



## **Atmospheric Moisture Transport to the Ob, Yenisei and Lena Basins**

Ambroise Dufour and Olga Zolina

Université Grenoble Alpes, Institut des Géosciences de l'Environnement, Saint Martin d'Hères, France  
(ambroise.dufour@univ-grenoble-alpes.fr)

The catchments of the Ob, Yenisei and Lena rivers stretch from 46°N to 71°N and cover 7.95 million square kilometers. The water cycle over these basins is sensitive to rising temperatures due to the melting of permafrost, a reduction in snow cover, increased atmospheric moisture and possible circulation changes. Downstream, the river discharge is a major contributor to the Arctic Ocean freshwater budget. Changes in the regional water cycle are constrained upstream by the quantity of water vapour transported by the winds into the domain, which can be monitored with atmospheric reanalyses.

Our study builds upon the work of Zhang et al. [Nature Climate Change 3.1 (2013): 47-51.] using NCEP NCAR R1. We evaluate the robustness of their conclusions with state of the art reanalyses including JRA 55 and MERRA 2 and prolonging the period of study from 2008 to 2015. The increasing trend in NCEP NCAR R1 is found to be sensitive to the start and end points and is weaker or absent in the other datasets. However, we do confirm that the variability of the moisture convergence is a consequence of changing winds rather than increasing moisture. Finally, we contrast this behaviour with moisture fluxes into the High Arctic (north of 70°N) where winds and humidity show opposite trends.