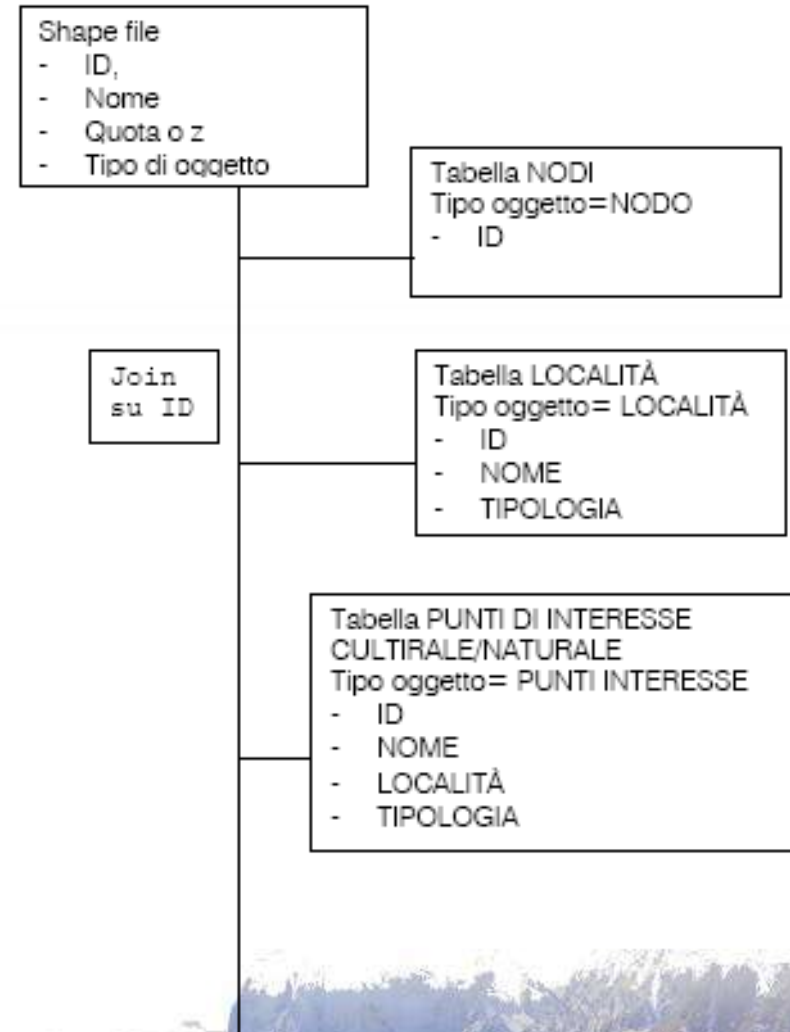
- ❖ In 1997 it was created a special working group for the trails, called SITCAI, which operates under the Central Commission for hiking of CAI, and that is playing an important filtering role nationally, of technical and training proposal, but also support and connection with sections and technical committees on the territory.

- ❖ The steps that have been made toward this digitalization are:
 - ❖ Creation and distribution of PROTSIS Protocol;
 - ❖ SIWGREI Software Development and improving;
 - ❖ SENTIERIGIS Software development and spreading to sections CAI.



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- ❖ The protocol called **PROTSIS**, an acronym for *Information System PROTOCOL Trekking routes*, must be the only database management and data collection and it is necessary that all software used by CAI sections for the management of trekking routes are standardised and compatible with the structure of this Protocol.



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❖ **SIWGREI**: the software for trekking routes network management.

The screenshot displays the Club Alpino Italiano GIS interface. At the top left is the Club Alpino Italiano logo. The main title "Club Alpino Italiano" is centered at the top. On the right, there is a logo for "Regione Lombardia" and the text "Progetto Interreg III A Chiaro Itinerario Alpi-Svizzera-Frontiere". Below the title bar is a navigation toolbar with various icons. On the left side, there is a search panel with the following sections:

- Selezionare l'area di ricerca**
 - Regione
 - Provincia
 - Comune
 - Aree montuose
 - Loc.predefinite
- Inserire il testo da ricercare**
 -
 -
- Ricerca Avanzata**

The main map area shows a topographic map of the Valtellina region in Italy. The map features contour lines, rivers, and several trekking routes marked with red dashed lines. Key locations labeled on the map include Prada Di Fuori, Campase, Motta, Ronchetto, Vione, Ronchirardo, Solivo, Cuscis, Vierz, Pralungo, Frolli, Rela, La Vedova, Piazzola, Mazzo di Valtellina, Cappelapa, Mazzo di Valtellina, Albertinelli, Vervio, Quattro Rui, Susen, Pramarnone, La Votta, I Piani, Gaggio, Aurora, Moncecco, Vione, Prada, Scalvada, Roncale, San Martino, Ca della Cuna, Pol. Combria, Cascina Pedrolech, Cascina Cirinei, and Alpe Salina. A scale bar at the bottom left indicates 1797m.



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❖ **SIWGREI**: the software for trekking routes network management.

SIWGREI is able to respond to different kinds of needs:

❖ managerial/operational: the identification of the degradation and maintenance problems; properties of a path and the alternatives to routes no more proposable.



The viewing of facilities, of equipment, but also of historical, cultural, environmental exigences, in order to check the usability. The design of new paths and evaluation of neglect for others over the extraction of data to track budgets and obtain financing

The Rwenzori Trekking GIS

❖ **SIWGREI**: the software for trekking routes network management.

SIWGREI is able to respond to different kinds of needs:

❖ hiking: viewing the network of paths in a particular area and of emergencies and equipment related to, planning trips with description of the times run and of the gradients.

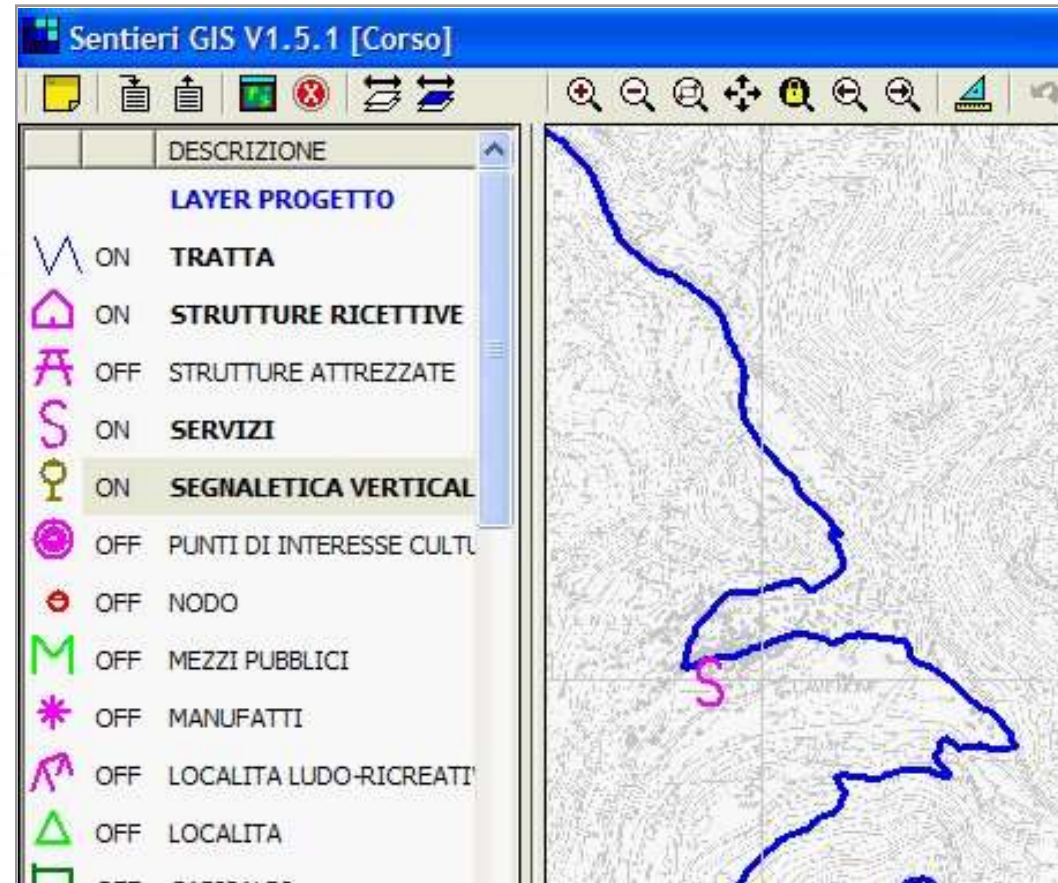


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❖ The **SentieriGIS** software

SentieriGIS software

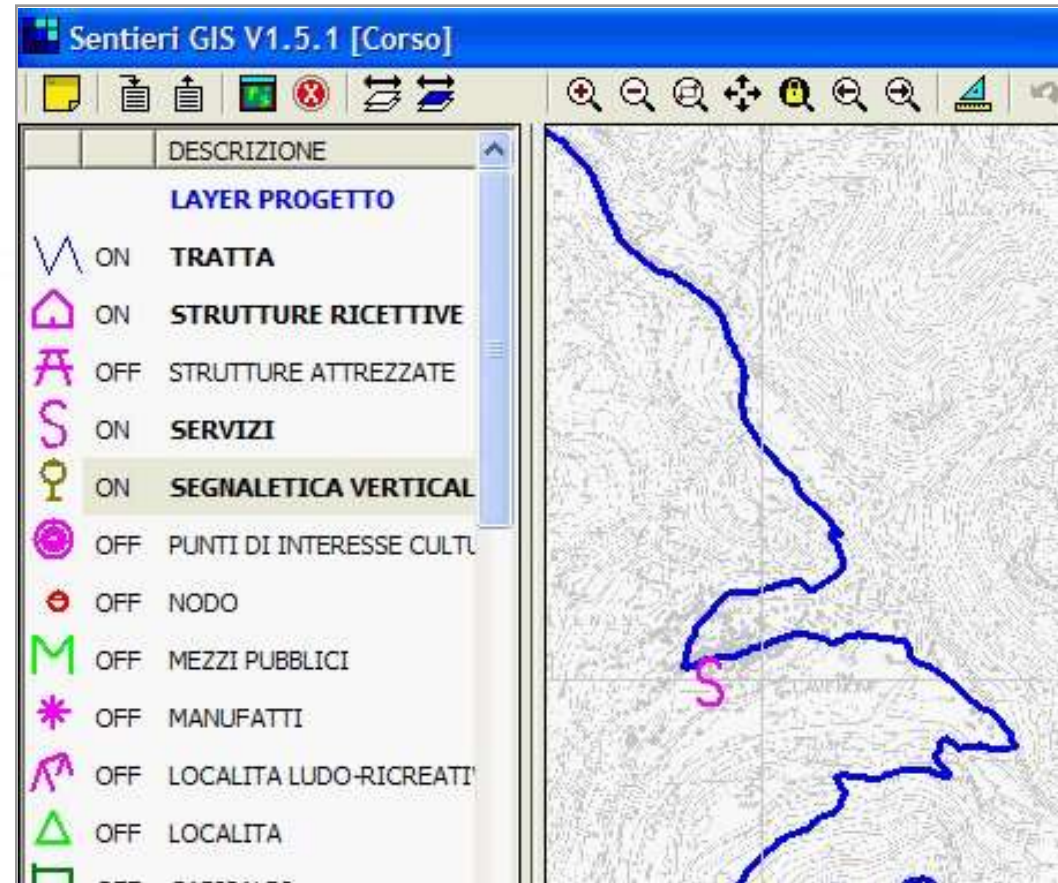
- owned by the CAI -
operates in stand-alone
mode and has been designed
and developed in order to
allow the upgrade and
consulting trekking routes
data in every section or
groups of sections of CAI.



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❖ The **SentieriGIS** software

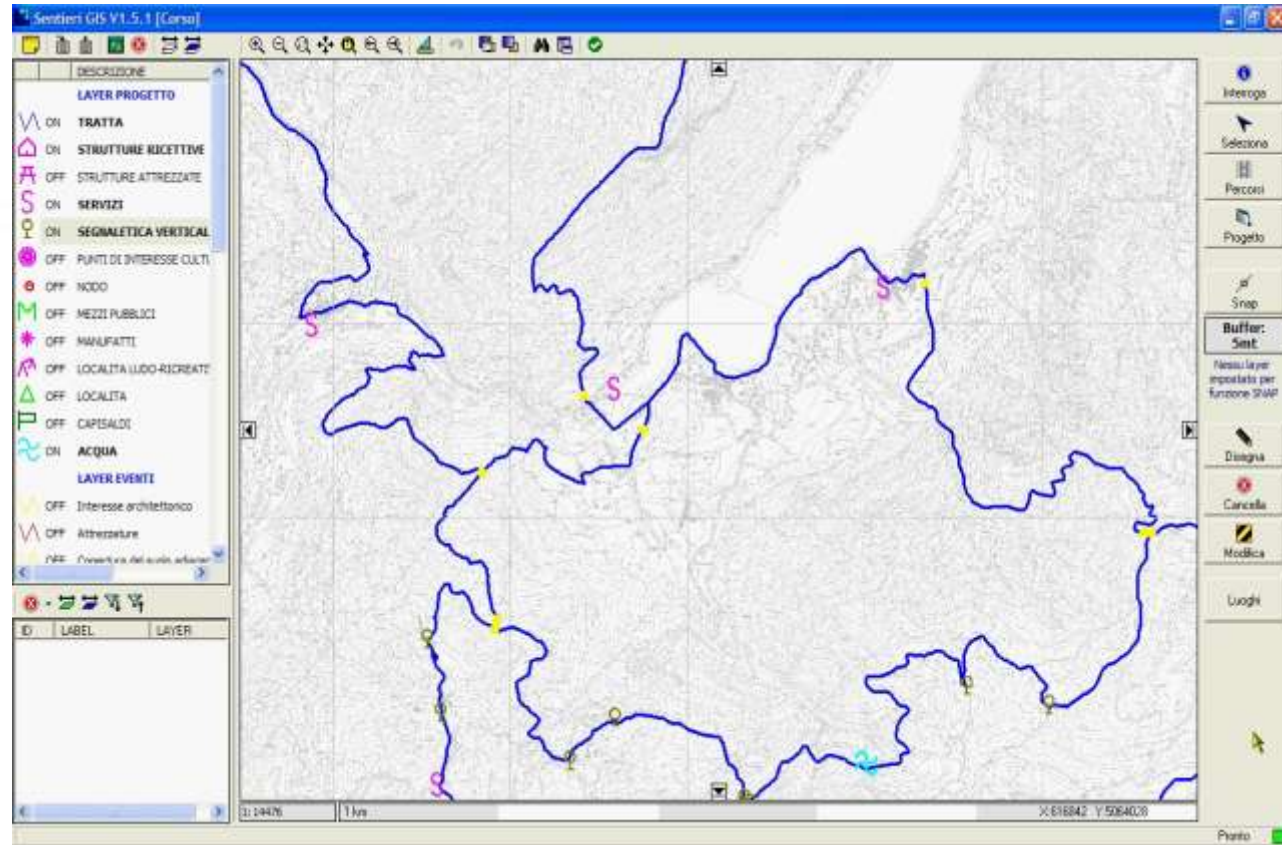
Every section is given an opportunity, to update trekking routes network data belong to its area of competence, and then transmit this information to Central CAI, which will validate before publication on SIWGREI .



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❖ The **SentieriGIS** software

is a tool used to monitor the status of pathways network in order to schedule maintenance both ordinary and extraordinary, on a local scale, but in accordance with the specifications defined at national level.



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❖ The **NEPALI** experience on trekking routes survey

The topography and surveying group of University of Brescia, started from 2000, was employed on the Nepali trekking routes survey, in the NetGIS (**Nepal Trekking GIS**) project.

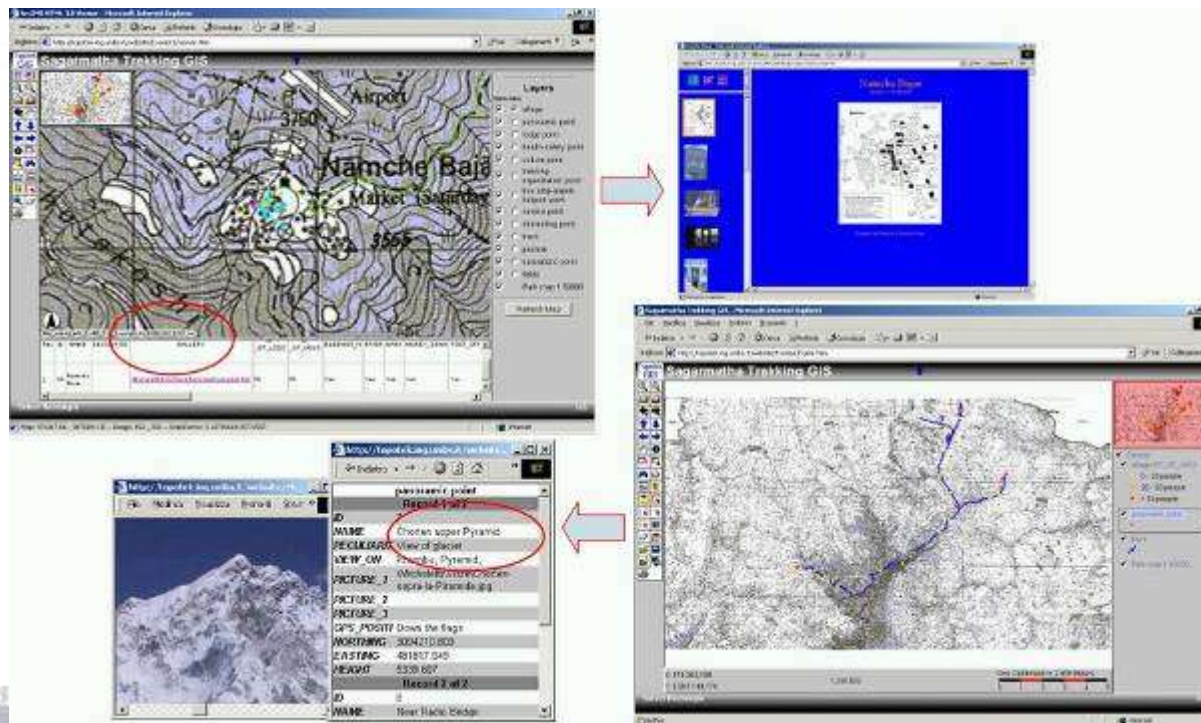
The surveying are made by using GPS and the CAI protocol, following the changes that CAI has realized every year, and applying the “Italian method” to Himalayan trekking routes.



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❖ The **NEPALI** experience on trekking routes survey

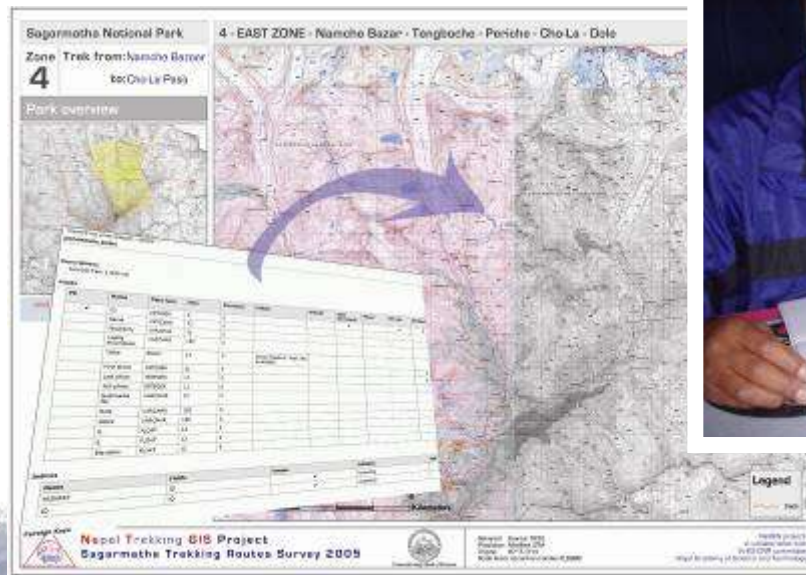
During the 2000-2002 period, three months of work are required to complete the Sagarmatha (Everest) Trekking GIS (SATGIS project).



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❖ The **NEPALI** experience on trekking routes survey

In the October 2005 and October 2006 the engineers return in the Sagarmatha National Park to update the data, and teaching local people how to make data update, using GPS, digital camera and papers reproducing the ProtSIS database.



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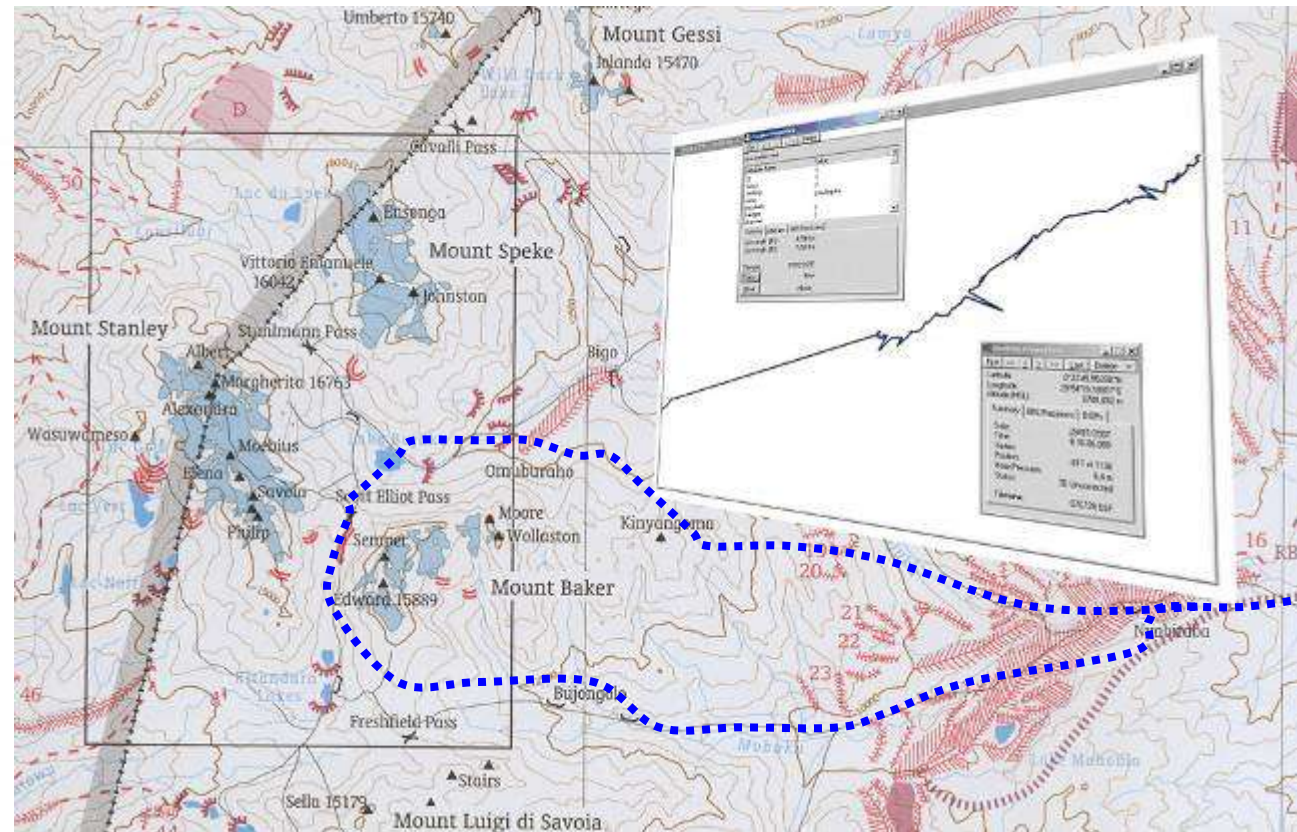
- ❖ From 27th of July to 2nd August 2007 two engineers did the surveys with a mono frequency GPS receiver that is able to obtain an accuracy of about 10 m.
- ❖ The post processing of the GPS data has been expected but it has not been realized yet, because there is not a GPS CORS near the park.



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- ❖ The support database used for the first surveys is the same used between 2000 and 2006 for the survey of trekking routes in the

National Nepali parks of Sagarmatha, Kangcenjunga and Annapurna, based on the **ProtSIS** protocol.



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- ❖ The paths surveyed are the following:
 - ❖ Ibanda-Nyabitaba
 - ❖ Nyabitaba-John Matte.
 - ❖ John Matte – Bojuku
 - ❖ Bojuku – Elena Hut
 - ❖ The legs of return Elena Hut – Kitandara and Kitandara – Nyabitaba were not surveyed because of the **difficulties met with during the way.**



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Thank you!

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