

***Interactive comment on “HESS Opinions
“Climate, hydrology, energy, water: recognizing
uncertainty and seeking sustainability”” by
D. Koutsoyiannis et al.***

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I perceive the opinion presented by Demetris Koutsoyiannis et al. (2008) as a stimulus (or provocation?) which is always very useful in any scientific community. I want just to comment that since the 19th century, technology has made available unprecedented observation and measurement capabilities (i.e, Earth Observation, as mentioned by Koutsoyiannis). These possibilities are not yet fully exploited by the hydrological modeller community. Observations should not be taken as "data validation" per-se, to be ingested or somewhat assimilated into our models. Instead, our models should be

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able to reproduce and explain what we get from the observation itself ("measurement simulators"), at the appropriate temporal and spatial scale, with a predictable accuracy (yes, here we need probability!). This requires a fully comprehension of the observation technique and its validity (which is based on deterministic physical principles). This way-of-thinking is not new to hydrologists; look for example, at our colleagues studying the atmospheric turbulence. To deepen their knowledge of such complex process, they have -first of all- developed a fully understanding of the most appropriate measurements techniques (i.e. eddy-covariance) and how to use these techniques to coherently interpret their models.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 2927, 2008.

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