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**SUBMITTED ABSTRACT**

<b>0.</b>	<b>Paper Number</b>	34
	<b>Session Name</b>	1. Characterization and standardization of environmental measurements - traceability assurance
<b>1.</b>	<b>Title of the paper</b>	Evaluation of the Performance of Present Weather Sensors

<b>2.</b>	<b>Institution</b>	Deutscher Wetterdienst			
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<b>4.</b>	<b>Abstract of the paper</b>
	<p>A method for the evaluation of the performance of present weather sensors as compared to a human observer is presented. In order to obtain a quantified result different classes of precipitation with increasing degrees of detail are defined, the three most basic classes being precipitation in general, liquid and solid precipitation. The more specific classes, e.g. drizzle or snow, are extended to tolerate also mixed precipitation types concerning intensity and phase to account for possible ambiguities in the type of precipitation reported by the observer. For each class a set of verification indices and skill scores is calculated. As reference for the type of precipitation the reported ww-code of a human observer is used. The exact duration of a precipitation event is determined with optical precipitation detectors. The observations as well as the precipitation detector data are provided 24/7 with a temporal resolution of 1 minute. All measurements were taken on a DWD test site in central Germany at an elevation of 920 m a.s.l. over a period of several years. Throughout the seasons the site offers almost constant amounts of precipitation with an annual precipitation above the German average including a sufficient amount of solid precipitation. The method is applied to several present weather sensors using different optical measurement techniques. The presentation concludes with an assessment of the sensors' performance and a discussion on the limitations of the applied method.</p>