

Change in seismicity in the focal region and its adjacent area of the 2003 off-Miyagi Prefecture earthquake

Kohji Hosono[1]; Akio Yoshida[2]

[1] Earthq.Info.Predict.Div.,JMA; [2] Magnetic Observatory

In this lecture we report preceding changes in seismic activity observed in and around the focal region of the off-Miyagi Prefecture earthquake of M7.1 that occurred on 26 May 2003 in the slab of the Pacific plate.

The preceding seismicity changes occurred in the following way:

1. quiescence from early 2002 in the slab deeper than the focal region
2. increase in May 2002
3. decrease in summer 2002
4. noticeable activation in October 2002
5. remarkable quiescence from early February through 25 May 2003

Although the quiescence from early 2002 appeared in the slab deeper than the focal region of the M7.1 earthquake, other changes listed above were observed mainly in the shallower part of the slab. For example, the activation of seismicity during the period from October 2002 through February 2003 was especially noticeable in the depth range of 25-60km, and an M6.3 earthquake occurred on 26 November at the depth of 46km. During the activity the b-value in the area was significantly small. The activity ended rather abruptly in early March 2003, and then, seismicity in the area became remarkably quiet till the occurrence of the M7.1 earthquake on 26 May. All these changes in seismicity were observed successively to encompass the focal region in the slab, so that we think they were related to the occurrence of the M7.1 earthquake. We discuss tectono-physical meanings of those seismicity changes in the lecture.