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EXPANSIVE CLAYS AND HYDROCLIMATIC CONTROLS AS CONDITIONING FACTORS OF MASS MOVEMENTS IN SE SPAIN

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In the Iberian Peninsula, Alpine belts concentrate the main areas with high susceptibility to slope instabilities. Steepening of slopes by recent tectonic activity has classically been suggested as the cause of mass movements in these areas. However, in the Betic Cordillera the most important landslides, in terms of volume of mobilised material and economic losses, have been produced in areas of low-moderate slope. We have made a detailed study of two very important complex movements (Diezma landslide, 2001 and Riogordo landslide, 1973), which were produced in zones of very moderate slope, in order to elucidate common conditioning and triggering factors. Both landslides, separated more than 200 km, were produced in layered sedimentary rocks with a clay matrix and numerous heterometric blocks of different origin. This sedimentary formation, considered as a Flysch Formation reworked by different mass movement along time, outcrops in the contact between the external and internal zones of the Betic Cordillera. In both cases, heavy rainfalls occurred previously to the sudden, rapid landslides. In consequence, rainfall can be considered as the triggering mechanism. All the movement, with a very important component of flow and lateral spreading, was produced along several surfaces (with preserved slickensides) situated at different depths (between 2 and 30 m) in the sedimentary formation. A mineralogical analysis of the movement surface reflects high concentration (up to 85