



## **High Resolution Simulations of a Severe Hail Storm and Flooding Event over La Paz city with WRF**

Marcelo Zamuriano (1,2) and Stefan Brönnimann (1,2)

(1) Institute of Geography, University of Bern, Switzerland, (2) Oeschger Centre for Climate Change Research, University of Bern, Switzerland (marcelo.zamuriano@giub.unibe.ch)

On February 19, 2002 a very local hail storm and a flash flood episode occurred in La Paz city, Bolivia. About 40 millimeters of precipitation in over an hour was observed, it was the strongest rainfall registered until that date. This event caused at least 69 casualties and important damages to the city's infrastructure, being considered as an exceptional natural disaster. It is thought that the vertical humid air motion driven by the high surface temperatures and topographical forcing is the responsible of such event, nevertheless a formal study about the atmospheric features leading to this episode has not been done yet. In order to overcome this issue, a series of high resolution numerical experiments with the WRF-ARW model is conducted using two global datasets: GFS and ECMWF. Several micro-physics schemes are used in a four-nested domain configuration with 2 kilometers as finest resolution, giving more details about the effects topography on this event. Overall, high-resolution simulations improves the spatial distribution of rainfall and represents better the local atmospheric circulation leading to this extreme event.