Accepted Manuscript

Kinematics and strain distribution in an orogen-scale shear zone: Insights from structural analyses and magnetic fabrics in the Gavarnie thrust, Pyrenees

Marcos Marcén, Antonio M. Casas-Sainz, Teresa Román-Berdiel, Belén Oliva-Urcia, Ruth Soto, Luca Aldega

PII: S0191-8141(18)30138-X

DOI: 10.1016/j.jsg.2018.09.008

Reference: SG 3740

To appear in: *Journal of Structural Geology*

Received Date: 7 March 2018

Revised Date: 12 September 2018

Accepted Date: 12 September 2018

Please cite this article as: Marcén, M., Casas-Sainz, A.M., Román-Berdiel, T., Oliva-Urcia, Belé., Soto, R., Aldega, L., Kinematics and strain distribution in an orogen-scale shear zone: Insights from structural analyses and magnetic fabrics in the Gavarnie thrust, Pyrenees, *Journal of Structural Geology* (2018), doi: https://doi.org/10.1016/j.jsg.2018.09.008.

Title: Kinematics and strain distribution in an orogen-scale shear zone: insights from structural analyses and magnetic fabrics in the Gavarnie thrust, Pyrenees

Authors: Marcos Marcén [a,*], Antonio M. Casas-Sainz [a], Teresa Román-Berdiel [a], Belén Oliva-Urcia [b], Ruth Soto [c], Luca Aldega [d]

[a] Geotransfer, Dpto. Ciencias de la Tierra, Facultad de Ciencias, Instituto de Investigación en Ciencias Ambientales (IUCA), Universidad de Zaragoza, 50009 Zaragoza.

[b] Dpto. Geología y Geoquímica, Fac. Ciencias (6-406), Universidad Autónoma de Madrid, Ciudad Universitaria de Cantoblanco, 28049 Madrid, Spain.

[c] IGME, Instituto Geológico y Minero de España, Unidad de Zaragoza, 50006 Zaragoza.

[d] Dipartimento di Scienze della Terra, Sapienza Universita di Roma, 00185 Rome, Italy.

[*] Corresponding author: mma@unizar.es

Abstract

This work aims to characterize the Gavarnie thrust, one of the large-scale thrusts that define the Alpine structure of the west-central sector of the Pyrenees. A detailed comparison of structural analysis and magnetic fabrics is carried out for the Paleozoic phyllonites of the Gavarnie thrust, in order to decipher strain distribution and transport direction. The AMS at room (RT-AMS) and low (LT-AMS) temperature and the AIRM can be correlated with the structural patterns: k_{min} axes are mainly parallel to