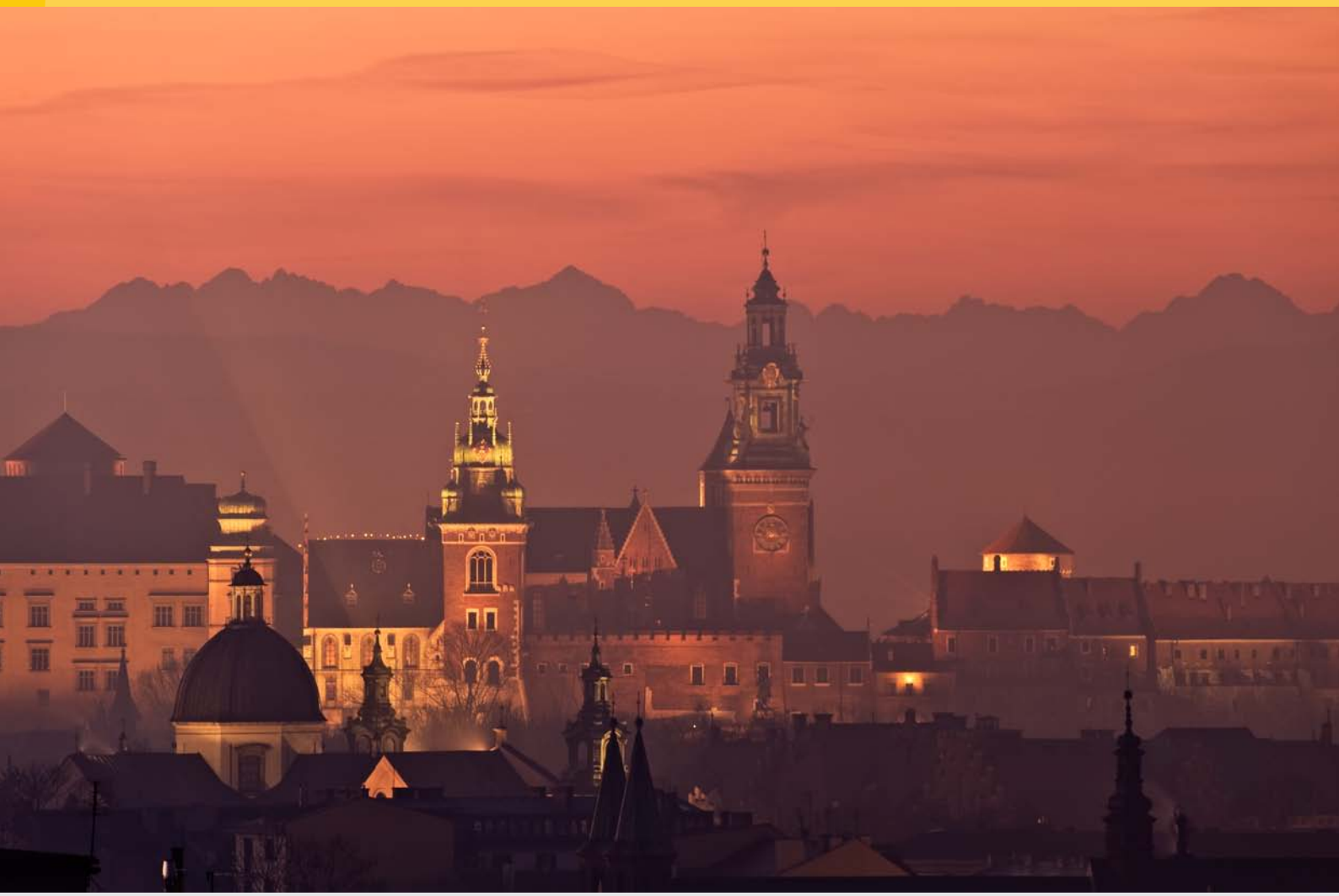
ABSTRACTS

31st IAS Meeting of Sedimentology

held in Kraków on 22nd–25th of June 2015



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Meeting of Sedimentology
Kraków, Poland • June 2015

Sand supply from shoreface to foredunes: aeolian transport measurements and morphological evolution of a Tuscany beach stretch (Italy)

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The coastal dunes are a highly dynamic sedimentary environment characterized by a continuous time-space readjustment in terms of morphology, shape and dimension. This is mainly due to the periodic fluctuation of the volume of sand available and by the force of the deflation processes, which are in turn driven by the interplay among pattern of vegetation cover, surface roughness and local-regional wind regime. The aim of our research is to quantify the deflation, transport and deposition of sands in a natural coastal field dune system located in the northern coast of Tuscany, Italy. The northern part of the investigated area is characterized by stable coastline condition while southwards strong erosive processes took place since 1800s. Sedimentological data come from a series of sand trap spaced along transects orthogonal to the coastline from the backshore to the semi stable dune field. The trap were constructed of PVC pipe 100 x 10 cm, with two openings 7 cm wide and 50 cm tall arranged on opposite sides of the tube. An opening is willing windward and works for sand collection. The other is leeward and is covered with a metal wire 60µm opening in order to prevent the passage of sand. Traps were buried along, until the base of the free window coincide with the surface of the ground about 1,5 m. The sand trapped within each collector was sampled every two hours for three consecutive times. In laboratory sand samples were weighed and subject to grain size analysis by means of mechanical sieves. Local wind parameters and their fluctuation with time were acquired through a meteorological mobile station. The station is equipped with three anemometers located at three different heights from ground surface: 40, 120 and 180 cm. A wireless sensor allows the constant output of data (every 5 s) to a device. Temperature and relative humidity values are measured every 30 minutes. Analysis of data has evidenced the time-space fluctuation of sand volume in the two study area (stable area and under erosion). Basing on this methodological approach the time-space fluctuation of sand volume experienced by the two study areas (stable area and under erosion) has been estimated. Basing on this methodological approach the time-space fluctuation of sand volume experienced by the two study areas (stable area and under erosion) has been estimated.