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**SUBMITTED ABSTRACT**

<b>0.</b>	<b>Paper Number</b>	38
	<b>Session Name</b>	1. Characterization and standardization of environmental measurements - traceability assurance
<b>1.</b>	<b>Title of the paper</b>	Weather radar data representation supporting the emergence of weather radar as a global resource

<b>2.</b>	<b>Institution</b>	Environment and Climate Change Canada			
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<b>4.</b>	<b>Abstract of the paper</b>
	<p>The WMO Inter-Programme Expert Team on Operational Weather Radars (IPET-OWR) has collected activities and experts from the Commission for Instruments and Methods of Observation (CIMO) and Commission for Basic Systems (CBS). IPET-OWR's work plan responds to the emergence of weather radar as a global resource and anticipates an increased demand for internationally exchanged weather radar data. Such data is needed for advanced regional, inter-regional, and global applications like numerical weather prediction and disaster risk reduction. A key element to successfully supporting the global weather radar data resource is standardized data representation. IPET-OWR has addressed this together with representation of data from scanning lidar systems, since observations from these two instrument types share the same native polar geometry (elevation, azimuth, range). Each so-called sweep of data may contain multiple observed quantities, and there is a vast amount of detailed metadata which describes the characteristics of the instrument and the observations needed to support downstream processing. The requirement to be able to represent different data quality metrics at the individual observation (polar bin) level adds additional complexity. This is becoming increasingly important as the world transitions to operational dual polarization weather radar systems. In recent years, two weather radar data representation formats have emerged with critical masses of users and applications. In Europe and Australia, OPERA Data Information Model ODIM_H5 has become an operational HDF5-based standard. In North America, Europe and elsewhere, CfRadial based on netCDF and Climate and Forecasting (CF) Conventions, supports research. IPET-OWR has successfully converged ODIM_H5 and CfRadial and leveraged the advantages of each to recommend CfRadial 2.0 as a single global standard. In doing so, the team has also aligned weather radar metadata with the WIGOS Metadata Standard. This presentation showcases CfRadial 2.0 and provides examples of applications where such improved weather radar data representation has positive impact.</p>