**What impact of climate change on animal health?**

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Several animal or zoonotic emerging infectious disease (EID) events were recently caused by vector-borne pathogens, *e.g.* bluetongue virus (BTV) transmitted by biting midges which caused huge economic losses in western Europe between 2006 and 2009, and is still around, or tick-borne encephalitis in northern and central Europe, causing several thousands of clinical cases in humans. The effects of climate changes have been put forward to explain these EID events. Because the bio-ecological features of arthropod vectors make them highly sensitive to environmental conditions, vector-borne diseases are ideal candidates to assess the effect of climate changes on EID. The question was extensively studied these past years.

For instance, the effects of climate on BTV's emergence in Europe were evaluated by integrating high-resolution climate observations and model simulations within a climate-driven, mechanistic transmission model of BTV. This model explained, in both space and time, many aspects of BTV’s recent emergence and spread, including the 2006 BTV outbreak in northwest Europe which occurred in the year of highest projected risk since at least 1960. Driven by simulated future climate from an ensemble of 11 regional climate models, the model projected an increased future risk of BTV emergence across most of Europe with uncertainty in rate but not in trend.

More generally, results showed that each EID is a special case and involves a complex network of interacting causes. In several cases, socio-economic changes, including the intensification of trade and travels, were found to have a dominant effect over climate changes. This is particularly true for tick-borne encephalitis in northern and central Europe.

Conversely, the indirect effects of climate changes on animal health have been rarely studied so far. For instance, regarding northern and sub-Saharan Africa, climate-change scenarios often point to important consequences on farming systems (*e.g.*, greater importance of small ruminants with respect to cattle) and urbanization. These changes will cause major changes in transboundary livestock trade, thus allowing the introduction of pathogens (and their possible vectors) into previously free areas. This is a further illustration of the need to better control animal diseases in their geographic area of endemicity, and to improve surveillance and preparedness for early warning and reaction in case of high risk of EID.