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Magnetic mineral distribution in coastal marine sediments collected from off the southwestern Chile.

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In order to reveal magnetic mineral distributions in coastal marine sediments taken from off the southwestern Chile, we studied rock magnetic characteristics of surface sediments and performed chemical analysis in bottom water. The samples analyzed were unlithified terrigenous and calcareous sediments recovered by a multiple corer at five stations. Results show that rock magnetic parameters of sediments change with iron and oxygen concentrations in bottom water. Magnetite (Fe3O4) and goethite (αFeOOH) were common in the samples, whereas (titeno)maghemite (rFe2O_3) and hematite (αFe2O_3) were recognized at the oxic stations. Results also indicate a general change in mean grain size of magnetic minerals with iron and oxygen concentrations in bottom water. Fine grained magnetic minerals are distributed under anoxic condition. It is suggested that preferential dissolution of magnetic mineral grains occurred.