

Change in seismicity in the Tokai region in recent years

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It is observed that pattern of crustal deformation in the Tokai region has changed noticeably after the 2000 volcano-seismic event in the northern Izu islands. The change in the trend of crustal deformation seems to have extended in the broad area from the Izu Peninsula to Ise Bay, which suggests that the change was caused by a change in the scheme of interaction between the Philippine Sea plate, the Izu microplate and the Eurasian plate or mechanical condition between these plates after the 2000 volcano-seismic event. We think this must have an effect on the seismicity in the slab in the Tokai region. Standing on the viewpoint we investigated changes in the occurrence rate of earthquakes and magnitude-frequency distribution minutely.

Following are the summary of the changes in seismicity since October 1997.

1. Seismicity in the whole area from Suruga Bay through Ise Bay became active in the autumn of 2000, decreased in the autumn of 2001, and increased from early summer of 2002. Though the seismic quiescence in the summer of 1999 was conspicuous only in the eastern part of the Tokai region, e.g., in Shizuoka Prefecture, that one in the autumn 2001 was observed in the whole area.

2. On the other hand, the b-value for the seismic activity in Shizuoka Prefecture is observed to have lowered just before the M5.1 earthquake in April 2001. Change in the b-value is not clear at the time of quiescence in the summer of 1999, but the b-value became quite large in the period of quiescence that began in the autumn of 2001. In Aichi Prefecture the b-value was around 0.7-0.8 during the period from 2000 to 2001 after having become large in 1999. At the time of quiescence since the autumn of 2001, the b-value became noticeably large, while increase of the b-value was not observed for quiescence in the latter period of 2000.