STATE OF CRUSTAL STRESS ACROSS NORTHEASTERN JAPAN ARC; Part 1

Yasuo Yabe[1]; Namiko Sato[2]; Kiyohiko Yamamoto[3]; Kazushige Obara[4]; Keiji Kasahara[5]

[1] RCPEV,Tohoku Univ.; [2] AIST; [3] none; [4] NIED; [5] N.I.E.D.

State of stress in the Earth's crust is a key information to determine whether the crustal deformation takes place elastically or inelastically. Crustal stress across NE Japan has been estimated from boring core samples retrieved from depths by applying Deformation Rate Analysis (DRA), which is a stress estimation technique based on the stress memory of rocks. The estimated stress showed such characteristics in stress state across NE Japan arc as follows: In the fore-arc region, the maximum horizontal compression (SH) almost equal to or slightly larger than the vertical stress (Sv) and the minimum horizontal compression (Sh) is generally 0.5-0.8Sv. The maximum compression axis in this region is oriented to east-west direction as expected from the tectonic environments of NE Japan. In the Ou Backbone Range, Sh is almost equal to Sv and SH is in the range between 1.5Sv and 1.8Sv. In the back-arc region, Sh is slightly smaller than Sv. SH is roughly 1.5Sv or less.