

# How previous climatic experiences can modify the conceptualization of climate?

E. Dugas, & A. Lammel

*University Paris 8, Saint Denis, France*

## Introduction

Several authors (Levy-Leboyer & Duron, 1991) highlighted the importance to integrate cognitive perspective in climate change studies however few empirical studies have been realized in this field. Our previous studies emphasize the interest of taking in consideration contextual variables, such as environment, on conceptualization and mental representation of climate (Lammel, Dugas & Guillen, 2011). We introduced the term of “bi-metric representation” which is built up on the subject’s knowledge and his direct experience with the environment. This present study aims to shed light on the role of climatic experiences on the conceptualization of climate. We formulate the hypothesis that climatic experiences (single or multiple) may play a role in the level of conceptualization of climate.

## Methods

A comparative study, using online questionnaire was implied. Participants were all Parisian adults (N=391; n=192 have always lived in Paris; n=199 have in one contrasted climate for at least 5 years, three age groups 20/30, 30/40 and 40/50 years). In the questionnaire, first an association tasks were proposed, followed by an open question «what is climate for you?».

## Results and reflection

Results demonstrate significant differences in the conceptualization between subjects having only one climatic experience and those of multiple experiences. For subjects with single climatic experience the concept of climate stay at a very low level, reflecting the confusion between weather and climate. Otherwise, the concept as well as the representations of climate mainly focuses only on one constituent of climate: the

atmospheric component. In comparison, participants having at least two climatic experiences have a systemic representation of climate, including into the atmosphere the biosphere, hydrosphere, lithosphere or the cryosphere. Regarding the development of the conceptualization of the climate in adults, our results point out that age is a minor factor compared to experience. It seems that regarding the concept of climate, we do not encounter a conceptual development with age as was proved in the literature for scientific concepts. Subjects with different climatic experiences developed bi-metric representations, synthesizing knowledge with personal experiences. Results suggest that they are cognitively less vulnerable than subjects with single experiences and can understand better climate change relevant problems. These findings support the idea that underlying cognitive processes in climate conceptualization are influenced by the direct environment of the subject. Therefore, we emphasize that understanding cognitive aspects in climate change issues have to take in consideration the necessity to build up the capacity of the construction of bi-metric representation of climate.

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## References

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