Evidence for the occurrence of recycled materials on a global scale in the Earth's interior based on noble gas isotopes

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Terrestrial noble gas isotopes can be summarized as mixing components among such endmembers as those represented by the atmosphere(sea water), crustal rocks, MORB and OIB. Among OIB samples, however, the noble gas signatures require the contribution of the endmember(s) represented by crustal rocks and/or atmosphere(sea water) to some extent. Based on their detailed investigations, it is conjectured that such mixing has not occurred at a shallow part, but should have been produced probably by suducted plate(s) in the Earth's deep interior. This can be considered as the evidence for the occurrence of recycled materials on a global scale in the Earth's interior.