

## **Breakout Workshop: Vicarious calibration and validation protocols**

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### **Description of Breakout Workshop**

The Breakout Workshop will attempt to reach consensus on standardized protocols for the operational identification and application of in situ measurements to system vicarious calibration (SVC) and validation processes. Consensus should consider the need to apply state-of-the-art methods (e.g., the need for detailed uncertainty budgets for in situ measurements), recognizing practical limitations intrinsic of the SVC and validation processes (e.g., the difficulty/impossibility of addressing sub-pixel variability).

Separate sub-sessions on SVC and validation processes should answer the following key points:

- I. What are the fundamental requirements for *in situ* measurements supporting single missions for regional/global applications or multiple-missions addressing climate studies (e.g., geophysical quantities, spectral characteristics, uncertainty budgets and traceability, geographical relevance)?
- II. What are the fundamental physical methods to enforce equivalence of satellite and *in situ* data (e.g., application of identical corrections for BRDF effects, corrections for minimizing the impact of different spectral bands)?
- III. What are the fundamental criteria to be met for the construction of matchups (e.g., local spatial/ temporal variability, observation conditions, ranges of applicability, time-lags between in situ and satellite data, geographical origin of the *in situ* data) and additionally, what are the fundamental methods and criteria that should be commonly applied for the statistical analysis of matchup data and the following presentation of summary results (e.g., the statistical methods for the determination of systematic differences and dispersions affecting satellite data with respect to *in situ* measurements, the information complementing matchup analysis when presenting results)?

The talks will provide a seed for the discussion by laying out the current state of the art about these questions. The goal of the breakout session will be to lead to the definition/consolidation of basic protocols (i.e., standard guides) supporting SVC and validation processes. Care should be placed in ranking requirements by stressing the fact that different spatial/temporal/geophysical applications may impose very different levels of requirements.