

# Photogrammetry position calibration for water Cherenkov detectors

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The calibration of all parts of water Cherenkov detectors is essential to obtain the precision measurements being pursued in current and next generation neutrino experiments. The positioning of photosensors within the detector and of calibration sources used to calibrate the detector may slightly deviate from the design, and these deviations may cause biases in event reconstruction. Calibrating these positions through direct measurement can allow the related systematic errors to be constrained further than has been achieved previously. We present a method of position calibration through 3D photogrammetric reconstruction. An overview of the photogrammetry procedure will be discussed along with motivations, simulation studies and a proof-of-concept analysis for the detectors of the Super-Kamiokande and Hyper-Kamiokande experiments.

## TIPP2020 abstract resubmission?

No, this is an entirely new submission.

## Funding information

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