Preface

This special issue consists of contributions from some of the participants of the international workshop on "Recurrence of Great Interplate Earthquakes and its Mechanism", January 20–21, 1999, Kochi, Southwest Japan. The City of Kochi is situated in the forearc of the Nankai subduction zone, where great thrust earthquakes occur with a recurrence interval of about 100 years. The historical record of great earthquakes extends back to 684 AD, and the most recent events occurred in 1944 ($Ms = 7.9$) and 1946 ($Ms = 8.0$). The workshop was attended by over seventy participants from Japan, Canada, France, USA, and Taiwan. Forty oral or poster presentations were made in six sessions including "Plate motions and tectonic stresses", "Paleoseismology", "Observations closer to source region: Borehole and ocean bottom", "Fault zone properties", "Seismic coupling", and "Modeling". The workshop was highlighted by a public lecture to more than four hundred local residents and by a fieldtrip to the Muroto peninsula where features of crustal deformation associated with previous great subduction earthquakes were well preserved.

The papers presented in this special issue covers a variety of subjects regarding subduction processes: forearc tectonics, role of splay faults, tomographic 3-D structure, coseismic slip distribution, elastic and viscoelastic modeling of interseismic deformation and earthquake cycles, and techniques of observing earthquake related crustal deformation. Most papers focus on the Nankai subduction zone and its North American analogue, the Cascadia subduction. Both subduction zones are characterized by the young age of the subduction plate and hence relatively high temperatures in the forearc and slab and along the subduction fault. They share other similarities in terms of subduction zone geometry, relative plate motion, maximum earthquake depth, crustal stresses, and accretionary wedge processes. It is our hope that this special issue will further promote comparative studies of these two subduction zones.

We wish to thank all participants of the workshop for sharing their ideas and research results and the Association for the Development of Earthquake Prediction, Japan, for financially supporting the workshop and preparation of this volume. For various practical reasons, some of the papers initially submitted to this special issue had to be transferred to other regular EPS issues. We wish acknowledge the important contributions made by all the referees. Finally, we thank Terra Scientific Publishing Company for allowing the presentation of this collection of papers in a special issue of Earth, Planets and Space.

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