

## **Contribution of science to global stocktake**

Long-term climate observations over a century can provide reliable quantified indicators that show the historic physical state of the climate and are the basis of the future projections. They will contribute to the Paris Agreement's global stocktake and need to be recognized as scientific heritage for all. Scientific community feels the need to identify a small set of essential climate indicators for the purpose of communication of climate change to date. Surface temperature is not the best indicator of climate change as it is a poor overall thermodynamic descriptor of the Earth's energy balance. A broader set of indicators would better describe and communicate the full range of physical climate change over the last 150 years. Indicators as a package should provide a representative picture of changes to the earth system related to climate change. Indicators need to capture these chains of events. These indicators need to come from an official source. Climate indicators must be useful, actionable, reliable, robust, verifiable and forecastable.