

Abstract

DEM's will be used more and more frequently for many applications in regard with different job categories. It is therefore essential to assess them qualitatively and quantitatively, in order to allow users to know their accuracy and exactness in relation to their needs.

The assessment of the DEM's computed by automatic correlation can be divided into two main steps : an *a priori* evaluation and an *a posteriori* control.

Except in its validation phase, *a priori* evaluation does not require an external reference. It is a self-evaluation that leads to reliability maps, in which a quality label is attributed to each pixel. These maps are computed by linear combination of three evaluation criteria derived from the adopted correlation technique : correlation coefficient value and two criteria in relation with the shape of the correlation curve, that is to say ambiguity and inaccuracy.

The validity of these maps was assessed in regard with a reference to check that the points which are judged unreliable are really wrong and the opposite. Results are satisfying.

An automatic detection of both outliers and occluded pixels preceded the reliability maps construction in order to be able to locate quickly certainly wrong pixels.

Concerning the *a posteriori* control, the purpose is to compare directly the altimetric performances of the DEM in regard with a reference. If this one does not exist, it may be interpolated on test zones between two disparities (top of the roof and both lateral gutters) which are measured by manual pinpointing of the edge points.

The choice of a reference is often inadequate, because, either their data are not sufficient enough, or they can be much too inaccurate and their errors are rarely controlled. Caricatured DEM's which are adapted to the needs of simulation applications are envisaged to be developed.