Geophysical Research Abstracts
Vol. 14, EGU2012-12764, 2012
EGU General Assembly 2012
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REMONTANT EROSION IN DESERT SOILS OF TAMAULIPAS MÉXICO

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The degradation of soil reduces the capacity of soils to produce food and sustain life. Erosion is one of the main types of soil degradation. Hydric erosion of remontant type can occur in soils located close to the channel of a river through the expansion of a gully that begins as a fluvial incision over the ravine of one side of the river. The incision takes place at the point of greatest flow of runoff from areas adjacent to empty into the river. The depth of the incision causes the growth of the gully by collapse to move their heads back, upstream. The soil loss by remontant erosion on land use in agriculture and livestock was estimated in order to understand the evolution of gullies formed by this type of erosion. Through measurements on satellite images and GPS (Global Positioning System) two gullies, developed on alluvial soils which drain into the river Chihue, were studied. The investigation was conducted during 2003 to 2010 period in the municipality of Jaumave, Tamaulipas, in northeastern Mexico. Soil loss in gullies developed by remontant erosion was large and it was caused by soil collapse and drag of soil on the headers. The estimated loss of soil by remontant erosion was 3500 t in the deeper gully during 2010 and nearly 1200 t per year in the period 2003-2009. New sections of gully of about 20 m length, with more than 3 m deep and up to 13 m wide, were formed each year. This degradation has significantly reduced the productive surface of soil that for many years has been used to the cultivation of maize (Zea mays) and beans (Phaseolus vulgaris) as well as pasture production.