

地震のメカニズム解を用いた本州弧と琉球弧の接合部における応力場の決定 Transitional patterns of crustal stress field between Honshu arc and Ryukyu arc in Japan

大坪 誠^{1*}, 久保 篤規²

OTSUBO, Makoto^{1*}, KUBO, Atsuki²

¹産業技術総合研究所 地質情報研究部門, ²高知大学

¹Geological Survey of Japan/AIST, ²Kochi University

Deformation and stress state in active island arcs are important for understanding the dynamics. We analyzed crust stress state in the connective region between Honshu and Ryukyu arc to understand the transitional stress between with and without backarc opening of the arcs around southwestern Japan arc. In this study, we apply the multiple inverse method (Otsubo et al., 2008) into the focal mechanism solutions (best double couple components of regional moment tensors derived by F-net, NIED, Japan) in the area. The data were obtained from about ~400 shallow earthquakes (< 20 km) since January 1st, 1997 to December 31st, 2010. All local magnitudes were greater than 3.0. As a result, the multiple inverse method shows different stress province from one found by P-/T- axes. In perspective view, Shmax and Shmin directions rotate gradually from Honshu to Ryukyu. This result constrains patterns of the fan shaped stress trajectory between compressive Honshu arc and extensional Ryukyu arc, which is important issue to the understand geodynamics of subduction zone island arc. In addition, the multiple stress solutions and these stress ratio variations indicate locally heterogeneous stress states between Honshu arc and Ryukyu arc.

Acknowledgements:

Thanks are also due to the National Research Institute for Earth Science and Disaster Prevention (NIED) for making available the focal mechanism data in the study area.

Reference:

Otsubo, M., Yamaji, A. and Kubo, A. (2008) Determination of stresses from heterogeneous focal mechanism data: An adaptation of the multiple inverse method. *Tectonophysics*, 457, 150-160.

キーワード: 発震機構, 応力, 沈み込み, 応力テンソルインバージョン, 地震, 九州

Keywords: Focal mechanism, Stress, Subduction, Stress tensor inversion, Earthquake, Kyushu