

A perspective on the 20-year active fault survey

SUGIYAMA, Yuichi^{1*}

¹Institute of Earthquake and Volcano Geology, AIST

Overview of the 20-year survey of active faults

110 major active faults had been surveyed within ten years after the 1995 Great Hanshin-Awaji Earthquake by the national survey project. In the second ten years from 2005 to 2014, intensive surveys have been conducted on designated active faults, either having a possibility of a huge earthquake in the near future, or causing serious damage in case of the occurrence of an earthquake. Taking account of successive occurrence of three damaging earthquakes in coastal areas in 2005 and 2007, the government started a nearshore active fault survey project in 2009. For onshore active faults without sufficient data, additional or supplementary surveys have been carried out. The author will pick out several major active faults, and will highlight valuable results and important unsolved problems.

Challenges in active fault research

The author points out the following three issues to challenge, on the basis of the 20-year national survey of active faults as well as surveys on surface faults that appeared in association with damaging earthquakes after the 1995 Great Hanshin-Awaji Earthquake. The author is looking forward to discussing how we should approach and solve these issues with all the participants

1. Unveiling the mechanism of diversity in fault reactivation.

1-1: Diversity in lateral extent of rupturing (single, multiple or chained fault rupturing with various combination of faults) in and around an active fault system.

1-2: Diversity in co-seismic displacement of active faults (more than tenfold variation in some cases) even at the same points of the same active faults.

2. Clarifying the relationship between the "shallow part" (active fault) and the "deep part" (source fault), being not strongly constrained by geophysical exploration or geological modelling even now.

3. Survey and evaluation of "unknown" active faults (faults with unclear fault-related geomorphic features).

Keywords: active fault, inland earthquake