

## Some basic questions in the treatment of intercomparison data

*F.Pavese, Istituto di Metrologia “G.Colonnetti”, CNR, Torino, Italy*

[f.pavese@imgc.to.cnr.it](mailto:f.pavese@imgc.to.cnr.it)

*P.Ciarlini, Istituto per le Applicazioni del Calcolo “M.Picone”, CNR, Roma, Italy*

[ciarlini@iac.rm.cnr.it](mailto:ciarlini@iac.rm.cnr.it)

The analysis of the intercomparison process and of the data originating from it are becoming an increasingly important exercise for evaluating international equivalence in the field of Metrology.

The paper will address some basic questions that must find the correct answers before the data analysis takes place. They are often hidden and one can sometimes get the impression that an insufficient understanding of some of these problems may be the reason for inadequate or even incorrect data treatment or conclusions about the statistical meaning of the results.

The following questions will be addressed:

- Are the input data supplied to the intercomparison by each participant to be treated as hierarchical data;
- Which is the minimum summary information supplied by each participant that can be considered sufficient for the subsequent statistical treatment;
- Can the summary data supplied by each participant be considered as a separate stochastic variable, or as a sample of a population concerning a single stochastic variable;
- Can the hypothesis that the summary data pertain to a single population always be considered valid;
- Can the KCRV in MRA comparisons always be considered as the single summary parameter representing the intercomparison results;
- Is the choice of attributing or not an uncertainty to the KVRC a free one and is it correct to possibly consider the KCRV a deterministic parameter;
- Can the results of an intercomparison always be considered adequate to evaluate the international equivalence of the services. (CMC).