



## **Practical methodological guide for hydrometric inter-laboratory organisation**

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Discharge measurements performed by the French governmental hydrometer team feed a national database. This data is available for general river flows knowledge, flood forecasting, low water survey, statistical calculations flow, control flow regulatory and many other uses. Regularly checking the measurements quality and better quantifying its accuracy is therefore an absolute need.

The practice of inter-laboratory comparison in hydrometry particularly developed during the last decade. Indeed, discharge measurement can not easily be linked to a standard. Therefore, on-site measurement accuracy control is very difficult. Inter-laboratory comparison is thus a practical solution to this issue. However, it needs some regulations in order to ease its practice and legitimize its results.

To do so, the French government hydrometrics teams produced a practical methodological guide for hydrometric inter-laboratory organisation in destination of hydrometers community in view of ensure the harmonization of inter-laboratory comparison practices for different materials (ADCP, current meter on wadind rod or gauging van, tracer dilution, surface speed) and flow range (flood, low water). Ensure the results formalization and banking.

The realisation of this practice guide is grounded on the experience of the governmental teams & their partners (or fellows), following existing approaches (Doppler group especially).

The guide is designated to validate compliance measures and identify outliers : Hardware, methodological, environmental, or human.

Inter-laboratory comparison provides the means to verify the compliance of the instruments (devices + methods + operators) and provides methods to determine an experimental uncertainty of the tested measurement method which is valid only for the site and the measurement conditions but does not address the calibration or periodic monitoring of the few materials.

After some conceptual definitions, the guide describes the different stages of an inter-comparison campaign:

the campaigning creation: targets, participants ( instruments type and number) and site preparation of test protocols and schedule;

the campaign set-up (organization): invitation and pre-information of the participants, logistics, field preparation; the campaign conduct: participants reception and information, sequences of tests, results analysis and communication, balance sheet;

post-campaign work: further analysis, dissemination and periodic verification of the instruments.

This guide is associated with measurement instruments forms, reminding their limits and conditions for use, land forms, used to record all the necessary information during the inter-comparison campaign (site description and measurement conditions, equipment and its settings, and the set of measurements or intermediate calculations to the final results) as well as a calculation tool and banking measures and results.