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Climate change sciences in support of vulnerability, impact and adaptation activities in Quebec, Canada

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Reducing the adverse impacts of climate change requires both adaptation and mitigation efforts. An adaptation strategy implies an estimate of biophysical vulnerability (i.e. of climate hazard combined to social vulnerability). Adaptive measures require time to put into place. If postponed, some options may be lost for ever. Regional and institutional adaptation actions should be anticipatory and planned so as to minimize costs and optimize profitability.

In Canada, Ouranos a consortium in climatology and adaptation to climate change was launched by the Government of Québec, Hydro-Quebec and the Meteorological Service of Canada. Québec's decision makers have identified Vulnerability and Impacts assessment and the study Adaptation strategies (VI&A) as a priority and are supporting Ouranos' scientific research programs to this end. More than nine ministries and agencies of Québec are collaborating with four universities. The aim is to develop a structure for analysis and to promote synergetic work in the search for solutions to climate change adaptation issues in a North American context. Ouranos has developed several tools to support VI&A assessment and analysis. These include the Canadian Regional Climate Model, (regional) and climate change scenarios. By working at a regional scale and enabling direct links between various developers of impact and adaptation strategies, Ouranos provides a unique opportunity for innovative multidisciplinary and multi-organisational dialogue.

This presentation aims to show how the science developed at Ouranos is being transferred into practice. Concrete examples taken from Ouranos' ongoing VI&A projects will be discussed. A specific emphasis will address integrated watershed management projects in southern Quebec and discuss a recently launched joint research initiative

between Ouranos and the University of Munich (conjointly funded by the Quebec ministère du Développement économique, de l'Innovation et de l'Exportation (MDEIE) and the Bavarian Ministry of the Environment). This project intends to identify commonalities and differences in assessing regional consequences of climate and global change and developing innovative adaptive strategies. Furthermore, it aims to investigate the opportunities to couple the core competences to add value to the existing systems. Depending on positive outcome, we expect to prepare a larger joint project for the development of an integrative modeling system for the sustainable management of water resources under climate change conditions.