R004-05
C 会場 ：11/6　AM1 （9:00-10:30）
10:00〜10:15

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Unmixing magnetic mineral assemblages of a western equatorial Pacific sediment core subjected to reductive diagenesis

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Diagenesis is ubiquitous in marine sediments, causing sedimentary iron-bearing minerals to undergo a series of redox reactions until they reach equilibrium with reactive chemical components in sediments. Paleomagnetic records in sediments subjected to severe diagenesis may be distorted or lost due to iron mineral dissolution. Some magnetic minerals like silicate-hosted magnetic inclusions can survive the diagenetic iron mineral dissolution and are widely found in marine sediments. Thus they provide the possibility of preserving paleomagnetic records in sediments subjected to reductive diagenesis. To better understand this issue, we studied on a sediment core from the Ontong Java Plateau, western equatorial Pacific Ocean. Magnetic susceptibility has a sudden about 90% decrease at about 6 m in depth, which indicates a magnetic mineral concentration decrease due to diagenetic iron-mineral dissolution. A coeval drop of the ratio between anhysteretic remanent magnetization susceptibility and saturation isothermal remanent magnetization (SIRM) can be explained by loss of magnetofossils. However, information on paleomagnetic declination and paleointensity could still be recovered. Silicate-hosted magnetic inclusions were separated from bulk sediments by chemical procedures. They contribute about 45% or more of SIRM in the reduced sediments. Hence the contribution of silicate-hosted magnetic inclusions to paleomagnetic recording is confirmed in the studied sediment core. High coercivity hematite may be another major remanence carrier in the reduced sediments. Superparamagnetic greigite formation under sulphate-reducing diagenetic environments was estimated from first-order reversal curve diagrams and SIRM decay behaviors of bulk sediments.