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Sedimentological, biogeochemical and mineralogical facies of Northern and Central Western Adriatic Sea

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Abstract

The aim of this work was to identify sedimentary facies, i.e. facies having similar biogeochemical, mineralogical and sedimentological properties, in present and recent fine sediments of the Northern and Central Adriatic Sea with their spatial and temporal variations. Further aims were to identify the transportation, dispersion and sedimentation processes and provenance areas of sediments belonging to the facies. A Q-mode factor analysis of mineralogical, granulometric, geochemical (major and trace elements) and biochemical (organic carbon and total nitrogen) properties of surficial and sub-surficial sediments sampled in the PRISMA 1 Project has been used to identify the sedimentary facies. On the whole, four facies were identified: 1) a Padanic Facies, made up of fine siliciclastic sediments which reach the Adriatic Sea mainly from the Po River and are distributed by the Adriatic hydrodynamic in a parallel belt off the Italian coast. Southward, this facies gradually mixes with sediments from the Apennine rivers and with biogenic autochthonous particulate; 2) a Dolomitic Facies, made up of dolomitic sediments coming from the eastern Alps. This facies is predominant north of the Po River outfalls and it mixes with Padanic Facies sediments in front of the Po River delta; 3) a Mn-carbonate Facies, made up of very fine sediments, rich in coccolithophores and secondary Mn-oxy-hydroxides resulting from the reworking of surficial