Potential soil loss computation in the *Crete Senesi* area (*Siena*, Italy) from high resolution remote sensing and digital photogrammetry

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Aim of this paper is the computation of the potential soil loss in the Crete Senesi area, particularly in the municipalities of Asciano and San Giovanni d'Asso (Siena, Italy), from the processing and the interpretation of multitemporal series of panchromatic and full chromatic aerial photos and recent high resolution QuickBird satellite imageries. The analysis has been carried out because of the enormous changes suffered during the last 50 years by these famous landscapes with universally conferred naturalistic priceless value. The study started from the orientation of the whole remotely sensed data, for which ground control points were collected by means of differential GPS measurements both in static and real time kinematic mode. Afterwards the aerial photos have been oriented by means of digital photogrammetric techniques directed to the geomorphometric study. Digital elevation models related to the different temporal intervals have been calculated from the aerial photos by utilising semi-automatic techniques, whilst the multitemporal land use data base has been built through monoscopic restitution of the produced orthophotos. The recent Quickbird satellite imageries have been orthorectified as well, then interpreted for the land use theme. The whole data has been organized in a GIS. Map analysis procedures allowed to compare the data of different years and to rebuild the Crete Senesi geomorphologic evolution. Finally the multitemporal land use and elevation databases, together with rainfall and soil data, have been utilized as input in the Revised Universal Soil Loss Equation for the potential soil loss calculation.