

# **GPS and Total Stations Data Acquisition and Processing Methodology for Automatic Drawing of Topographic Plans Using ArcCOGO**

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**Key words:** GPS, Total Station, ArcCOGO, Topographic Plan, GFF Format, Automatic Drawing.

## **ABSTRACT**

GPS technology and total stations are being used extensively in the acquisition of surveying field data in Morocco. But available software do not meet the surveyor's need that is they do not cover many types of GPS and total stations data files, and also they do not perform automatic drawing of topographic plans. ArcCOGO is a module of ArcInfo that allows topographic calculations, structuring and archiving the results on COGO coverages. Unfortunately, ArcCOGO needs to be adapted to support different types of data files, data processing and automatic drawing tasks.

In this study, we present a methodology for data acquisition in the field, data processing to handle a variety of GPS and total stations data files, arranging data files into coverages, and processing the results to automatically draw topographic plans.

In order to achieve our needs, we develop a methodology based on the following points :

- Conceive a procedure for data acquisition and a codification method that will help in the automatic drawing of topographic plans.
- Read and convert data files from several total stations (Leica, Topcon, and Nikon).
- Import coordinate data files from GPS software (Ashtec, Trimble, Leica).
- Arrange data files into ArcCOGO coverages.
- Create point and line symbol tables that will be used for automatic drawing.
- Automatically generate topographic plans including page setup, layout and legend.

The proposed methodology responds to some surveying requirements in Morocco, and will help accelerate the process of drawing topographic plans. This methodology was applied in two different case studies for which the results were very satisfactory and did achieve the allowed calculations tolerances.

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TS5.13 Integration of Techniques

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