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SUBMITTED ABSTRACT

0.	**Paper Number**	67
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1.	**Title of the paper**	Metrological Investigation on Deep Ocean Thermometers

2.	**Institution**	VSL			
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4.	**Abstract of the paper**
	A comprehensive metrological laboratory investigation was performed on several SBE35 deep ocean thermometers from Seabird Electronics Inc., US. The thermometers were initially calibrated against the Dutch national reference fixed points cells of water (0.01 ^{0}C) and gallium (29,7646 ^{0}C), with an expanded uncertainty of approximately 0.00009 ^{0}C and 0,000230 ^{0}C, respectively Then the thermometers were calibrated by comparison to reference Standard Platinum Resistance Thermometers in a water bath between 0 ^{0}C and 30 ^{0}C, with an uncertainty of 0,0007 ^{0}C. Finally, the pressure effect of the SBE35 devices was measured at pressures up to 60 MPa in two different experimental set-up: a pressurized water chamber (not temperature-controlled) at the Netherlands Institute for Sea Research (NIOZ), Texel, NL and a compact pressure enclosure, accommodated in a temperature-controlled commercial water maintenance bath, at the VSL, Dutch Metrology Institute, Delft, NL. The results showed that that the SBE35 devices show irreproducibilities, both during the fixed points calibrations (up to 0.0015 ^{0}C) and the pressure effect measurements (up to 0.004 ^{0}C), that are still unexplained. A possible dependence of the calibration results on the extent of immersion of the SBE35 devices in the calibration medium is being further investigated.