

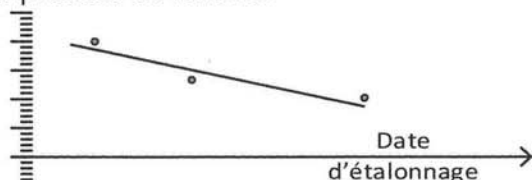
Statistical study of the drift of calipers

Étude statistique de la dérive du pied à coulisse

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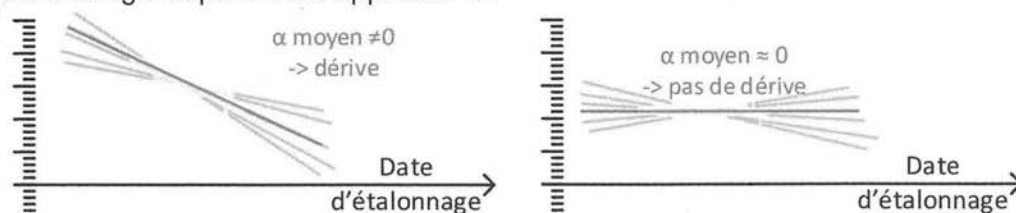
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Knowing the drift of a caliper, one might be able to determine the right frequency calibration that should be attributed to it. However, when trying to learn about the order of such a drift, opinion is divided on the question. Some metrologists say that the caliper does not drift while others claim to have established a periodicity according to an observed drift. The fact to note for instance that each year 5% of nonconforming caliper return, does not guarantee a drift of the measuring instrument, in fact this observation is made on particular calipers (noncompliance probably due to a fall or shock) and not on a set. The VIM defines the drift as a “continuous or incremental change over the time ... of a measuring instrument”. In the case of calibration this would be expressed as follows:

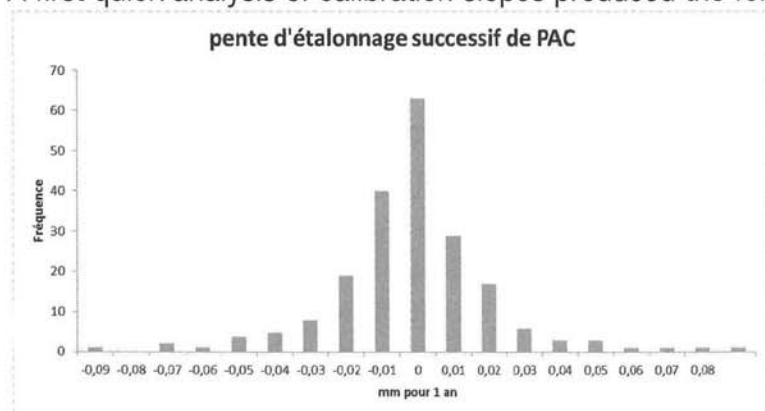


However, to actually find a drift, it is necessary to know the uncertainty of this straight line. Is it compatible with the line of zero slope?

To answer this question of caliper drift, the idea of this article is to examine statistically the successive calibration results of several calipers made in several companies in several laboratories. If the caliper drifts, the slope between two successive calibrations should tend toward the wear value. Conversely, if the drift does not exist, the average slope should approach 0.



A first quick analysis of calibration slopes produced the following results.



These first results will be interpreted more precisely by taking into account the uncertainty of the laboratories and the nature of the supplied values (average of measurements, maximum...).

This drift study can then be transposed to other types of resources for which the same question arises.