

# Measurement of inner core differential rotation using earth's free oscillation

# Kanako Tomiyama[1]; Hitoshi Oda[1]

[1] Dept. of Earth Sci., Okayama Univ.

We measured a rotation rate of the inner core relative to the mantle and crust, investigating time variations of splitting functions of six inner core sensitive modes, 3S2, 6S3, 9S3, 7S4, 11S4, and 8S5 modes and four mantle modes 0S5, 0S6, 0S7 and 1S4. From the time variations in a period of ten years, the mean rotation rate of the inner core modes was as small as 0.03 degree per year forward the west, and the mean rotation rate of the mantle modes was estimated at 0.01 degree per year forward west for the mantle modes. Although our estimate showed a slight westward rotation, the rotation rate is insignificantly different from zero, and it was marginally consistent with small rotation rates obtained by the recent body wave studies. We conclude that the inner core is not rotating at a significant rate relative to the mantle and that the mantle structure is not changing with time.