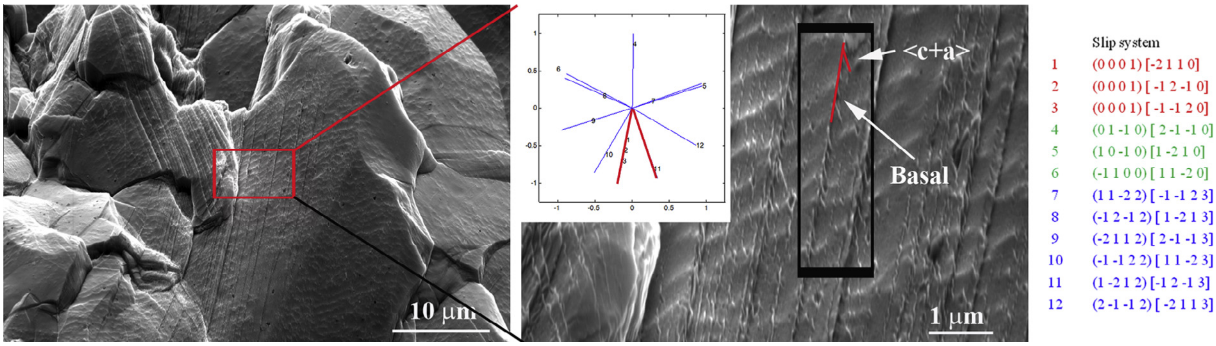

Fig. 14. SEM micrographs at two magnifications illustrating cross-slip of ⟨a⟩ dislocations from basal onto pyramidal planes during compression at 250 °C in the polycrystal with $d = 19$ µm.

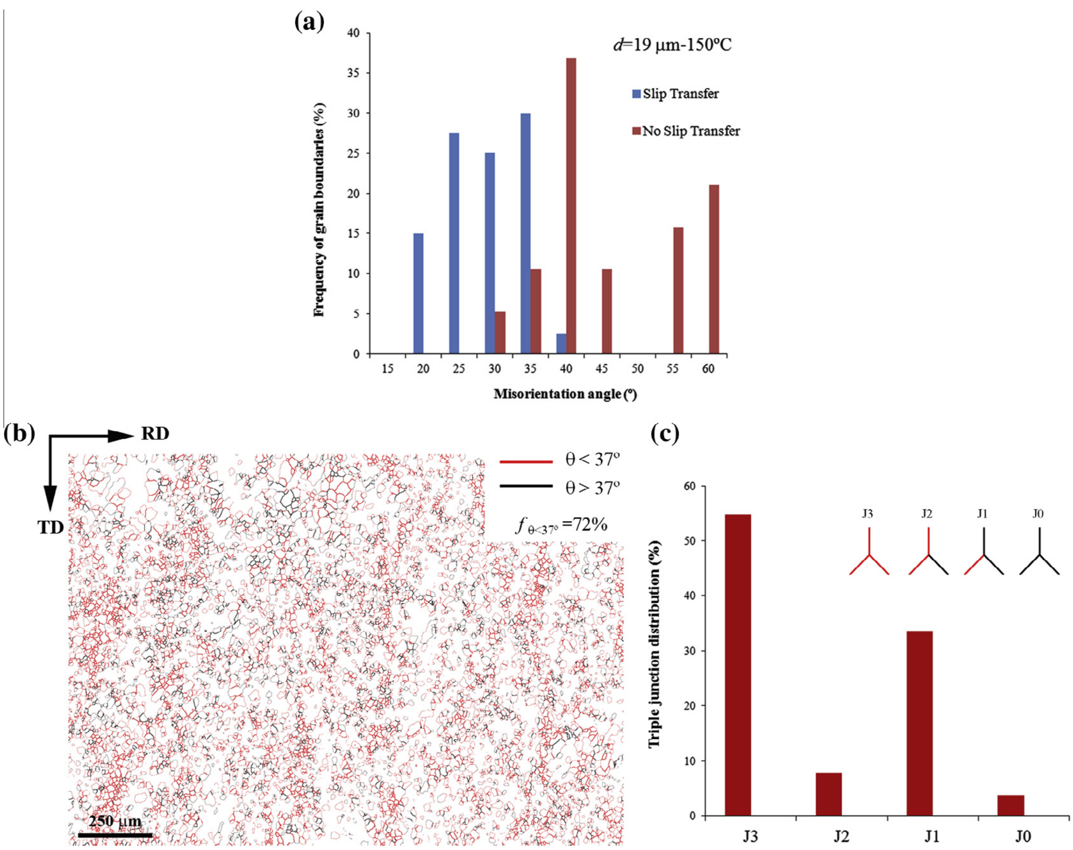

Fig. 15. Polycrystal with $d = 19$ µm tested at 150 °C and 10^{-3} s^{-1}. (a) Misorientation distribution histogram of grain boundaries inside the deformation bands across which basal slip transfer could take place (blue bars) and of those at which slip traces were arrested (red bars); (b) GB map corresponding to the EBSD SF map of Fig. 5a. GBs with $\theta < 37°$ are colored in red while GBs with $\theta > 37°$ are colored in black. (c) The corresponding triple junction distribution histogram is also included. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

these data suggest that the threshold f_{J2+J3} value required for the twinning to slip transition to take place might be comprised between 51% and 63%. Therefore, it is our contention that the transition from twinning to basal slip dominated flow that takes place with increasing temperature in the pure Mg polycrystal with $d = 19$ µm may also be attributed to the enhanced percolation of basal slip transfer between grains favorably oriented for basal slip.

3.4. Outlook

The current study evidences that the topology of the GB network, together with the local crystallographic orientations, play a decisive role in the selection of the dominant deformation mechanisms in pure Mg polycrystals. In particular, boundary percolation effects relative to basal slip transfer, which emerge from the processing and which