## 6. Conclusions

This paper proposes a probabilistic (risk-based) approach to address temporal verification of net changes with respect to (i) atmospheric $CO_2$ and (ii) global $CO_2$ emissions from fossil fuel combustion, cement production and gas flaring under the Kyoto Protocol. The developed methodology permits assessing these net emission changes, which are characterized by uncertainty distributions, in terms of their VTs. For a number of reasons, namely (1) data availability, (2) consistency in accounting net carbon fluxes, and (3) spatio-temporal conditions, which correspond to the current level of sophistication that is realized in the approach, it is applied to the global scale. However, the temporal verification conditions of the approach correspond to those on sub-global scales, in accordance with the Protocol.

Two conclusions emerge from Hudz's study: (1) Characterizing changes in global net carbon emissions by equal-sided (symmetric) uncertainties, as practiced by the Intergovernmental Panel on Climate Change **(IPCC)**, leaves valuable information unutilized; and (2) the comparison of probabilistically and deterministically determined VTs shows that they differ — the probabilistic VT tends to be greater (more conservative) compared with the deterministic VT.