Consistent top-to-the-foreland directed deformation from floor to roof in the Seve Nappe Complex (SNC), Jämtland, Sweden

H. Bender[1]*, U. Ring[1], B.S.G. Almqvist[2], J. Glodny[3], B. Grasemann[4] and M.B. Stephens[5]

[1]*Department of Geological Sciences, Stockholm University, 106 91 Stockholm, SWEDEN (*correspondence: hagen.bender@geo.su.se)*
[2]*Department of Earth Sciences, Geophysics, Villavägen 16, 752 36 Uppsala, SWEDEN*
[3]*GFZ German Research Centre for Geosciences, Telegrafenberg, 14474 Potsdam, GERMANY*
[4]*Department of Geodynamics and Sedimentology, University of Vienna, Althanstraße 14, 1090 Vienna, AUSTRIA*
[5]*Department of Civil, Environmental and Natural Resources Engineering, Division of Geosciences, Luleå University of Technology, 971 87 Luleå, SWEDEN*

The recent COSC-1 drilling programme (Lorenz et al., 2015), discovery of microdiamonds (Majka et al., 2014) and discussion of extrusion-wedge tectonics (Grimmer et al., 2015) outline the importance of the Seve Nappe Complex (SNC) and its key role during the Caledonian orogeny. The kinematic evolution of the SNC is crucial for better understanding the entire mountain belt. Thorough structural mapping of the SNC and adjacent units was conducted in western and northern Jämtland, central Sweden. Complementary microstructural investigations strengthen the field observations and show consistent top-to-the-SE directed movement through all studied tectonic units. Amphibolite-facies deformation can be inferred from fabrics in the SNC, which are overprinted by greenschist-facies structures showing the same kinematics throughout the studied section of the nappe stack. These data indicate persistence of the same foreland-directed kinematics over a wide range of pressure–temperature conditions in space and time. Currently proposed models for exhuming high-grade metamorphic rocks in collisional orogens fail to explain these observations and highlight the need for discussing new tectonic concepts for the Scandinavian Caledonides.

References:

Grimmer et al., 2015, *Geology* 43 (4).
Lorenz et al., 2015, *Scientific Drilling* 19.
Majka et al. 2014, *Geology* 42 (12).